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## Business Sustainability News

## International

### We can make a greener, more liveable London and expand Heathrow

*London can still become a world-leading green city with a third runway at Heathrow as long as it backs solar roofs, electric cars and a bigger congestion zone*

**Gareth Thomas, MP for Harrow West and a London mayoral candidate for the Labour Party**



The next mayor of London needs to be committed to making our city a better place to live; both more affordable and greener. The high cost of renting, public transport and low wages are one side of the challenge while the need to reduce CO2 emissions, tackle

air pollution and offer new sources of green jobs are the other.

Across the world, many other cities and countries are tackling the challenge with much more speed. London cannot afford to be left behind in this new global competition for more liveable cities.

Top of the incoming mayor's agenda should be a commitment to extend and refine the congestion zone. The scale of air pollution in London is now so severe that urgent action is needed to encourage a switch away from diesel vehicles. We need to use public transport more, which is why I'd cut tube, train and bus fares by 10% on day one of my mayoral term and freeze them for three years – a cut of almost 20% in real terms by 2020.

With London growing by an extra 100,000 people a year, greener transport will be critical to tackling air pollution. Low-emission cars, buses and lorries are increasingly being road tested. Car clubs, the new wave of cycling businesses and the new green crowdsourcing platforms are just a few other examples of businesses the mayor should be encouraging.

The extra revenue raised from an extended congestion zone needs to be invested in electric cars and buses and making cycling safer. That means extending the number of electric car charging points across the city and setting out a plan to make London's buses green. With Formula E – the electric car equivalent of Formula 1 – successfully taking place in London recently, there is a new opportunity to champion a switch to electric cars, reducing pollution dramatically and thereby helping to promote better public health in London.

I'd want to put mayoral support behind the new wave of green living – encouraging new ideas for a London urban park, community gardening and other community co-operation.

The mayor should also follow the example of Toronto and Paris and introduce green roofs law, requiring either a green roof or solar panels on any big developments they are responsible for, to promote biodiversity and lower emissions.

Renewable energy is rarely promoted as a major part of London's future. But the new mayor needs to encourage businesses promoting solar power, energy from waste, district heating and show leadership on energy efficiency.

Transport for London, under my leadership, would publish a strategy for

decarbonising its energy use. With Crossrail and Crossrail 2 on the horizon, TfL is set to become an even bigger user of electricity. It needs to work with London's sustainable businesses to develop new sources of local power that create jobs and apprenticeships for Londoners and help keep more of the money we spend on energy in Londoners' pockets, rather than in the pockets of the big six energy providers.

London has huge untapped potential for generating solar power. I want the solar industry to see London as one of its key hubs – leading the debate in Britain, but increasingly across Europe on how the energy market can be decentralised, opened up to smaller businesses, and where social enterprises and community energy can flourish alongside more traditional businesses.

In the same way that farms rent out their land to wind-farmowners and developers, I want London to offer up its roofs for a new wave of solar businesses. I'd start by identifying TfL and City Hall-owned roofs that could be rented out for community or business solar use. And I'd work with digital businesses to help crowd source the funding for these solar community co-ops and guarantee that TfL would buy up the spare power, if it's generated in London by Londoners or London businesses.

Aviation will dominate the next mayor's liveability inbox with a third runway at Heathrow firmly on the political agenda. It offers the opportunity to accelerate the greening of the aviation world – with lower-emission aircraft given preference, further incentives to new passengers to use public transport and further investment in low-carbon vehicles on the airport and noise insulation.

[<ReadMore>](#)

### United Airlines Will Use Biofuel Made From Food And Animal Waste To Power Flights This Summer

**Source Name: Clean Technica**

Advancements in the biofuel industry are responsible for the latest headlines in aviation news. United Airlines is partnering with California-based Fulcrum Bioenergy to make alternative jet fuel from food scraps, farm waste, and animal fat. United's \$30 million investment into biofuels is a strategic move with potentially big gains.

Fulcrum CEO E. James Macias predicts that the sustainable fuel will lessen United's carbon emissions by 80 percent and cost under \$1 per gallon to produce. And it's no coincidence these changes are underway now. Last month the Environmental Protection Agency (EPA) concluded that airlines' flight emissions pose a "risk to human health." Stricter government regulations may be adopted next year if leaders on both sides can't compromise on a standard of limiting carbon pollution.

While Fulcrum continues building its biofuel refinery scheduled to open in 2017, United will begin testing the first-ever passenger flights powered by all-natural fuel later this summer. The flights will travel from Los Angeles to San Francisco carrying AltAir's biofuel. The tanks will be filled with 30 percent biofuel and 70 percent traditional fuel. If successful, the biofuel then will be blended into the airline's general supply.

As one of United's partners, AltAir Fuels has plans to produce up to 15 million gallons of biofuel for the airline over the next three years. This will be enough to fuel 41,600 flights. The benefits of creating biofuels from organic materials don't stop here. Next, I'll explain how this also is a significant step towards repurposing the tons of wasted food in landfills.

[<Source>](#)

## Beijing's blue-sky potential

Terry F. Yosie, President and CEO World Environment Centre



Shutterstock/Hung Chung Chih

As my plane descended into Beijing's airport after a 14 hour-plus flight from Washington, D.C., the sight of smog-blanketed mountains north and west of the city was a familiar one. Only this was not the most prominent air pollution story in China the week of June 1.

That same day, new anti-smoking regulations took effect that banned smoking in public spaces, including hotels, office buildings, restaurants and schools. Government enforcers already had issued non-compliance notices to targeted facilities, who were subject to a \$1,700 fine.

But most people that I talked with seemed skeptical about enforcement. After all, two previous anti-smoking bans had flopped, and cigarette production is a revenue-raising state-run industry for China's 300 million smokers and the export market.

This was the first of several important paradoxes that I witnessed. The Chinese government has ramped up its participation in the international process to negotiate a climate change agreement by December at the COP 21 meeting in Paris. The top leaders of the Communist Party, including General Secretary Xi Jinping and Prime Minister Le Keqiang, also have been quite public in their support of the negotiations. Xi's trip to Washington later this year to meet with President Barack Obama is expected to provide additional political momentum for the Paris talks.

Parallel to the international negotiations is a process to develop the 13th Five Year Plan in which climate change and sustainability are expected to figure prominently. Towards that end, the Chinese government has been conducting seven regional pilot projects to develop an internal carbon market.

On June 8, the government convened an international advisory meeting to offer recommendations to a draft proposal of the next Five Year Plan. Those invited to provide comments included Achim Steiner from the United Nations; former U.S. Treasury Secretary Henry Paulson; Janez Potocnik, former European commissioner for the environment; Klaus Toepfer, former UNEP director, and Lisa Jackson of Apple.

### The great transition

These are encouraging developments towards implementation of China's already announced climate commitments. But two bigger developments likely will limit China's achievements.

First is the gap between China and the U.S. and Europe in their respective innovation capabilities. Chinese universities graduate many times the number of engineers than do U.S. or European universities, but the quality of their university training is no match for their western counterparts. Nor is an innovation culture strongly embedded in China's private or public sectors. The Chinese are quite skilled at adapting western technologies to serve their own competitive purposes, but they're not in the big leagues of innovation-oriented societies.

Another limiting factor is the difficulty that China has experienced in transitioning to a consumer-led economy. State-owned companies continue to gain access to a large share of capital resources. Meanwhile, on May 15, the State Council ordered a major relaxation of lending criteria for off balance sheet funding to municipal finance companies, whose history is to favor traditional, pork-barrel-style infrastructure projects and real estate investments that also just happen to support the political and economic interests of existing elite groups.

These challenges of managing an economic transition to favor consumers are

also occurring at a time when growth has declined from double-digit levels to about 7 percent annually (or lower, if you believe unofficial reports).

Bottom line: While China's political leadership appears to maintain a high degree of political legitimacy, this is fragile and will continue to depend upon economic growth to improve living standards. While there is progress to report on climate change and other issues (I even saw a blue sky in Beijing one day), the reality is that sustainability significantly trails the commitment to growth rather than reshaping the concept of growth.

In a society facing such large and growing challenges from air pollution, water and soil contamination and the massive human and productivity toll resulting from such conditions, a strategy of economic growth *primus inter pares* will limit rather than expand the options of those guiding China's future.

Or, as one official remarked to me, "We have let our environmental problems run away from us."

[<Source>](#)

## First Solar Desalination Plant Will Serve California Farmers

*SustainableBusiness.com News*

After piloting its **solar desalination** process for two years, California-based WaterFX is about to build its first commercial plant to serve farmers in the Central Valley.

Its subsidiary, HydroRevolution, will use concentrating solar to turn salt water at farms into a sustainable fresh water supply. Rather than taking water from the ocean, the process recycles unusable irrigation drainage water for use by local water districts.

Amazingly, this can turn farmers into water producers rather than consumers! It could make all the difference for California farmers, where an estimated 1 million acre-feet of irrigation drainage water could be reused, according to *Think Progress*.

"The result could mirror what has happened in energy; rather than relying on large-scale, centralized generation, smaller "distributed" projects across the state could free up hundreds of thousands of acre-feet of water through reuse, reducing overall demand on the water grid," says the company.

HydroRevolution will expand the pilot plant, which has been operating since 2013, on 35 acres farmed with salt-tolerant crops.

### How It Works

Its Aqua4™ technology produces heat from huge, parabolic solar reflectors. That heats mineral oil, which flows through a distillation system, evaporating fresh water and condensing brackish water into usable liquid, separating out the minerals.



"Water that dribbles down from nearby hills, and through the soil after being used for irrigation, collects so much salt, selenium, boron and other minerals that it's not fit for human consumption. The solar plant captures the runoff using a French drain-style system 6-8 feet under the

crops, and sends the tainted water through pipes and tanks that heat it," explains the *San Francisco Chronicle*.

The water can be used again for irrigation, and the minerals are so efficiently distilled that they can be processed and sold - selenium and boron for vitamin supplements and gypsum for drywall, for example.

Aqua4 can treat any kind of wastewater, drainage water, runoff, saline groundwater and industrial process water ... all right on site through movable, module units. The resulting fresh water costs \$450 per acre-foot - not much more than farmers typically pay - and about 75% less than conventional desalinated water.

In a unique move, HydroRevolution says it will use crowdsourcing to finance the plant's construction, allowing all California residents to participate as owners.

Another novel, environmentally superior desalination technology is being developed by Voltea, using electric fields to remove salts and dissolved solids from water. The modular devices have been miniaturized to the size of a coffee cup!, the company says. Another technologies uses wind, Wind4Water.

[<Source>](#)



## Enhanced System Offers Significant Cost Advantages for Zero Liquid Discharge

**Source Name: Pollution Solution**

The ZLD.eco2 process sets new standards in lowering the cost of Zero Liquid Discharge (ZLD) systems in terms of both OPEX and CAPEX. The ZLD.eco2 process uses a series of innovative filtration and separation technologies to reduce the subsequent evaporation of residual waste products to a minimum and lower energy requirements. The system's modular design also reduces the plant footprint.

"Aquarion is focused on constantly improving the efficacy and cost-effectiveness of ZLD solutions. Based on the technologies used, we believe that ZLD.eco2 is the lowest cost ZLD system available today," said Karl Michael Millauer, Chief Executive Officer of Aquarion Group.

"The term 'eco' in 'ZLD.eco2' signifies the economic advantages of this system. Moreover, the new ZLD.eco2 represents a significant enhancement over the original ZLD-ECO process introduced by Aquarion last year," he added.

Compared with conventional systems without pre-concentration, ZLD.eco2 requires about 20% less energy. Also, since the evaporation system is smaller, less cooling energy is needed for the condensation process. These savings can amount to as much as 80%. Further savings can be achieved thanks to the modular construction of the system. The savings in terms of staffing are around 20%, while commissioning costs are also lower by 20%. Additionally, the reduced consumption of chemicals consumption is another advantage. Thanks to savings on different levels, investments in ZLD.eco2 have a very short payback period.

At the heart of the system is a new high-pressure reverse osmosis stage that utilizes Circular Disc (CD) Module technology developed by Membran Filtrations Technik (MFT), one of the Aquarion Group's companies. ZLD.eco2 involves a pre-treatment process, which can either be chemical-physical or biological depending on the user, and an ultra-filtration stage to filter out residual organic material, followed by multi-stage membrane technology designed to concentrate non-organic waste material more densely.

After the first two reverse osmosis stages entailing pressures of up to 80 bar, the residual concentrate contains around 20% of the total waste water volume. This is then subjected to a third reverse osmosis stage where pressures of up to 200 bar are reached. This stage uses MFT's CD module through which water takes a circular path, thereby reducing pressure losses.

The high pressure warms the concentrate to approximately 70°C. This is then vaporized in the subsequent low pressure stage, which acts with the membrane technology to form a "hybrid system," giving the concentrate a manageable consistency. The thermal energy is fed back into the system and used to increase energy efficiency. This significantly reduces the energy requirements of the entire system. The volume of waste products still present after the maximum pre-concentration produced by the high-pressure membrane technology is significantly lower than with conventional processes. As a result, the evaporation stage with ZLD.eco2 can be considerably shorter.

The Circular Disc Modules are available from MFT, and ZLD.eco2 systems are available through Hager+Elsaesser (H+E), another Aquarion Group company that has operations around the world.

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## New report estimates enough natural gas is leaking to negate climate benefits

*Natural gas drilling only has environmental benefits over other processes like coal and oil production if producers can keep a tight lid on leaks*

**By Peter Moskowitz**



*A natural gas drilling rig north of Parachute, Colorado. Photograph: Jim Urquhart/Reuters/Corbis*

Natural gas has been touted as an environmentally friendly substitute to coal and oil production, but a new report estimates enough gas is leaking to negate most of the climate benefits of process.

The report, commissioned by the Environmental Defense Fund and carried out by environmental consulting group ICF International, estimated the amount of leaks from natural gas and oil production on federal and tribal land in the US. It also looked at venting and flaring, processes in which drilling sites purposefully let gas go into the atmosphere for a variety of reasons – usually for safety.

The claim that natural gas is environmentally friendly hinges on how much methane leaks into the atmosphere during the production process. But the EDF report adds weight to those who say methane leaks at natural gas sites can make the process nearly or as carbon-intensive as coal.

The EDF found that 65bn cubic feet of natural gas was released into the air on federal and tribal lands in 2013 – amounting to about \$360m of lost gas. That, the EDF says, is not only an economic loss, but an environmental problem. Methane, the main ingredient in natural gas, is 84 times more potent than carbon dioxide over short periods of time and 30 times more potent over the long term.

The leaks are the equivalent to the greenhouse gases produced by 5.6m cars.

Local pollution is also concern, according to the EDF: in Pinedale, Wyoming, emissions from fracking and other drilling operations produced smog levels rivaling inner-city Los Angeles; while in New Mexico, a methane "hot spot" was so large it could be detected by NASA satellites.

The report also has national implications for fracking and other natural gas production. Natural gas drilling only has environmental benefits over other processes like coal and oil production if producers can keep a tight lid on leaks, and previous studies have suggested that enough gas is leaking across the country to negate most of those impacts.

Scientists generally agree that within the entire production process – from drilling, to transportation through pipelines, to distribution – no more than 3% of the gas can leak for the country to see a net benefit over dirtier energy production technologies.

According to Hugh MacMillan, a senior researcher at nonprofit Food and Water Watch, the EDF's numbers suggest that about 2.2% of the gas produced on federal and tribal lands is leaking – though that's only at the drilling site. Leaks during the transportation process could push the total amount over 3%, but even at that level MacMillan said the benefits of natural gas production are negligible.

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## Dutch government ordered to cut carbon emissions in landmark ruling

*Dutch court orders state to reduce emissions by 25% within five years to protect its citizens from climate change in world's first climate liability suit*

By Arthur Neslen *The Hague*

A court in The Hague has ordered the Dutch government to cut its emissions by at least 25% within five years, in a landmark ruling expected to cause ripples around the world.

To cheers and hoots from climate campaigners in court, three judges ruled that government plans to cut emissions by just 14-17% compared to 1990 levels by 2020 were unlawful, given the scale of the threat posed by climate change.



*Urgenda supporters celebrate at The Hague after court ruling requiring Dutch government to slash emissions. Photograph: Chantal Bekker/Urgenda*

Jubilant campaigners said that governments preparing for the Paris climate summit later this year would now need to look over their shoulders for civil rights era-style legal challenges where emissions-cutting pledges are inadequate.

"Before this judgement, the only legal obligations on states were those they agreed among themselves in international treaties," said Dennis van Berkel, legal counsel for Urgenda, the group that brought the suit.

"This is the first a time a court has determined that states have an independent legal obligation towards their citizens. That must inform the reduction commitments in Paris because if it doesn't, they can expect pressure from courts in their own jurisdictions."

In what was the first climate liability suit brought under human rights and tort law, Judge Hans Hofhuis told the court that the threat posed by global warming was severe and acknowledged by the Dutch government in international pacts.

"The state should not hide behind the argument that the solution to the global climate problem does not depend solely on Dutch efforts," the judges' ruling said. "Any reduction of emissions contributes to the prevention of dangerous climate change and as a developed country the Netherlands should take the lead in this."

After a legal campaign that took two and a half years to get to its first hearing in April, normally dispassionate lawyers were visibly moved by the judge's words. "As the verdict was being read out, I actually had tears in my eyes," Roger Cox, Urgenda's lead advocate, told the Guardian. "It was an emotional moment."

Young activists in court said that the ruling had gone some way to restoring Dutch national pride, which has been dented as Denmark, Germany and even the UK overtook the Netherlands, once seen as a European climate leader, in the green economy race.

The Dutch Socialist party MP Eric Smaling cautioned though that "some people will feel proud but others are more unhappy about the influx of refugees. So far climate action has too much been the last baby of a relatively leftist elite." He called for a wide coalition to spread the climate action message before elections in early 2017.

The Dutch government has not decided whether to appeal the court's decision yet, but opposition politicians are steeling themselves for the prospect.

Stientje Van Veldhoven, an MP and spokesperson for the D66 Liberal opposition in parliament noted that the government had yielded to a comparable, if more limited, ruling ending gas extraction in part of the giant Groningen gas fields earlier this year.

"The government has never ignored a court ruling like this one before, but there has never been a ruling like this before either," she said. "Everybody has a right to appeal." Veldhoven has requested a parliamentary debate on Wednesday's court ruling.

In a statement on behalf of prime minister Mark Rutte's cabinet, the Dutch environment minister Wilma Mansfeld said that the government's strategy was to implement EU-wide and international agreements.

"We and Urgenda share the same goal," Mansfeld said. "We just hold different opinions regarding the manner in which to attain this goal. We will now examine what this ruling means for the Dutch state."

Some 886 plaintiffs organised by Urgenda had accused the Dutch government of negligence for "knowingly contributing" to a breach of the 2C maximum target for global warming.

Their legal arguments rested on axioms forbidding states from polluting to the extent that they damage other states, and the EU's 'precautionary principle' which prohibits actions that carry unknown but potentially severe risks.

A UN climate secretariat article obliging states to do whatever is necessary to prevent dangerous climate change was also cited. So was the UN climate science panel's 2007 assessment of the reductions in carbon dioxide needed to have a 50% chance of containing global warming to 2C.

[<ReadMore>](#)

## Tips:

Congratulations! We just celebrated 68<sup>th</sup> anniversary of our independence on 15<sup>th</sup> of August. We fought great fight for freedom from British colonial rule and ultimately got independence. However now we have to fight another fight to free, not only our country but entire world from pollution and climate change. But to win this battle we would have to do a lot at every level from government to each individual living on earth. As individual we will have to modify our lifestyle, habits and attitude. We have been providing few tips every month in this newsletter, once again we wish to remind of some tips with a humble request to please include these in your lifestyle and make this world more sustainable.

1. Automobiles are one of the major sources of air pollution. Therefore it is required that the automobiles are maintained properly, servicing of vehicles should be done as recommended by manufacturer and driving of vehicle should also be proper.
2. No waste or garbage should be burnt in open rather the same should be segregated and put in appropriate dust bins i.e. biodegradable, recyclable and hazardous waste etc and disposed at points where municipal corporations have provided facilities to collect garbage.
3. Wherever MRTS (Mass Rapid Transport System) is available we must use it rather than driving individual vehicles.
4. People commuting to go office should pool their vehicles thus reduce number of vehicles on road and thereby reduce pollution.
5. Public transport should be used unless it is required to drive your own vehicle.
6. Do not establish any factory that emits smoke and produces waste that smells foul in a populated area.
7. Please do not smoke, if at all you smoke avoid smoking indoors or at public places.
8. If there is provision of school bus do not go to drop or pickup your children or grandchildren from school.
9. Whenever possible ride your bicycle instead of fossil fuel run two-wheeler or four-wheeler.
10. Reduce use of Aerosol in perfume, deodorant and other domestic products at home.
11. Ensure to check your vehicle periodically at regular intervals and keep pollution level of your vehicle within permissible limits.



## How a tiny diesel-powered island is becoming a U.S. wind hub

By Laurie Guevara-Stone



Shutterstock/Mona Makela

Block Island, located 13 miles off the coast of Rhode Island, is becoming a proving ground for offshore wind technology in the U.S.

Located just 13 miles off the coast of Rhode Island, and just 14 miles east of Long Island's Montauk Point, Block Island (pop. ~1,000) has been called one of the last great places in the Western Hemisphere.

The island boasts 17 miles of beaches, 365 freshwater ponds, 250-foot bluffs and 150 bird species. Now the island is about to become well known for another reason — it soon will be home to the first offshore wind farm in the United States.

### The high price of island living

So many people want to enjoy the beauty of Block Island, the population rises from 1,000 year-round residents to 15,000–20,000 people in the summer. However, the beauty and seclusion come at a price.

Residents pay some of the highest electricity retail prices in the nation, up to \$0.50 per kWh in the summer months.

Block Island Power Company (BIPCo) provides electricity to the island's residents with diesel — about 1 million gallons (PDF) each year — which is shipped to the island by boat. And electrical retail prices fluctuate depending on the price of that diesel (for example, in the past year prices ranged from \$0.37 to \$0.58 per kWh, while folks on mainland Rhode Island pay an average \$0.14).



Deepwater Wind

A rendering of the offshore wind farm planned for Block Island.

In March, Deepwater Wind secured financing for its planned 30-megawatt, 5-turbine wind farm to be built 3 miles off the Block Island coast. The wind farm will generate an estimated 125,000 megawatt-hours per year, more than enough power for island residents, with the excess being exported to Rhode Island.

The economics are one of the main reasons wind was chosen.

"Block Island [had a lot of choices \(PDF\)](#) to get off of the expensive imported diesel. They could have switched to propane gensets or compressed natural gas," said Chris Burgess, operations manager for the Ten Island Challenge, a program of Rocky Mountain Institute and Carbon War Room. "But they decided to go with renewables for a couple of reasons. One, it met the island's ethical code of wanting to protect the environment, and two, it's cost effective."

To wit, Deepwater is predicted to reduce residents' utility bills by 40 percent and lower carbon dioxide emissions by 40,000 tons annually.

Connecting to the mainland grid

Deepwater Wind will be selling its electricity through a power purchase agreement (PPA) to National Grid, an international company based in the U.K. and the U.S. Northeast with 3.4 million customers in Massachusetts, New York and Rhode Island.

BIPCo will continue to own and operate the electricity infrastructure on the island but will buy the wind power from National Grid for its customers. The

wind power will flow directly from the wind farm to the island, and then — as Block Island uses only 1 MW of power during off-season and 4 MW of power during their summer peak season — the excess power (90 percent of the power produced) will be sent to National Grid's mainland customers on Rhode Island.

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## Obama Does It Again: Nationwide Community Solar For All

*SustainableBusiness.com News*

Right after July 4, President Obama issued a raft of executive orders to celebrate America's independence - this time from fossil fuels.

Building on the great success of solar in our country, he issued directives that make solar much more available to middle and lower-income households.

For people who live in federally-subsidized low income housing, he tripled the goal to 300 megawatts by 2020 (there is 185 MW now, exceeding his original 100 MW goal).

Key Initiatives:

- Affordable housing organizations will get direct technical assistance from the Department of Housing and Urban Development (HUD), and states will be encouraged to use Community Development Block Grants for efficiency and solar projects.

In response, public housing authorities and affordable housing providers across the country have committed to installing renewable energy on their facilities. NYC, for example, is about to get a \$100 million energy efficiency lift - the largest ever for public housing.

- Homeowners who get mortgages through the Federal Housing Administration will have flexible financing options for solar systems, and will be able to borrow up to \$25,000 for efficiency upgrades and solar on second mortgages.

- National Community Solar Partnership:** The Department of Energy (DOE), HUD, USDA and EPA will work with solar companies, NGOs, local communities and states to bring solar to renters and homeowners whose roof doesn't allow for solar (half of US homes).

260 projects in over 20 states are already moving forward, such as: Nonprofit RE-volv's goal is to finance 200 community solar projects in the next three years through a revolving solar fund; 30 rural electric coops in 17 states will install community solar by the end of next year; Clean Energy Collective is developing the first projects in Texas - big ones at 900 kilowatts and 1.2 MW; and utility NRG Energy's in Massachusetts will be 1 MW. Hawaii, California, Vermont and other states are committed to advancing community solar, some focused specifically on low-income families.

- Philanthropic and impact investors, states, and cities have pledged \$520 million to advance community solar and to scale solar and energy efficiency for low- and moderate- income households. Clean Energy Collective, for example, raised over \$400 million to bring community solar nationwide!



*Bringing solar to families that can't afford electricity & heat, a great use of public funds:*

- Piggybacking on a recent announcement to train 75,000 people for solar jobs by 2020, and the "Solar Ready Vets Program," the White House also announced initiatives to bring solar jobs to low-income communities.

Read about last year's directive on efficiency and renewable energy, and White House Mobilizes \$4 Billion in Long-Term Renewable Energy Investments.

[<Source>](#)

## This startup bets e-scooters can give urban power grids a makeover

By Heather Clancy, Senior writer, GreenBiz



The "energy network" behind Gogoro's electric scooter could serve demand response and commercial applications.

Electrified scooters, bicycles and motorcycles are still a tough sell in North America. But it's another matter entirely in urban economies across Asia, India and China, where the technology could play a big role in reshaping the power grid.

Scooters already are widely used in these countries. Now, the trick is convincing citizens to

opt for a greener option.

Over the next decade, an estimated 55 million e-scooters and motorcycles could find their way onto roads, according to a recent forecast by Navigant Research. That's about 6 million annually.

China is by far the biggest market this year, with about 96 percent share from a unit shipment standpoint. By 2024, however, its portion will shrink to around 77 percent as other emerging economies invest.

"Although purchase prices remain relatively high and the availability of vehicles is limited in some regions, e-motorcycles and e-scooters offer an affordable, efficient mode of personal transport for motorists, particularly in booming cities of the developing world," said Navigant Research analyst Ryan Citron, in a statement.

That's where entrepreneurial startups such as Gogoro come in.

### Hitting the market

The company, which raised \$150 million in venture backing before discussing its vision publicly, is testing its technology in Taiwan's Taipei City.

At about \$4,140, the Smartscooter is pricier than gasoline-powered alternatives. However, government subsidies will defray the cost.

Gogoro's scooters use swappable batteries, so people don't have to sit around and wait through a charging cycle. Rather, they can stop and handle a quick switch. Spares will be available at depots around cities — a concept that the company dubbed the Gogoro Energy Network.

Still, battery swapping isn't necessarily a slam dunk in the quest to mainstream electric vehicles. Pioneers in electrified transportation, such as Elon Musk, recently have expressed concern about the model, and Israel's now-defunct Better Place also has rocked the market in the past.

Aside from its obvious short-term purpose, Gogoro's founder, former Microsoft and HTC executive Horace Luke, believes the network will be useful for demand response applications and as a backup power sources for businesses.

"We are not a transportation company. We are not even an energy company," he said. "But transportation is the majority of what people consume today in terms of energy."

The idea, Luke said, is to help cities grow more quickly in a "cleaner way."

Taipei is testing the concept as part of its "Living Lab Project," which is also experimenting with telemedicine applications and remote learning services. The idea (eventually) is to install charging depots so they are more prevalent than gas stations.

"We want to take the No. 1 thing that is generating the most amount of pollution in China and the greater part of Asia and apply a sustainable, flexible energy source," Luke said.

When I spoke with the company in the spring, it had fielded more than 200 serious inquiries since its debut at the Consumer Electronics Show in January — from cities in South Africa, the Bahamas, Bermuda and the United States. This year, however, Gogoro will focus on ensuring that Taipei's rollout is a success.

The concept of creating community resources for electric vehicles is also espoused by Volta Industries, a San Francisco startup that is building a network of charging stations in five major U.S. cities. The focus is on electric vehicles of the four-wheeled variety.

[<ReadMore>](#)

## World Emissions Can - and Must - Peak By 2020

SustainableBusiness.com News

The fact that China's emissions are expected to peak around 2029 is very scary because we don't have that long to wait.

But the International Energy Agency (IEA) has better news: worldwide, energy-related emissions could peak in 2020 - and at zero net economic cost.

This is probably the most important reason the US and EU need to lead. Not only are we responsible for historical emissions, but we have the ability to quickly lower them. We don't have time to wait for China and India, we must act now to cut global emissions, and let them follow.

Emissions from energy are double all other sources combined, says IEA.

"As IEA analysis has repeatedly shown, the cost and difficulty of mitigating greenhouse gas emissions increases every year, and time is of the essence," says Maria van der Hoeven, Executive Director of IEA. "While we see growing consensus among countries that it is time to act, we must ensure that the steps taken are adequate and that the commitments made are kept."

The steps IEA recommends are:

1. **Peak in emissions:** set the conditions to achieve an early peak in global energy-related emissions.
2. **Five-year revision:** review national climate targets regularly, to raise ambitions.
3. **Lock in the vision:** translate the world's climate goal into a collective long-term emissions goal.
4. **Track the transition:** establish a process for tracking achievements in the energy sector.
5. **How to Get to Peak Emissions By 2020**

This milestone can be met using only proven technologies and policies, and without affecting economic prospects of any region.

Here's what IEA recommends:

- Increase *energy efficiency* in industry, buildings and transport sectors
- Reduce the use of the *least-efficient coal-fired power plants* and ban all new construction
- Increase investments in *renewable energy for electricity* from \$270 billion in 2014 to \$400 billion in 2030
- Phase out *fossil-fuel subsidies* by 2030
- Reduce *methane emissions* in oil and gas production

We certainly have the ability to implement this list and are on the path for energy efficiency and coal plants. Rather than cutting investments in renewable energy, while continuing fossil subsidies, like the GOP would have us do, we need to do the opposite. The EPA is about to issue rules for controlling methane emissions, and industry needs to get on with that asap.

"If the world wants to avoid a temperature increase of 5 or 6 degrees Celsius by the end of the century, then ambitious programmes of energy efficiency have to be launched in all sectors and in all countries," says van der Hoeven.

### Lock In the Vision

The goal of keeping long-term average global temperatures below 2 °C should be expressed as **along-term greenhouse-gas emissions target**, which can be more easily measured. This would guide investment decisions, spur

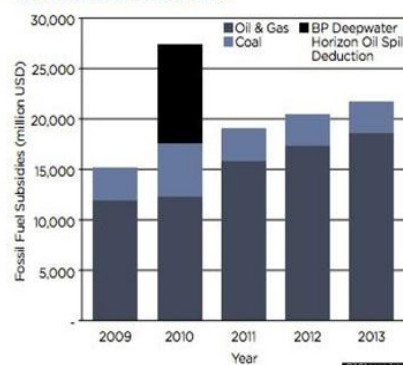
innovative technologies, drive needed market reforms and strong domestic policies, such as carbon pricing - all of which are necessary to meet the 2 °C goal, says IEA.

So far, countries' climate targets are inadequate because, taken collectively, emissions will slow, but keep rising until 2030. Last year, for the first time, emissions stayed flat even with economic growth of 3%. This shows we are on the right track, but we need to double the pace, says IEA.

The typically conservative IEA has urged governments to stop subsidizing fossil fuels and to instead subsidize renewable energy to stabilize the earth's climate. With a price on carbon, solar can provide a third of the world's energy by 2060.

[<Source>](#)

Figure 1. U.S. Federal and State Fossil Fuel Exploration and Production Subsidies, by Fuel\*





## Arctic sea ice volume showed strong recovery in 2013

Cooler temperatures revived sea ice levels suggesting a rapid recovery was possible if global warming was curbed, scientists say

By Damian Carrington

Ice in the Arctic staged a surprise revival in 2013, bucking the long-term trend



Fog blankets melting sea ice in Hurd Channel near Vansittart Island's Cape Shackleton, south of Arctic Circle, Nunavut, Canada. Photograph: Paul Souders/Corbis

of decline, according to the first analysis of the entire ice cap's volume. The revival was the result of cooler temperatures that year and suggests that, if global warming was curbed, the Arctic might recover more rapidly than previously thought.

The shrinking Arctic ice cap is one of the best known

impacts of climate change. The indication that it could be reversible is rare good news for a region where climate change has driven up temperatures far faster than the global average.

The extent of Arctic ice has shrunk by 40% since the late 1970s, when satellite measurements began. But getting comprehensive data on the thickness of the ice, rather than just its area, was difficult until the European Space Agency launched the Cryosat satellite in 2010.

The satellite's 88 million measurements, analysed



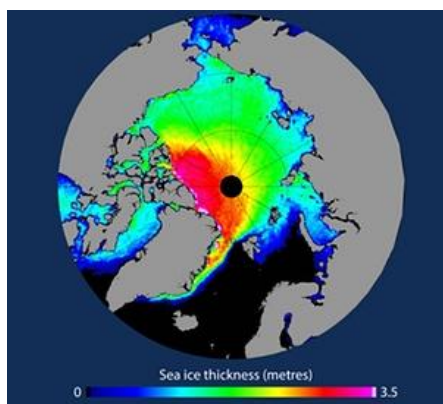
Arctic sea ice extent hits record low for winter maximum

in Nature Geoscience, show that from 2010-12 the Arctic ice volume fell by 14%, in step with the warming trend of the last few decades. But in 2013, the ice volume jumped up by 41%.

"It's fair to say that none of us were really expecting that," said Rachel Tilling, at University College London and who led the study. But she dismissed the idea of a wider recovery of the ice cap, saying that climate change is still driving average temperatures up, despite significant variation from one year to the next. "It was a cold year – that happens."

In fact, while colder than recent years, the temperature in 2013 would have been regarded as normal as recently as the late 1990s. "This allowed thick sea ice to persist northwest of Greenland because there were fewer days when it could melt," said Tilling.

The research is significant as it shows the Arctic ice cap may be more resilient than expected. Tilling said: "You see Arctic sea ice as dwindling and in decline, but then there is a cold year and you get some of the ice back. It shows there is hope for Arctic sea ice, if you can turn the clock back to colder temperatures, which would need huge reductions in carbon emissions."



Average thickness of Arctic sea ice in spring as measured by CryoSat-2 between 2010 and 2015. Photograph: CPOM/ESA

[<ReadMore>](#)

## Boeing Developing Sustainable Aviation Fuels For 2020 Olympics in Japan

By Mike Hower, Sustainable Brands



Image Credit: Flickr, Patrick Cardinal

Boeing and Japanese aviation industry stakeholders have partnered to develop sustainable aviation biofuel for flights during the 2020 Olympic and Paralympic Games in Tokyo, when millions of people are expected to visit Japan.

The Initiatives for Next

Generation Aviation Fuels (INAF) — a consortium of 46 organizations including Boeing, ANA (All Nippon Airways), Japan Airlines, Nippon Cargo Airlines, Japan's government and the University of Tokyo — laid out a five-year "roadmap" to develop biofuel by 2020 as a way to reduce aviation's environmental footprint.

Using sustainably-produced biofuel reduces lifecycle carbon dioxide emissions by 50 to 80 percent compared to conventional petroleum fuel, according to the U.S. Department of Energy.

The roadmap concludes that industry, government and academia in Japan need to collaborate to promote the introduction of sustainable aviation biofuel to support Japan's energy security and reduce aviation's greenhouse gas emissions. Potential feedstocks, or biologically based sources, that could be used to produce sustainable aviation biofuel in Japan include municipal solid waste, plant oils and animal fats, used cooking oil, algae, cellulosic biomass and residues from the wood products industry. Policy incentives promoting the introduction of next-generation aviation fuels are a prerequisite to success in aviation biofuel use.

INAF was created in May 2014 with the aim of establishing a supply chain for next-generation aviation fuels in Japan. Its roadmap process assessed the entire biofuel supply chain, including procurement of raw materials, production of sustainable aviation fuel, blending biofuel with conventional petroleum jet fuel and how biofuel will be incorporated into an airport's fueling infrastructure.

Late last year, Boeing carried out the world's first flight using "green diesel," a widely available sustainable biofuel already used in ground transportation. The company powered its ecoDemonstrator 787 flight test airplane on Tuesday with a blend of 15 percent green diesel and 85 percent petroleum jet fuel in the left engine.

Green diesel is among more than 25 new technologies being tested by Boeing's ecoDemonstrator Program aboard 787 Dreamliner ZA004. The program accelerates the testing, refinement, and use of new technologies and methods that can improve aviation's environmental performance.

[<ReadMore>](#)

## An Airport that runs on 100 per cent RE

Source Name: Energy Next

Baltra Airport of the Galapagos Islands in Ecuador, is now running on 100 per cent renewable energy, ever since it re-opened after the renovation. The airport had earlier been acclaimed as well for its green initiatives. The airport now constitutes of 80 per cent recycled material from the earlier infrastructure.

Galapagos Islands, over time have acquired a reputation among tourists travelling across the South America's west coast. Due to increase in tourism, the Islands had been facing challenges in preserving its local habitat and marine life. The initiative by the government to run the airport singularly through solar and wind energy is an effort to preserve the local eco-system and has been appreciated by the environmentalists.

The efforts put by the authority to conserve the archipelago's environment had resulted, in 2010, its removal from UNESCO's list of world heritage in Danger.

The Galapagos Islands have been rated among the top 10 island destinations in the world by travel magazines like 'Travel Leisure'. The islands are popular for their heritage. It is also the place where Charles Darwin wrote his popular evolution theory. Due to over fishing and unbridled tourism the destination was looked down upon by environmentalists.

Airport manager Jorge Rocillo in a statement informed that it is a sustainable public building that can balance technology and comfort for passengers without polluting the environment. He added that this is basically the legacy we want to give.

[<Source>](#)

## Can Silicon Valley sell big business on climate action?

By Lauren Hepler, Associate Editor GreenBiz Group

In February, Apple announced a massive \$848 million solar deal as part of a pursuit to power its operations with 100 percent renewable energy. Google, Facebook and Salesforce have all made their own 100 percent renewable energy commitments.

Even notorious sustainability laggard Amazon is taking action on its goal of powering its hulking cloud computing division with clean energy.

The question now: if and how the tech industry's highly visible — and once seemingly far-fetched — clean energy goals might make a bigger imprint on other industries during a crucial year for climate politics.

"At least 11 big IT companies have committed to 100 percent renewables," said Ryan Schuchard, associate director of climate change for nonprofit sustainability membership group BSR. "(Tech) has one of the best levers of any sector to move on renewables."

The timing of the remarks of Schuchard and others from tech companies like Hewlett-Packard and EMC about the industry's burgeoning potential to lead on sustainability was no accident.

Many local firms were gathered on Thursday at the sprawling headquarters of Oracle to mark the annual Energy and Sustainability Summit organized by business advocacy organization the Silicon Valley Leadership Group. But the context and urgency surrounding this year's meeting of the Valley's sustainability minds was distinctly different.

With the COP 21 United Nations climate conference set for December in Paris, debate is already building about the feasibility of large-scale international action, like a carbon tax on companies' emissions. Recent news events add to the case for optimists; the Pope's strongly-worded climate encyclical followed a White House announcement that \$4 billion in private capital has been raised to fund new clean energy development.

Though businesses have been invited to participate at COP, and several parallel corporate events are slated to occur in Paris, public leadership efforts on the part of specific companies and industries largely have yet to materialize.

That begs the question of whether big-name Silicon Valley tech companies emulated the world over for their approaches to product innovation — and their unprecedented wealth — might be uniquely positioned to jump into the fray on the road to Paris.

Companies like Apple might do well to illustrate the financial case for proactive climate action, since CEO Tim Cook has already spoken candidly about the long-term energy cost predictability offered by renewable energy and unmatched by increasingly volatile fossil fuels.

"They said, 'This makes business sense. We're changing energy prices at wholesale,'" Schuchard explained.

Where are the COP crusaders?

First thing's first. Apple, with its \$735 billion market cap, isn't exactly your average, relatable company.

In addition to large tech firms being notoriously cash rich — particularly software firms relatively light on material assets — there remains much to be determined when it comes to how aggressive sustainability goals being set

within the industry might actually play out.

Greg Dalton, vice president of San Francisco's nonprofit Commonwealth Club, at one point on Thursday asked how "squishy" or time-constrained 100 percent renewable goals really are.

"The terms of all of those goals are aspirational," Schuchard said, but noted that recent large-scale renewable energy purchases help bolster the pursuit of those objectives.

Though high tech companies are increasingly visible as sensors, software and other gadgets seep into even old-school industries, there are examples of individual businesses in other sectors that have made similarly ambitious commitments.

Unilever, Mars, Nestle, H&M and Ikea have all signed on to 100 percent renewable energy goals through CDP, positioning them as other potential leaders heading into COP.

City and state governments, too, are expected to have an amplified voice when the UN meeting convenes at the end of the year.

California, much like its signature tech industry, is one entity that climate action advocates say could bolster the economic case for more stringent government policies.

The state, the world's seventh-biggest economy when measured against entire countries, aims to source 50 percent of its power from renewable sources, increase building efficiency 50 percent and cut emissions 50 percent by 2030.

"We as governments have to push the laggards," said Hilary Firestone, senior project manager specializing in building efficiency in the Los Angeles Mayor's Office of Sustainability. "This is where regulations can help to achieve some of these goals... to raise the baseline."

### Staking out a strategy

When it comes to leadership on climate issues, there is also wide variation in the type of environmental commitments that companies are willing to make.

EMC, for instance, has opted to place an emphasis on materiality assessments and dramatically increasing energy efficiency while also growing its operation, Chief Sustainability Officer Kathrin Winkler said at the event on Thursday.

[<ReadMore>](#)

## What's Pushing Us Toward Greater Energy Efficiency?

### SustainableBusiness.com News

Curious about which policies produce the greatest energy efficiency?

According to the American Council for an Energy Efficient Economy (ACEEE), here's how it works out for 2014 (in quads).

1	Fuel economy standards for vehicles	7.3
2	Appliance & Equipment efficiency standards	5.3
3	Energy Star-rated appliances & homes	3.8*
4	Utility energy efficiency programs	1.8
5	Building codes	1.1
6	Federal R&D	1.0
7	Energy Service Companies	0.5
8	Federal tax incentives	0.3

Note: "Quads" is short for quadrillion Btu - the US uses about 100 quads a year. ENERGY STAR savings are from 2013.

With President Obama's landmark fuel economy increases just entering full force, these savings will grow substantially in coming years. Over 50 appliances and industrial equipment have benefited from efficiency standards.

[Read more details here.](#)

ACEEE estimates that efficiency measures implemented over the last 35 years have cut US energy demand by about 58 quads.

There are still abundant, cost-effective opportunities that can bring down energy use another 40-60% by 2050. To get there, we must harness and transform markets, make efficiency a key strategy for utilities and expand local, state and federal policy support.

[<Source>](#)



A panel discussion at the Silicon Valley Leadership Group's June 25 sustainability summit. From left to right: Greg Dalton, The Commonwealth Club; Kathrin Winkler, EMC; Christopher Wellise, HP; Ryan Schuchard, BSR; Sara Law, CDP



## The self-healing concrete that can fix its own cracks

*The green technology embeds self-activating bacteria into concrete to make it self-healing, but will it win over a risk-averse construction industry?*

By Rosie Spinks



Hendrik Jonkers, a microbiologist at Delft University, with his 'self-healing' concrete. Photograph: European Patent Office

Of all the carbon emitters that surround us every day it's easy to overlook one of the most ubiquitous: concrete.

The material that builds our buildings, paves our roads and spans our bridges is the most widely produced and consumed material on earth apart from water, according to a WBCSD report. By 2030, urban growth in China and India will place global cement output at 5bn metric tons per year, with current output already responsible for 8% of the global emissions total, according to a WWF report.

Although its environmental impact is far from benign, concrete – defined as the mixture of aggregates, water and the hydraulic powder material known as cement – is incredibly useful and widely applicable. Thanks to its durability, easily-sourced raw materials and thermal resistance, it is unlikely that an alternative building material will replace it on a large scale any time soon.

Hendrik Jonkers, a microbiologist at Delft University and a finalist at the recent [10th annual European Inventor Awards](#), has a plan to increase the lifespan of concrete. His innovation, which embeds self-activating limestone-producing bacteria into building material, is designed to decrease the amount of new concrete produced and lower maintenance and repair costs for city officials, building owners and homeowners.

Jonkers' self-healing concrete marries two fields: civil engineering and marine biology.

"One of my colleagues, a civil engineer with no knowledge of microbiology, read about applying limestone-producing bacteria to monuments [to preserve them]," Jonkers said. "He asked me: 'Is it possible for buildings?' Then my task was to find the right bacteria that could not only survive being mixed into concrete, but also actively start a self healing process."

When it comes to Jonkers' concrete, water is both the problem and the catalyst that activates the solution. Bacteria (*Bacillus pseudofirmus* or *Sporosarcina pasteurii*) are mixed and distributed evenly throughout the concrete, but can lie dormant for up to 200 years as long as there is food in the form of particles. It is only with the arrival of concrete's nemesis itself – rainwater or atmospheric moisture seeping into cracks – that the bacteria starts to produce the limestone that eventually repairs the cracks. It's a similar process to that carried out by osteoplast cells in our body which make bones.

Healing these cracks the old-fashioned way is no small expense. According to HealCON, the project working on the self-healing concrete, annual maintenance cost for bridges, tunnels and other essential infrastructure in the EU reaches €6bn (£4.2bn) a year.

The invention comes in three forms: a spray that can be applied to existing construction for small cracks that need repairing, a repair mortar for structural repair of large damage and self-healing concrete itself, which can be mixed in quantities as needed. While the spray is commercially available, the latter two are currently in field tests. One application that Jonkers predicts will be widely useful for urban planners is highway infrastructure, where the use of de-icing salts is notoriously detrimental to concrete-paved roads.

[<ReadMore>](#)

## Curry on cooking: how long will the UK's adopted national dish survive?

*With immigration policies hitting new chefs, and social mobility among second-generation Indians and Bangladeshis, Britain's curryhouses are in trouble*

It's Monday lunchtime on Brick Lane, east London, and Mohammad Salim's curry house is empty, save for a single waiter and pair of diners in the corner.



A curry dish at the annual Brick Lane Curry Festival. The demand for curry is there, but skilled chefs are hard to find. Photograph: Carl de Souza/AFP/Getty

"Everyone is suffering for staff," he says, pointing to the restaurants on either side of his. "Everyone."

Salim's restaurant, which he has owned for 15 years, is one of thousands comprising the £3.6bn Indian restaurant industry in Britain. It is a quirk of colonialism, globalisation, and modernisation that a curry has become as synonymous with British culinary culture as fish and chips.

But in Conservative Britain – where the attitude toward migrants is becoming increasingly and explicitly – this culinary mainstay is in sharp decline not due to lack of demand, but to a lack of skilled chefs.

Enam Ali MBE, a Bangladeshi businessman, award-winning restaurant owner and founder of the British Curry Awards, says several factors are contributing to the crisis. Attitudes towards restaurant work have shifted among second-generation Indians and Bangladeshis, who are enjoying the social mobility and opportunity their parents worked hard to provide. Meanwhile, immigration policy changes have made it more difficult to source skilled workers from abroad, resulting in a paucity of chefs with the culinary skills to run an Indian-style kitchen.

"Almost all Indian restaurant owners across the country will tell you they are doing their hard work so their children can be graduates; our new generation are not interested in working in restaurants because they are going to be barristers, lawyers, and professionals," Ali says. "Before 2012, we were able to bring new chefs from India, but now most of the good chefs here are already hired, potential is used up, and lots of restaurants are closing because they cannot continue without new hires."

The situation has worsened recently, thanks to a yearly salary minimum of £35,000 applied to tier 2 migrants, or skilled workers with a job offer in the UK, coming into effect April 2016. Ali said that even though the occupation of chef falls under the government's "shortage occupation list" – giving it a slightly lower minimum salary threshold of £29,570 – further stipulations state that if a restaurant offers any takeaway service whatsoever, the exemption is nullified.

"At my restaurant, we are a sit-down establishment plus a takeaway," Ali says. "And 99% of all Indian restaurants have a takeaway facility – it's the business model that has been used for 50 to 60 years. Our restaurants can't sustain themselves financially without that."

Salim adds that increasingly frequent immigration raids looking for illegal workers in Indian restaurants scare off customers and hurt business, even if an establishment has complied with all hiring laws.

So if restaurant-owners can't bring workers over from Asia, and their children don't want to work in these establishments, why don't they just hire from within UK? Not possible, says Salim, who struggles even to find workers from the local job centre to fill entry-level service positions, let alone those with the detailed knowledge of Indian cuisine necessary to fill a chef's role.

"You can't find a English person willing to work in an Indian restaurant. It doesn't suit. They have to start from kitchen porter, stage one, so English people don't come knocking on our door for a job," he says. "The language and cultural norms would be difficult too, as some of our chefs don't speak English. Only eastern Europeans are interested."

The situation Salim describes reflects one of the great paradoxes of the immigration debate in the UK. Despite the perception that foreigners are taking jobs from British-born citizens, the roles migrants fill are often unwanted by British nationals. A 2014 report from the Home Office's Migration Advisory Committee, (which was not available for comment) – states that "most studies find no association between migration and unemployment". In addition, employers polled by the committee reported that "many migrants have a superior work ethic to British workers" and "are more flexible than UK-born workers, eg much more likely to do shift work" – something synonymous with restaurant jobs.

[<ReadMore>](#)

## Hillary Clinton Details How US Will Become World's Clean Energy Superpower

*SustainableBusiness.com News*

If you haven't heard by now, Hillary Clinton released part of her plan to address climate change this week.

Saying it would be a major plank of her presidency, she called out Republicans for denying and preventing action on this most serious threat. "You don't have to be a scientist to take on this urgent challenge that threatens us all. You just have to be willing to act."

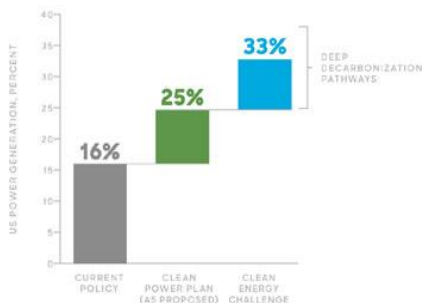
It's great to hear she wants the US to be "the world's clean energy superpower." Within 10 years of Clinton entering office there will be "enough renewable energy to power every American home."

Her goals:

- 33% of US electricity comes from renewable energy by 2027, significantly raising Obama's goal of 20% by 2030.
- Install 500 million solar panels by 2020 - a seven-fold increase - that brings US capacity to 140 GW, and powering over 25 million homes.
- Add more power to the grid than anytime in our history, from all forms of renewable energy.
- Support EPA's Clean Power Plan
- Fossil fuel production must be safe and responsible, taxpayers must get a fair deal for development on public lands, and sensitive areas should be closed to drilling.
- Move our economy toward "deep" decarbonization by 2050
- Help people in coal country who lose their jobs from Clean Power Plan policies.
- Renew our shared commitment to preserving our disappearing lands, waters, and wildlife.
- Meet our international climate agreements

### Goal 2: All Renewables

Share of total US power generation, ten years after Hillary takes office



While EPA's Clean Power Plan will drive down US emissions, to achieve that much more solar capacity would require specific policy support by Congress, which it has thus far been unwilling to provide.

To expand renewable energy that much will cost about \$60 billion over 10 years, she says, which would be paid for by ending some subsidies for fossil fuel producers. "We'll stop the giveaways to big oil companies and extend, instead, tax incentives for

clean energy, while making them more cost-effective for both taxpayers and producers," she says.

On issues on the ground, she's keeping quiet, however. She says she "has doubts" and "is skeptical" about oil drilling in the Arctic, and won't voice an opinion on fracking or the Keystone pipeline. If you remember, as Secretary of State, she preceded over the two corrupt, biased environmental analyses of the Keystone Pipeline.

She was the first Secretary of State, however, to make climate change a foreign policy priority, appointing a Special Envoy for Climate Change. She created the Climate and Clean Air Coalition - a global initiative to reduce climate forcers. She also signed an agreement with The World Bank to assist developing countries on water security and water quality.

"Hillary Clinton is just half the way there," says Bill McKibben, who heads 350.org. "This is a credible commitment to renewable energy, and a recognition that the economics of electricity are changing fast. Now, we need Clinton to show she understands the other half of the climate change equation - and prove she has the courage to stand up against fossil fuel projects like offshore and Arctic drilling, coal leasing in the Powder River basin, and the Keystone XL pipeline."

Last month, McKibben wrote an [open letter](#) to Clinton, letting her know how she could come across as serious about addressing climate change.

[<Source>](#)

## Greyp G12 — High-Performance Electric Bike From Rimac

By James Ayre

Originally published on *EV Obsession*.



Those that are wealthy and in the lookout for an electric bicycle may want to check out the Greyp G12 — a high-performance offering that can reach speeds of up to 44 miles per hour (70 kilometers an hour). The bike is retailing for €6,500 (\$7,200) currently.

Interestingly, the bike (which we actually caught word of **back in 2013**) is the offering of the creator of the **Concept\_One electric supercar**, the Croatian company Rimac Automobili.

The electric bike features a 1.3 kilowatt-hour (kWh) battery pack that allows for up to 75 miles (120 kilometers) of electric propulsion. The Greyp G12 is apparently the result of "knowledge acquired during the conception of Rimac's \$1 million electric supercar."

Here's more information coming via [Electrek](#): "There are 3 use-cases for the Greyp G12: pedal only, pedal-assist and throttle only. There's no need to switch mode between the roles of the pedals. If you want to only pedal, you use the pedals and if you want the electric motor to assist your pedaling, you use the throttle while pedaling, and finally you can stop pedaling and only use the throttle."

Of course, the bike has to have some nifty features to justify the high price, and it does, including fingerprint activation! "The G12 can save up to 50 users, and every user can save up to 5 fingers. You can choose that a certain finger starts the bike in a certain mode. Your thumb can lead you the Street Mode, while your middle-finger will activate the Power-mode."

Regenerative braking that sends up to 2 kW of power back to the battery is also included.

Here are the exact specs for those considering a purchase:

### SPECS

#### General

Power-mode power: 12 kW  
Street-mode power: 250 W  
Power-mode top-speed: 70 km/h  
Street-mode top-speed: 25 km/h  
Range: up to 120 km  
Battery capacity: 1.3 kWh  
Weight: 49 kg  
Recharge time: 80 min.  
Regen braking power: 2 kW

#### Battery-pack

Capacity: 1.3 kWh  
Chemistry: Lithium Nanophosphate  
Nominal voltage: 64V  
Integrated Rimac Automobili BMS  
Cell-voltage monitoring (refresh - every 10 ms)  
Cell-temperature monitoring  
Balancing  
State-of-Charge calculation  
Low-voltage protection  
High-voltage protection  
Temperature protection  
SoC protection  
Low power consumption in sleep mode

#### Drivetrain

Motor: custom direct drive BLDC with Neodymium magnets  
Gears: Bottom bracket 2 speed ATS speed drive (planetary gears)

[<Source>](#)



## FedEx, United bet it's (finally) time for jet biofuels to take off

By Lauren Hepler, Associate Editor GreenBiz Group

In the last five years or so, an entire genre of writing about the aviation industry has developed around the potential of using greener fuels to help curb plane pollution.



Airlines, aircraft manufacturers and logistics companies that rely on aviation are recalibrating their strategies on alternative fuels and carbon emissions.

From algae-based concoctions to blends with used cooking oil or the residue left over from forest fires, excitement about piloting widely varied biofuel feedstocks — or raw materials that can be converted into fuel, lowering carbon emissions by varying degrees — have prompted plenty of premature warnings to the aviation industry's incumbent petroleum fuel

suppliers.

What's kept the aspirations of biofuel providers and airlines looking to cut emissions on the ground, however, is nagging uncertainty about the scalability of biofuel supply chains, regional variation in available feedstocks and (of course) cost concerns.

"There are two key issues," Jessica Kowal, Boeing's head of environmental policy communications, told GreenBiz. "We as an industry need to increase the supply, and we need to bring down the cost. It needs to be more affordable and available."

To that end, FedEx has become the latest corporate buyer to bet on aviation biofuels. On Tuesday, Colorado biofuel producer Red Rock Biofuels announced that the shipping giant has agreed to purchase 3 million gallons of low-carbon fuel per year.

The news comes after Red Rock announced last year that Southwest Airlines will procure another 3 million gallons of woody biomass-based fuel annually — and as other big names in the aviation space, like United Airlines, British Airways and Virgin Atlantic, refine their own approaches to biofuel innovation and emissions reduction.

It's also not just about airlines. Alt-fuel producers targeting other sectors of the transportation industry, like microorganism-to-fuel producer Joule's pursuit of the automotive market, illustrate how biofuels can be reformulated to serve customers in different markets.

One drawback is that the shades of green in the biofuel industry vary widely. Companies that rely on organic materials, like corn or wood, are often criticized for disrupting increasingly-strained food systems. Other feedstocks require large amounts of water for processing, and there's also the perennial challenge of transporting fuel to where it will be consumed without drastically increasing the product's carbon footprint.

Still, Red Rock Biofuels Co-Founder and President Terry Kulesa, a veteran of the ethanol industry, cites two big forces driving a resurgence in the biofuel market: volatility in oil prices and the looming specter of tighter carbon regulations.

"Carbon is continuing to be a bigger and bigger issue," Kulesa told GreenBiz. "We equate it to the organic food industry and how that started. As more and more people got involved, they demanded that from their supply. We see the same thing with carbon."

### Preparing for takeoff

In addition to FedEx, Southwest and plane manufacturers like Boeing, several other commercial airlines have also signaled renewed interest in biofuels and further trimming carbon emissions.

Overall, the Natural Resources Defence Council [calculates \(PDF\)](#) that as of January, more than three dozen commercial airlines have logged a combined 600,000 miles of flight time powered at least in part by biofuel.

By way of context, U.S. air carriers alone flew passengers more than 7 million miles during the period of May 2014-April 2015, illustrating that biofuels are still a very small piece of the pie. That figure doesn't factor in the commercial market for cargo transportation by plane, a la FedEx, or smaller private aircrafts.

The question now is whether the proportion of flights run at least in part on

biofuels will start to tick upward with more big-name airlines investing hefty sums of money.

In recent weeks, United Airlines has announced that it is testing a biofuel blend made from farm waste and animal fats on a flight from Los Angeles to San Francisco. Perhaps as a sign of longer-term faith in expanded usage of the fuel source, the airline has also invested \$30 million in the producer of the agricultural biofuel, Fulcrum BioEnergy — a provider that Hong Kong-based airline Cathay Pacific has also backed.

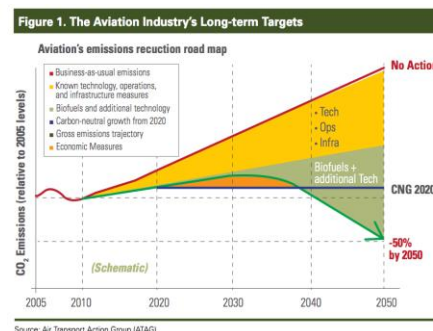
British Airways, meanwhile, is a major investor in a plan by Washington, D.C.'s Solena Fuels to build a UK facility to convert 575,000 tons of municipal waste to jet fuel. In addition to contributing to construction costs, the airline has committed to buying jet fuel produced at the plant for more than a decade, valued at about \$550 million based on fuel prices as of mid-2015.

On top of the airlines focusing on biofuel innovation, a few high profile commercial carriers are also starting to talk more frankly about the need to cut emissions in the sector.

Virgin Atlantic recently announced that it managed to cut carbon intensity by 2 percent while also increasing profitability — a decoupling of economic growth and environmental impacts that is increasingly being discussed across industries, which Virgin attributes largely to a recent \$7 billion investment in more efficient aircrafts.

On the regulatory end of the fuel spectrum, Australian airline Qantas is also one of the major transportation fuel users advocating for clear carbon policies.

In a dedicated page on its website, the company notes the infeasibility of passing carbon taxes on to consumers and supports a plan to develop global aviation emissions standards by 2020.



and more emphasis on increasing the efficiency of existing operations to move the needle on aviation emissions:

### The quest for better biofuels

Though biofuels vary significantly in terms of environmental impacts once dispelled from an airliner — especially since they are still blended with regular petroleum to work in existing jet engines — the idea is that the entire lifecycle for biofuels is cleaner than oil.

Red Rock produces jet fuel by collecting forest waste and woody biomass recovered from sawmills, sending it through a gasifier, converting the substance into a renewable synthetic oil and then refining it into a specific type of fuel. Once prepared, that biofuel will be shipped by rail to airports where it will be consumed.

Together, FedEx and Southwest will use all of the jet fuel that the company intends to produce at a new \$200 million Oregon refinery expected to convert some 140,000 tons of forest residue into 15 million gallons of renewable fuel. Red Rock is still shopping for buyers for others types of fuel that will be produced as part of that total, including diesel and naphtha fuels.

Red Rock is hoping to begin delivering fuel to those buyers in 2017, by which point Kulesa hopes to catalyze further investment in the space. With more capital flowing into the high-overhead sector, he sees an opportunity to procure additional gasifiers or other carbon removal technologies.

"We need some winds out there — some projects that work," he said. "If you can get the first project financed, then you have a lot of avenues. The ultimate goal is to get really low-carbon fuel at the end of the day."

Boeing, meanwhile, has adopted the role of acting as a convener between biofuel providers, airlines and others with a vested interest in aviation fuels.

Focusing on the development of regional feedstock supply chains is one primary focus. The company is currently involved with biofuel operations using

corn leaves and stalks in the midwest, gutter oil in China, sugar cane in Brazil and plants native to the deserts of the United Arab Emirates.

[<ReadMore>](#)

## US, Brazil, China All Announce Climate Pledges

### SustainableBusiness.com News

During what's usually a slow news week, the US, Brazil and China came forward with significant climate pledges.

As he did with China, President Obama and Brazil's President Dilma Rousseff released a joint statement on climate change that says: both countries will get 20% of electricity from renewable energy by 2030 - and that does not include hydropower.

Further, by 2030, 28-33% of Brazil's total energy will come from renewables and biofuels, and it will "improve low-carbon agricultural and grazing practices through sustainable agriculture," promote "clean technology standards for industry."

And Brazil also pledged to restore 12 million hectares (about 46,300 square miles) of forests by 2030 - an area roughly the size of England.

"Restoration at this scale combined with rapid and full implementation of existing laws would go a long way toward shifting Brazil from shrinking forests to expanding forests, with large benefits to the global climate as well as Brazil's rural economy and local communities," Michael Wolosin at Climate Advisers, told the *Washington Post*.

"We want to reach zero deforestation by 2030 in Brazil, zero illegal deforestation by 2030," Rousseff says. Unfortunately, after falling significantly for five years, deforestation is rising sharply again and destructive mega-dams being built in the Amazon will make her goals harder to achieve. And to her, reforestation could include palm oil plantations, which certainly don't qualify as forest.

One way Brazil plans to restore forests is to require all 5 million landowners to register by May 2016, putting the onus on agribusinesses to show they are maintaining 80% native forest cover - as required by law. If they don't register by 2017, they won't be eligible for bank loans, reports *RTCC*. If they fess up, they must restore forests over 20 years.

A combination of satellites, radar and helicopter patrols pick up illegal forest clearing. Once they spot illegal logging, police follow-up on the ground within two days. It is a battle of wits, as criminals use camouflaged equipment, take advantage of cloud cover and cut only small areas to avoid detection, Francisco Oliveira, a top official at Brazil's environment ministry, told *RTCC*.

18.5% of Brazil's Amazon is gone and 20% of that is recovering, according to *RTCC*. The loss is already causing significant changes in precipitation, and Brazil is in the midst of severe drought.

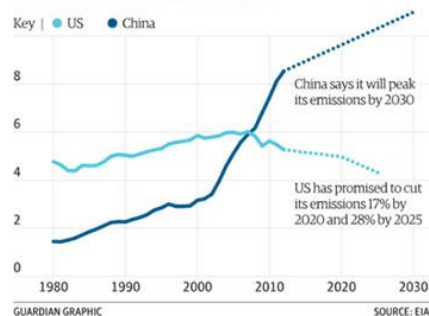
Obama and Rousseff are launching a Joint Initiative on Climate Change this year - a high-level working group to cooperate on climate issues such as clean energy, land use and adaptation. They agreed to bring down the use of HFCs.

"Brazil and the United States commit to new and improved management of their forests, croplands and grasslands to increase resilience in forests and agricultural systems, safeguard the multiple services they provide, and share this expertise with other countries," says their statement. They list many important actions, such as attracting investments in sustainable forest management and forest restoration.

### China's Pledge

China added to the pledge made in concert with the US, where it agreed to peak carbon emissions by 2030 (and will work hard to get there sooner), and to reach 20% clean energy through renewables and nuclear by then.

### CO2 emissions, billion tonnes



In its formal submission to the United Nations, China says it will cut carbon intensity (per unit of GDP) 40-45% below 2005 levels by 2020 and 60-65% by 2030.

Goals submitted to the UN are 200 gigawatts (GW) of wind and 100 GW of solar (from 116 GW and 28 GW now). It expects 10% of energy from natural gas by 2020 as it gets into fracking.

China also promises to "vigorously enhance afforestation," increasing carbon stored in forests by 4.5 billion cubic meters by then.

While some experts say these targets are too weak, they applaud China's attention to reducing other greenhouse gases by eliminating HFCs and HCFCs.

### South Korea, New Zealand Submit UN Pledges

South Korea pledges to cut emissions 37% by 2030 from current levels and New Zealand commits to 30% below 2005 levels by then - both are viewed as fairly weak.

### Europe Gets Serious

Miguel Cañete, the EU's climate negotiator, told *The Guardian*, that he's "85% confident" that a historic deal will be struck this year in Paris, but if it doesn't happen, there's no plan B. If the 196 countries don't reach consensus on an international climate agreement, there will be no ongoing UN discussions. "Paris is final."

And the EU will not vote for a deal that isn't ambitious enough to deal with the problem. "For us, it's very important to have a deal - but not any kind of deal." He's traveling around the world, visiting with countries to garner support for a strong agreement right now.

[<ReadMore>](#)

## Defense Department Lays Out Preparations For Climate Change

### SustainableBusiness.com News

It's amazing that while Republicans support the Defense Department (DoD) so passionately, they reject its conclusion that climate change is a strategic threat that must be urgently addressed.

DoD's **2014 Climate Change Adaptation Roadmap** starts this way: "Climate change will affect the Department of Defense's ability to defend the Nation and poses immediate risks to US national security."

A new report, **National Security Implications of Climate-Related Risks and a Changing Climate**, lays out - for the first time - the most serious risks in each region of the world and how Combatant Commands are integrating mitigation of these risks into the planning process.

It also begins this way:

"DoD recognizes the reality of climate change and the significant risk it poses to US interests globally. The National Security Strategy, issued in February 2015, is clear that climate change is an urgent and growing threat to our national security, contributing to increased natural disasters, refugee flows, and conflicts over basic resources such as food and water. These impacts are already occurring, and the scope, scale, and intensity of these impacts are projected to increase over time."

DoD says climate change is already aggravating existing problems, such as poverty, social tensions, environmental degradation, ineffectual leadership, and weak political institutions.

As for how DoD is preparing in the various areas of the world:

- It is preparing for development of an ice-free Arctic, such as resource exploitation and shipping traffic. If oil drilling takes off, there will be a need for "emergency response, risk reduction measures, and environmental protections."
- In the Middle East, DoD is incorporating water scarcity into planning, requiring humanitarian assistance, disaster relief and training for local militaries. While it hasn't made headlines, four years of terrible drought led to the uprising in Syria.
- In Africa, it plans to expand humanitarian assistance and disaster relief in response to droughts. "U.S. Africa Command (USAFRICOM) assesses humanitarian crisis as the most likely climate-related risk, foremost due to the impact that devastating events like drought and disease could have on vulnerable populations and on state stability in places already struggling with fragility and conflict."

Climate change also presents serious risks to DoD bases, specifically from sea level rise and intense heat waves. Its massive base in Norfolk, Virginia, for example, is already experiencing problems from sea level rise.

Still, Republicans voted to eliminate funding for DoD's climate research and for the Navy's conversion to biofuels.

[<Source>](#)



# Jackson presses winemaking into sustainability innovation

By Barbara Grady



Vineyards within the Jackson Family Wines estates.

Wine making in Sonoma County, California, is older than the settling of the West, but some wineries in this tradition-steeped industry are moving fast into a future of zero waste, scant greenhouse gases and sustainable agriculture.

Jackson Family Wines, the maker of Kendall-Jackson chardonnay, La Crema pinot noir,

Stonestreet cabernet sauvignon and 27 other brands, appears to be leading the way, based on recognition from the U.S. Environmental Protection Agency, early certification as a sustainable winegrower and being named the green company of the year by the beverage industry.

Video and photos by Barbara Grady

For Jackson, sustainability includes not only closed loop water recycling and generating solar energy onsite and storing some of it in Tesla batteries, but also the age-old practice of using falcons to chase away smaller birds and rodents from vineyards.

It uses sensors and drones to precisely gauge water and fertilizer needs and a drip irrigation system so primed for water-saving that the spigots are buried under the dirt at the root level to avoid any evaporation. (Watch some of this in the video above.) It recycles 98 percent of materials used in bottling and has dug reservoirs to capture water runoff, rain and processed water.

Katie Jackson, vice president of government and external affairs and the daughter of founder Jess Jackson, explained on a tour of her family's Sonoma County wineries organized for reporters last week that sustainability has been a core operating principle.

"My father started the company in 1982 and from the beginning his values were about being a good land steward and a steward of natural resources," Jackson said. Sustainability "is integrated into everything we do as a company."



Family member Katie Jackson is Vice President of Governmental and External Affairs. She stands in front of a reservoir dug to collect runoff and rain water and store processed water for reuse.

Cleaning fermentation tanks used to take 200,000 gallons of water. But now Jackson wineries reuse water for the first rinse. Then, in the most bacteria-sensitive cleaning operations, La Crema and other wineries are piloting two new technologies that could eliminate the need for water.

In one, fog is introduced into a tank and each fog bubble contains a small amount of anti-bacterial solvent. The fog acts as a scrub and cleans the tank. In the other pilot technology, the tanks are cleaned by infrared light.

Julien Gervreau, senior sustainability manager for Jackson Family Wines, said they've been able to reduce the ratio of water use to 4.5 gallons of water for each gallon of wine produced. That is down from 6 to 9 gallons which is the industry average.

"I look at the drought as an incredible opportunity — no really — as an opportunity to find efficiencies and invest in water conservation and reuse," Gervreau said to an at first disbelieving group of Californians who have never heard positive words spoken about the historic and often devastating drought.

When the Sonoma County Wingrowers Association voted last year to commit to being the nation's first 100 percent sustainable winegrowing region, Jackson

Family Wineries led the effort, according to said Karissa Krause, president of the winegrowers association.

"Jackson committed to paying more to growers for sustainably farmed grapes," Krause said.

"That really helped" solidify others, especially small growers who have more at risk since their margins are smaller.

With the cost of renewable power options falling so fast they now compete with utility-supplied electricity, the company also decided to transition to solar power for its fermentation and refrigeration operations.

It installed 6.5 megawatts of solar capacity, which currently supplies 49 percent of its electricity needs. Two months ago, it installed some Tesla batteries at La Crema and a handful of other wineries to better manage demand and avoid having to turn

to utility grids when demand, and prices, spike. It figures the storage will slice 10 percent from electricity costs.

Its various energy efficiency measures have saved it some \$15 million in electricity costs since 2008, the company figures.

Out on the vineyards, another innovation Jackson uses is windmills to break up winter air masses that threaten to freeze grapes.

Placed just at the base of the inversion layer, the wind turbines create a hole through which cool air can escape to higher elevations rather than that air being trapped near the ground where it could freeze grapes. In years past,



This unit sends fog into the fermentation tanks to clean them before they are filled with a new batch of wine.



An organic garden at the Kendall-Jackson winery produces food for its restaurant and lunch for visiting chefs and dignitaries.



Solar panels line the rooftop of the La Crema winery and provide most of its power. Outside, newly installed Tesla batteries store excess solar generated electricity for later use.

Jackson wineries would spray the vineyards with water mist as a way to protect them from freezing air. That costs water and energy.

Jackson Family Wineries are not the only Sonoma County winemakers who practice sustainability.

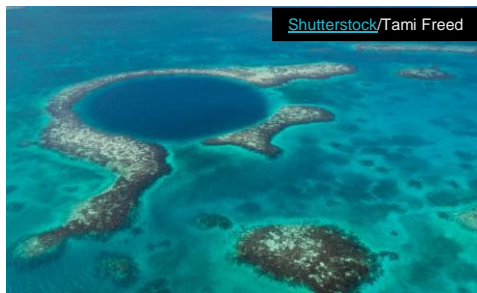
In fact, Krause of the Sonoma County Winegrowers Association, said that every wine grower in the county agreed last year to transform operations to certifiably sustainable by 2019, making Sonoma County the first winegrowing region in the world to do so. But, she said, Jackson Family Wineries were the first to do so.

No doubt it takes capital to make these investments. Gervreau wouldn't comment on Jackson finances, revenues or income because it is a private company. But he acknowledged that profit margins are good in the wine business, allowing for reinvestment.

[Source](#)

## Can we (should we) put a price tag on nature?

By Keith Larsen



A coral reef and deep cave, known as the Blue Hole for divers off the coast of Belize. What is this worth?

knows, there is no such thing as a free lunch. Meaning that as the impacts of climate change, severe droughts and ravishing natural disasters are being seen throughout the world, the value of nature's finite resources will eventually be felt by businesses.

Although most businesses are still not adequately valuing their use of natural capital, the Natural Capital Project recently released a special feature entitled "Nature as Capital" on the current state of how different organizations—including businesses—"incorporate the value of nature in economic and social development plans."

The feature comes 10 years after the UN's Millennium Ecosystem Report Assessment, which involved 1,360 experts and scientists and "assessed the consequences of ecosystem change for human well-being." According to University of Minnesota economist Stephen Polasky, an editor of the report and co-founder of the Natural Capital Project, that's when "natural capital ecosystem services burst on the scene."

Founded in 2006, the Natural Capital Project consists of members from the Stanford University's Woods Institute for the Environment and the University of Minnesota, along with the Nature Conservancy and the WWF.

The mission of the organization is to "integrate the values of nature into all major decisions affecting the environment and human well-being," according to its website.



Planting mangroves in Belize

capital, Polasky sees rapid progress on two sides.

Polasky believes that the science behind natural capital has greatly improved and "there's been a lot done to come up with the tools and metrics." He also mentions that there has great progress in companies becoming more aware of the importance of natural capital.

However, Polasky adds, "The place where progress has been slow... is actually changing, or making, decisions based on natural capital information. That's because in order to do that you really have to change not only mindset, but institutional incentive."

This problem may sound all too familiar to corporate sustainability advocates, as the question still remains—what is the best incentive to motivate companies to change?

### Making the environment count

In his book, *Natural Capital: Valuing the Planet*, Dieter Helm, professor of energy policy at the University of Oxford, similarly argues that in order for the world—not just business—to recognize natural capital as a serious concern it must think about the environment as part of economics.

"By viewing the environment as made up of natural capital, it takes its place

For businesses, natural capital has often been seen as the environmental economics equivalent of a free lunch.

Companies could use water or timber, or emit vast amounts of carbon with little recognition to the actual impacts or value it had on the natural world.

Yet, as any student of business or economics

alongside man-made capital and human capital. It is integrated into the fabric of the economy not a second place add on," writes Helm.

While few companies have yet to integrate natural capital into their business models, and there is still not a singular governing set of standards for valuing natural capital, some companies have taken the lead.

One example of a company that has incorporated natural capital into its decision making process is Coca-Cola, which has partnered with the Nature Conservancy since 2002 to enhance its sustainability efforts. The partnership has been trying to access Coca-Cola's overall water footprint to determine how to best source its water.

The group has also tried to work together to meet Coca-Cola's ambitious goal of returning all of the water used in its products and operations to nature or the community by 2020.

"It's a question of if we're going to have these impacts where is the best place to have them, so that we have no impact on an array of things that people care about?" said Anne Guerry, Chief Strategy Officer and lead scientist of the Natural Capital Project.

However, to incentivize and motivate other companies to use natural capital in their decision-making processes, one may wonder whether simply having industry leaders is enough, or whether more regulatory pressure is needed.

"There certainly is room for regulation to be one of the incentivizes that can change corporate behavior," said Guerry.

### A surprise from China?

Although Stephen Polasky said he's "not very optimistic" that the U.S. federal government will incentivize these changes to occur, he does proclaim optimism for China's government—despite that nation not normally being associated with a clean environmental or sustainability record—to recognize the importance of natural capital.

One of the studies in the feature is about the "impacts of conservation and human development policy across stakeholders and scales." The study highlights how the Chinese government is using zoning to protect 28 percent of the country's natural capital assets.

According to the report, China is "paying 200 million people to perform restoration and conservation activities to achieve this dream and to secure human well-being."

Among these payments to improve restoration and conservation also involve the Chinese government paying residents of the Ankang Municipality—within a highly mountainous area of northern China prone to natural disasters such as severe floods and earthquakes—to relocate, in part to mitigate erosion and preserve drinkable groundwater.

[<ReadMore>](#)

## Gallium phosphide found to increase solar cell efficiency

**Source Name: Greentech Lead**

A team of researchers has come up with a solar cell that produces fuel rather than electricity. A material called gallium phosphide enables the solar cell to produce clean fuel hydrogen gas from liquid water.

To connect an existing silicon solar cell to a battery that splits the water may well be an efficient solution; but it is very expensive.

So, researchers were streamlining their search to a semi-conductor material that is able to both convert sunlight into an electrical charge and split water.

The team found gallium phosphide (GaP), a compound of gallium and phosphide, useful in this respect.

GaP has good electrical properties but the drawback is that it cannot easily absorb light when it is a large flat surface as used in GaP solar cells, said the study that appeared in *Nature Communications*.

The researchers overcame this by making a grid of very small GaP nanowires, measuring five hundred nanometres (a millionth of a millimetre) long and ninety nanometres thick.

"That makes these kinds of cells potentially a great deal cheaper," said lead author Erik Bakkers from Eindhoven University of Technology, the Netherlands.

This immediately boosted the yield of hydrogen by a factor of ten to 2.9 percent.

"In short, for a solar fuel future, we cannot ignore gallium phosphide any longer," Bakkers added.

[<Source>](#)



## Beyond organic: promoting Indonesia's indigenous farming cultures

A traditional approach to agriculture has helped Indonesian farming communities grow diverse crops and compete in global markets

By Oliver Balch



Social enterprise Javara, co-established by Helianti Hilman (fourth from left), works with 50,000 smallholder farmers in Indonesia. Photograph: Javara

he first time Helianti Hilman visited the indigenous farmers of the West Java town of Garut, she was asked to remove her shoes before entering their fields. Her surprise grew when the farmers quizzed her on her mood – they didn't want her upsetting the plants.

"That's when I realised that their approach to agriculture was much more than just growing organic," says 44-year-old Hilman, an

Indonesian entrepreneur and former lawyer. "It was a whole way of life. That's when my perspective changed."

That was eight years ago. Hilman's efforts to protect and promote traditional agricultural practices in Indonesia since then saw her named an Asian social entrepreneur of the year by the Schwab Foundation at the World Economic Forum in March.

The social enterprise that Hilman helped to establish in 2009 works with around 50,000 smallholder farmers across Indonesia. Called Javara (which means champion in Sanskrit) the organisation oversees the marketing and distribution of more than 640 artisanal products, from organically grown vegetables and gluten-free flour to gourmet salt and coconut cooking oil.

According to Indonesia's national indigenous people's organisation, Aliansi Masyarakat Adat Nusantara (AMAN), around one fifth of the country's 250 million people classify as indigenous. With statutory efforts to establish collective rights to customary lands yet to be officially sanctioned, rural communities remain vulnerable to the frequent land grabs made by palm oil producers and other forest users.

Given that most Indonesian farmers live in abject poverty, there is a clear moral and developmental case for supporting them. But there are compelling sustainability reasons too, Hilman insists.

During Indonesia's "Green Revolution" of the 1970s, farmers were encouraged by the government to adopt commercial agricultural practices. However, many indigenous people avoided this wave of modernity and still use traditional methods, and so-called heritage or heirloom seeds.

"Back in the 1960s in Indonesia, we used to have over 7,000 different rice varieties. People have forgotten this today. They are used to buying just red, white or black rice," says Hilman. The heritage plants grown by Javara's network of farmers offer a wide range of distinctive nutritional properties. And with their greater diversity comes greater resilience. Hilman cites rice varieties, for example, that can grow everywhere, from forest shade and swamps to inland lakes and saline coasts.

"This isn't just for the foodies," she argues. "These varieties are very relevant for climate change [but] we are losing them before our eyes without even knowing it."

Her sense of urgency is echoed by the International Union of Forest Research Organizations (IUFRO), an Austria-based nonprofit group. In a report released in May, the IUFRO emphasised the role that indigenous communities can play, both in protecting forests and enhancing food security.

"Working with farmers to combine the best of traditional and formal scientific knowledge offers tremendous potential [and] this contribution needs to be acknowledged and incorporated into management practices and policy," the report states.

In Indonesia, that is easier said than done. For a start, its indigenous communities often live in remote areas – the country comprises nearly 1,000 permanently settled islands. Years of marginalisation has also left them distrustful of outsiders and unfamiliar with how mainstream markets work.

Hilman's entry point came by way of the Integrated Pest Management Farmers' Association, a nonprofit network representing more than 1 million indigenous and smallholder farmers in Indonesia. She was invited by a group of rice growers close to her parents' home in central Java to help with marketing their produce.

She struck lucky in 2009 when she persuaded Ranch Market, a premium supermarket in Jakarta, to stock two-dozen varieties of the farmers' rice. Orders from high-end hotels and restaurants quickly followed.

Over time, Javara has sought gradually to overcome the knowledge gaps of its affiliated producer groups through basic management training and production advice. For the large collectives in its network, it also provides assistance with organic certification and credit for the purchase of equipment.

[<ReadMore>](#)

## UK plastic bag use up for fifth year

Average household has 40 plastic bags at home, but number of single use bags taken at supermarkets keeps rising ahead of 5p bag charge in England

Press Association



The number of single-use plastic bags handed out by UK supermarkets has increased for the fifth year running. Photograph: Anthony Devlin/PA

The number of single-use plastic bags handed out by UK supermarkets has increased for the fifth year running to 8.5bn, figures show.

The number is up by 200m on 2013 despite the average household already having 40 plastic bags

stashed away, research from the Department for Environment, Food and Rural Affairs found.

In England, the number of single-use bags from supermarkets rose from 7.4bn in 2013 to just over 7.6bn, the statistics from waste reduction body Wrap revealed.

From October, large shops in England will be required to charge 5p for all single-use plastic carrier bags.

All retailers with 250 or more full-time equivalent employees will have to charge a minimum of 5p for the bags they provide for shopping in stores and for deliveries.

However it has prompted criticism because it will not include smaller retailers or paper bags.

Northern Ireland saw the number of bags handed out plummet once again by 42.6% following a previous drop of 71% after a carrier bag charge was introduced in April 2013.

Wales saw a 5.2% increase last year, but its use of carrier bags is a fraction of other parts of the UK following the introduction of a 5p charge in the country.

The number of bags handed out in Wales has fallen by 78.2% since 2010, the figures showed.

In Scotland, which brought in a levy last year, there was an 18.3% decrease in the number of plastic bags handed out by retailers.

Resource minister, Rory Stewart, said: "We're all guilty of taking a carrier bag from a supermarket, storing it somewhere safe at home with the intention of using it again, then forgetting to take it with us next time we go to the shops."

"But the more bags we take, the more plastic makes its way into our environment, blighting our high streets, spoiling our enjoyment of the countryside and damaging our wildlife and marine environments."

In Scotland, the number of 'bags for life' handed out quadrupled last year but in England they accounted for just one in 20 taken from major retailers.

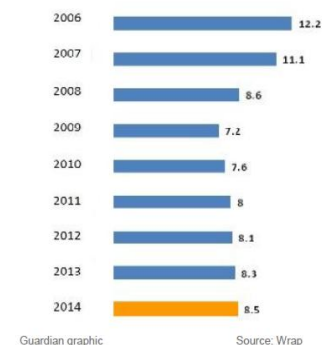
Mr Stewart said: "Countries with the 5p charge have seen a dramatic fall in the number of plastic bags taken from supermarkets and we can expect a significant reduction in England, possibly by as much as 80% in supermarkets and 50% on the high street."

"The charge will also boost our growing economy by delivering savings of £60m in litter clean-up costs and £13m million in carbon savings."

[<Source>](#)

### Annual UK plastic bag use

Single use plastic bag, billions  
A 5p plastic bag charge is due to be introduced in England in October 2015



## Mistbox cools your air conditioner to cut energy consumption

By David Szondy



The Mistbox control unit is designed to be easy to install on existing air conditioners

Air conditioners are a bit of a paradox. On the one hand, they're most needed in the hottest weather, but on the other, the hottest days are when air conditioners are least efficient. Mistbox is an add-on technology for domestic air conditioners that uses a water mist to pre-cool the air conditioner, increasing its efficiency and lowering energy costs.



Domestic air conditioners work on the same principle as a refrigerator. A pump compresses a volatile gas into a liquid and circulates it through a coil. A fan blows warm air from the house over the coil, which expands the liquid back into a gas and cools the air. The gas is then circulated back to a second coil outside the house, where outside air carries away the heat before the gas is condensed and compressed back into a liquid to start the cycle over again.

It's a process that does the job, but what it gains in cooling it lacks in efficiency. The air conditioner is essentially a heat engine operating in reverse and its efficiency depends on the temperature of the outside air. If it's cold outside, the cycle is more efficient because the outside coil carries away the heat more effectively. But if it's hot, then the cycle is less efficient and the conditioner must work harder and use more energy for the same level of cooling.



outside air used to cool the condensing coil.

It works by evaporative cooling, which is the same principle as the system that keeps the human body cool. The human body puts out as much heat as a 100 watt incandescent bulb, and without a cooling system we'd all die of heat exhaustion in short order. The body is kept cool by a constant flow of sweat to the skin's surface. As this sweat evaporates, it carries away the excess heat, so the body maintains a constant temperature.

This same principle is used in a number of artificial cooling systems. Large buildings and factories often use evaporative cooling to maintain the air temperature, and domestic versions are common in hot, dry areas, such as the southwest United States, where the low humidity makes evaporation so efficient that it's an inexpensive alternative to other forms of air conditioning.

Mistbox blows a fine spray of water into the compressor intake of an existing domestic compressive air conditioner, which pre-cools the incoming air and

increases the conditioner's efficiency. That may make it sound like a glorified garden mister, but the Mistbox also includes a computer running algorithms to optimize its operation by gathering data from sensors monitoring the ambient temperature, sound, vibration, light, and electromagnetic fields to release the mist at the right time in calculated amounts.

Another way that Mistbox tries to increase savings is by means of the 96 x 54 mm solar panel that recharges the 7.2 V NiMH battery that powers the unit, which means there's no complicated wiring installation required. In addition, the unit can be controlled using either the icon-based 22 x 77 mm display or by connecting wirelessly to the Mistbox app, which also allows the user to track power consumption and savings.

The company says that the Mistbox can be installed on existing central air conditioners in five minutes with a screwdriver. The four mist bars are mounted on the intake grill using bespoke hooks or zip ties, while the control unit has a special mounting bracket. Water is brought in from the domestic supply using an included 30-ft (9-m) hose and adapter set. There's also a special water filtration system to prevent scaling and corrosion and is claimed to increase the life of both the Mistbox and the air conditioner. The company says that the technology is install-and-forget with only an annual water filter change.

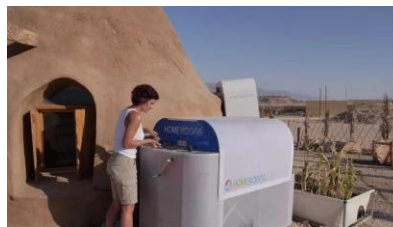
The Mistbox is available for US\$449 and in the United States is eligible for a 30 percent Federal Green Tax Credit.

[\[Source\]](#)

## HomeBioGas turns organic waste into energy

By LARA LOPES

Cooking food with solid fuels such as wood, charcoal and coal is still very common in developing countries and communities that don't have easy access to microwave ovens and electric burners like we do. And although it is a more natural option, according to the World Health Organization, up to **4.3 million** women and children die each year by the direct and indirect effects of using such solid fuels.



This information called the attention of the Israeli company HomeBioGas, who improved existing technologies to create HomeBioGas TevaGas (TG), a family-sized bio-digester made to be a sustainable and safe solution to the issue. The anaerobic digester works on energy generated by

organic material, such as food waste, which is converted into biogas fuel, a combination of methane gas and carbon dioxide. This fuel can be used for cooking or heating without generating unpleasant odors, and even the liquid left over after using the gas can be used as fertilizers for gardens and vegetable crops.

"The basic underlying principles of bio-digester are, well biological," Marketing Director Ami Amir explains, "There are bacteria or microbes that thrive in conditions where there is no air (anaerobic) that are able to break down organic matter into their components. One of the results of this process is known as biogas, a combination of methane gas and carbon dioxide."



HomeBioGas TG is the result of years of research on other existing bio-digesters in China and India. The Israeli team came to the conclusion that an entirely new model had to be developed. "The intention was to develop the best product that will provide biogas from waste for the under-served populations of Latin America, Africa and Asia," says Amir. "In these communities, there is little or no means of waste disposal and hardly any connection to utilities."

[\[Source\]](#)



## Nearly 9,500 people die each year in London because of air pollution – study

Counting impact of toxic gas NO<sub>2</sub> for the first time suggests more than twice as many people as previously thought die prematurely from pollution in UK capital

By Adam Vauhan



An air pollution episode in London in 2015. There were 9,416 early deaths caused by the pollutants NO<sub>2</sub> and PM<sub>2.5</sub> in 2010, according to King's College London. Photograph: Nick Ansell/PA

Nearly 9,500 people die early each year in London due to long-term exposure to air pollution, more than twice as many as previously thought, according to new research.

The premature deaths are due to two key pollutants, fine particulates known as PM<sub>2.5</sub>s and the toxic gas nitrogen dioxide (NO<sub>2</sub>), according to a study carried out by researchers at King's College London.

The study – which was commissioned by the Greater London Authority and Transport for London – is believed to be the first by any city in the world to attempt to quantify how many people are being harmed by NO<sub>2</sub>. The gas is largely created by diesel cars, lorries and buses, and affects lung capacity and growth.

London, Birmingham, and Leeds are among the UK cities that have been in breach of EU safety limits on NO<sub>2</sub> for five years, prompting legal action that led to a supreme court ruling in April that the government must publish a clean-up plan by the end of the year.

Previous research attributed 4,267 annual premature deaths to PM<sub>2.5</sub>s in 2008, based on 2006 levels of the particulates. Subsequent falls in those particulates and a change in methodology that excludes natural sources of the pollutant sees that figure fall to 3,537 for 2010 levels of PM<sub>2.5</sub>s in the new study.

However that fall is more than cancelled out by the addition of an estimated 5,879 deaths from NO<sub>2</sub> each year, bringing the total early deaths from both pollutants in 2010 to 9,416.

Matthew Pencharz, the deputy mayor for environment and energy, said that local authorities could only do so much and the government needed to step in. "It's [the new research] an important message for government, where the supreme court judgment has already focused minds."

Although the report found that a larger proportion of deaths caused by PM<sub>2.5</sub> were from particulates that originated outside the city than within it, it found that most of the deaths linked to NO<sub>2</sub> were because of NO<sub>2</sub> emissions from diesel vehicles and other sources within the capital.

Last year, mayor Boris Johnson came in for criticism after a King's researcher published figures showing Oxford Street had the worst NO<sub>2</sub> levels in the world, largely because of its high concentration of diesel buses. The mayor later called for a diesel scrappage scheme to tackle pollution in the capital.

But Pencharz said London was a pioneer when it came to tackling air pollution, with the mayor due to introduce an Ultra Low Emissions Zone (ULEZ) in 2020 that will see the most polluting HGVs and coaches charged £100 to enter.

"No other city is doing half what we're doing, when it comes to the ULEZ which is a world first, zero emissions taxis which is a world first, the regulations on construction equipment due in September," he said.

But campaigners said the evidence showed the need for more action. Alan Andrews, a lawyer at the NGO ClientEarth, which brought the case which led to the supreme court ruling, said: "This new research piles more pressure on the government to come up with a clear and credible plan to cut pollution from diesel vehicles."

[<ReadMore>](#)

## Sprint, Staples, Kimberly-Clark: the litmus test for wheat-straw paper

By Heather Clancy

Most people equate paper with cutting down trees, but an abundant eco-alternative covers literally tens of millions of acres across the North American prairies.

Wheat straw, typically burned or landfilled by farmers to make way for new crops, is slowly gaining credibility as a durable replacement for virgin and recycled fiber from trees. The latest evidence comes from Sprint, which will test wheat straw paper made by Prairie Paper -- the Canadian startup co-founded by actor Woody Harrelson -- in customer mailings. Office supplies company Staples and tissue manufacturer Kimberly-Clark likewise have committed to this "rapidly renewable" source of fiber.



Wheat straw is often burned or landfilled to make room for new crops. Using it for paper could create a "second harvest" for farming communities.

"This is about creating business choices," said Keanon Swan, manager of strategy partner relationships and postal alliances for Sprint.

Over the next several months, Sprint will substitute wood-derived paper with a product called Step Forward Paper that is made of 80 percent wood straw waste and 20 percent Forest Stewardship Council certified fiber. Approximately 2.5 million customer letters and other correspondence will be printed. This is just a small portion of what Sprint will mail during that time period.

Still, Sprint has already reduced its dependence on paper substantially, by reducing the overall weight of paper purchased for customer communications and other corporate functions by 83 percent since 2007. By the end of 2017, 100 percent of the paper it buys will come from sources certified by the Forest Stewardship Council. What's more, it's pushing for that supply to include at least 25 percent recycled content.

"Purchasing paper that contains post-consumer waste helps reduce demand for virgin resources and to provide market incentives that reduce the flow of paper waste to landfills," the company writes in its procurement policy.

Sprint got the idea of trying wheat straw through connections with Staples and Canopy, an environmental non-profit dedicated to forest conservation that works with close to 750 of the biggest paper consumers worldwide. "Our role has been catalyzer, cheer squad and speed dater," said Canopy Founder and Executive Director Nichole Rycroft when I spoke with her about the Sprint initiative.

### Why wheat straw?

The seeds for the wheat straw movement were sown about two decades ago, said Jeff Golfman, co-founder, president and chief marketing officer for Prairie Paper. The Canadian company, based in Winnipeg, Manitoba, was intrigued by the potential to turn what is commonly considered a source of farm waste into a revenue source for local communities. Environmental assessments have shown that Step Forward requires 65 percent less land to create one ton of paper than virgin paper.

Wheat straw is commonly to make paper in countries including China and India, but the North American market is more skeptical. "Advertisers and consumers might have different expectations," Rycroft said.

Sprint will evaluate a number of factors during its test -- starting with how well the wheat straw paper stands up during the printing process. It will need to withstand high temperatures and high-speed insertion equipment, Swan said.

From an expense standpoint, using Step Forward currently cost about as much as using paper that contains 30 percent post-consumer waste, Golfman said. That's in part because right now, Prairie Paper is manufacturing the product overseas and shipping it to North America.

The ultimate vision is to construct mills near farming communities where wheat straw waste is abundant, he said. Processing the fiber requires a completely different set of equipment: for pulping, processing and bleaching. "As soon as the pulp hits the head box of the machine, everything else is the same," Golfman said.

[<ReadMore>](#)

## These IIT graduates have built an electric scooter that charges faster than your phone

By Kunal Sehgal



For four years, Tarun Mehta and Swapnil Jain slogged for hours in their dorm rooms, working on prototypes of devices ranging from clean combustion engines to efficient battery packs. By the time they graduated from the Indian Institute of Technology Madras (IIT Madras) in 2012, their dream of building an e-bike had slowly begun taking shape.

"We discovered that this was a dying industry," 25-year-old Mehta told Quartz. "People weren't buying electric two-wheelers anymore as they were severely disappointed by the product. The scooters would take eight hours to charge and came with a top speed of 25km/hr—people almost run at that speed!"

It seemed the time was right to enter the industry as others were slowly scaling down their production and even planning on leaving the market. So, in April 2013, with virtually no financial capital at their disposal, Mehta and Jain quit their corporate jobs and began building Ather Energy. The plan was to design prototypes of electric two-wheelers that could potentially compete with the speed and durability of the conventional scooters that the country had fallen in love with.

Two years later, the duo has created an e-scooter—the S340—whose battery charges within an hour. "It is faster than your mobile charging time," said Mehta.

Over the last few months, this promising technology has also attracted funding from institutional investors, as well as prominent entrepreneurs, including the founders of Flipkart—Sachin and Binny Bansal.

### The machine

By early 2015, after a number of prototypes and customer feedback, Ather had finished designing the S340—one of the first smart, electric scooters to be made in India. The S340 reaches a top speed of 75 km/hour and has a lighter battery pack with a longer life. "Our batteries go on for 50,000 kilometres, and can easily last for five to six years," Mehta said, adding that batteries for other electric scooters die within six months.

"People want a better product. He (the customer) should get a sense that he is buying the electric version of his favourite petrol scooter," he said.



Another view of the S340.(Ather)

To make the vehicle more interactive, Ather has installed an inbuilt navigation system and a touchscreen interface on the scooter. The S340 also has the

ability to sync with an Android phone to provide ride data. But what makes Ather really stand out from other players—such as Hero, Mahindra and YO Bykes—is that unlike other companies, Ather actually owns every bit of technology it uses for its product. They have also patented their battery pack.

While all of these features seem promising, there is one problem: Ather hasn't actually recorded any sales yet. The company plans to launch its product in the market sometime next year. The S340 will be priced much higher than petrol-run scooters. But Mehta is quick to defend the price tag.

"The cost of manufacturing, especially with the technology we are using, results in a higher price," he said. "But we are still very competitively priced."

So far, it has been a bumpy ride for the Ather team as they've had to overcome several obstacles, including their toughest challenge—looking for funds.

### Money matters

"We had an incredibly hard time raising funds," admitted Mehta. "They all wanted to know how many units we have sold, without even first investing in technology. I think they didn't understand that we need to build a product first, before I send out a 'beta' version of my vehicle."

Even though their first prototype bagged 25 pre-orders, Ather struggled to find angel investors that would back their dream project.

In February 2014, the project got some much-needed financial help with their alma mater IIT Madras, along with another alumnus providing Rs45 lakh (\$70,821) as equity to the company.

The money helped Mehta and Jain upgrade the specifications of the first prototype but the Ather team, which by then consisted of 12 employees, was still in search for some serious cash.

In November 2014, after cold-mailing a bunch of investors, they finally managed to set up a meeting with the owners of India's largest e-commerce firm, Flipkart. According to Mehta, Sachin and Binny Bansal understood their quest to perfect the technology before putting the vehicle out in the market, and invested \$1 million in the startup.

The money not only made them financially secure but also helped them plan ahead. Armed with cash, Ather shifted to Bengaluru and increased its human capital. It currently employs 40 people, mostly engineers.

Later, private equity firm Tiger Global Management also showed interest in the company. The New-York based fund invested \$12 million.

"They are very bullish about the electric two-wheeler market and we were really happy to partner with them," Mehta said.

### Start-stop

India is the world's second largest market for two-wheelers, and more than 14 million two-wheelers were sold last year. But electric scooters, so far, aren't too big a part of that pie.

When electric two-wheelers were first introduced nearly a decade ago, companies were betting big. They had a brief honeymoon period between 2008 and 2010, with sales more than doubling during that time.

But all that dwindled once the government slashed its Rs22,000 (\$346) subsidy for lithium battery packs in 2012. From selling 100,000 units two years ago, sales plunged to 21,000 units by 2014.

According to Abdul Jameed, a partner at consulting firm PricewaterhouseCoopers, there are several obstacles that these companies need to overcome, including the high cost of production, infrastructure and the lack of sufficient government subsidies.

"After what happened earlier, the customers do not trust these electric two-wheelers anymore," he told Quartz. "The most important step for these companies would be to get a product out that can change the public perception about them and compete with the fuel-run scooters."

Deepesh Rathore, managing director of Emerging Markets Automotive Advisors, a London-based consultancy, believes it a problem of quality.

"About 20 brands entered the market a few years back and it seems, the two or three that have survived are not making any profit," he said. "We have a host of bad-quality products in the market that the customers have straightaway rejected."

But Ather plans to change all that. It hopes to win back customers and has ambitious plans to sell over one million units by 2020.

However, the startup will face tough competition from local players such as Hero and Mahindra, who although aren't making big bucks, have not exited the market. They have greater financial muscle, industry experience and more technical resources at their disposal.

But Mehta can't wait to compete. "This is the best time to enter the market," he said. "It is an amazing opportunity and we have a better product than anyone else in the market!"

[<ReadMore>](#)



## 80% of India's surface water may be polluted, report by international body says

**Source Name: The Economic Times**

Even as India is making headlines with its rising air pollution levels, the water in the country may not be any better. An alarming 80% of India's surface water is polluted, a latest assessment by WaterAid, an international organization working for water sanitation and hygiene, shows.

The report, based on latest data from the ministry of urban development (2013), census 2011 and Central Pollution Control Board, estimates that 75-80% of water pollution by volume is from domestic sewerage, while untreated sewerage flowing into water bodies including rivers have almost doubled in recent years.

This in turn is leading to increasing burden of vector borne diseases, cholera, dysentery, jaundice and diarrhea etc. Water pollution is found to be a major cause for poor nutritional standards and development in children also.

Between 1991 and 2008, the latest period for which data is available, flow of untreated sewerage has doubled from around 12,000 million litres per day to 24,000 million litres per day in Class I and II towns.

The database defines Class I towns as those with a population of more than 1 lakh, whereas towns with population ranging between 50,000 to 1 lakh are classified as Class II.

The report, titled 'Urban WASH: An Assessment on Faecal Sludge Management (FSM) Policies and Programmes at the National and State Level', is likely to be released next week.

According to the report, inadequate sanitation facilities, poor septage management and a near absence of sanitation and waste water policy framework are primary reasons responsible for the groundwater and surface water pollution in the country.

Experts say there are glaring gaps not just in treatment of sewerage water but also in case of water treatment itself, used in supply of drinking water as well as for kitchen use etc.

"Though there are standards, the enforcement is very low. Even the amount of water, which is treated, is also not treated completely or as per standards. And there is no civic agency accountable or punishable for that because we do not have stringent laws," says Puneet Srivastava, manager policy- Urban WASH & Climate Change at WaterAid India.

Findings of the report show nearly 17 million urban households, accounting for over 20% of total 79 million urban households, lack adequate sanitation.

"Among those with access to improved sanitation facilities, a vast majority relies on on-site sanitation systems, such as septic tanks and pit latrines. Today, these septic tanks and pit latrines have become a major contributor to groundwater and surface water pollution in many cities in the country," the report said.

However, the report acknowledges that India has of late started focusing on the problem of septage management, which is one of the most immediately implementable solutions to address urban waste water.

But there is an urgent need to focus on infrastructure as well as enforcement, says Srivastava.

[<Source>](#)

## All households will have to harness solar energy: Kerala

**Source Name: The Hindu**

The government will soon make harnessing solar energy mandatory for all households in the State.

In reply to a question in the Assembly on Tuesday, Minister for Power Aryadan Muhammed said the government would soon issue orders to this effect. Already, harnessing solar energy had been made mandatory at all government offices. The Central Electricity Authority had projected that the State needed 4607 MW when the 12th Plan period ended in 2017 and 6100 MW in 2020. Of this, 500 MW was to be generated from solar and wind energy.

### Solar park

The proposed 200 MW solar park at Kasaragod would be completed during the tenure of this government. The State would have to provide 1000 acres for the

plant being set up by the Solar Energy Corporation of India, he added.

The Minister said the KSEB had given a report to the Ministry of Environment and Forests to generate power at the Athirapally hydroelectric project maintaining the ecological flow. The KSEB had been given a directive to implement the 163 MW project. The Minister, in reply to another question, said Rs.362.88 crore was due to the Kerala Sate Electricity Board from LT, HT, and EHT consumers in 2014-15.

[<Source>](#)

## Andhra Pradesh govt to set up 'Energy University'

**Source Name: Business Standard**

With cooperation and support of Centre, the Andhra Pradesh government is going to establish an 'Energy University' with focus on research orientation and development of energy efficiency, energy conservation, renewable sources.

Initially, the 'Energy University' will offer post graduate, PhD and research application courses, an official release said today.

The funding for the proposed 'Energy University' will be borne by AP government and power utilities, public sector undertakings such as NTPC, PGCIL, PFC, REC etc, top level and highly reputed private institutions of power sector, for linking the university with the practical and industrial applications, it said.

The release further said in order to provide 24x7 quality and reliable power supply to the industrial sector and to achieve self sufficiency in power sector, Andhra Pradesh government has decided to give a fillip to the renewable energy sector in the state.

The state government is planning to establish 5,030 MW of solar and 4,150 MW of wind energy projects in the next five years to meet future power requirements and protecting environment and ensuring low carbon growth.

Accordingly, power utilities have been asked to complete these projects on a mission mode, strictly following the time schedules, it said.

The Centre has assured Andhra Pradesh Chief Minister N Chandrababu Naidu that it will dedicate 1,000 MW solar plants in Kurnool district to Andhra Pradesh only, which will immensely benefit the state.

[<Source>](#)

## Metro will run completely on solar power soon, says DMRC

**Source Name: Hindustan Times**

A senior DMRC official confirmed that the proposal might involve the DMRC signing a power purchase agreement with a third-party developer in Rajasthan. "We do not plan to spend any money of our own. We could bid out the contract via an open and transparent process," the official said, adding that the DMRC is looking at buying solar power at a tariff lower than `6.94 per Kilo Watt per Hour, the rate at which it currently buys thermal power. The official added that an initial proposal is likely to be moved within a week.

"In order to be carbon neutral and insulate itself from electricity price increase which has been about 20% per annum in last five years, DMRC is planning to explore the possibility of purchasing power to meet its entire requirement from a solar developer who will be selected through transparent bidding process," a DMRC spokesperson said.

At present, the Delhi metro has a peak power requirement of 150MW, which is likely to go up to 250MW by the time the third phase of its construction is completed. "Out of this, 50MW can potentially be met through solar rooftop power," the official said. Since the average plant load factor for solar power is in the range of 20%, it would require an installed capacity of 500MW, the official said.

The Delhi metro has about 1.2MW of installed solar rooftop capacity. A 500MW solar facility could involve an investment to the tune of `3,000 crore, which a developer would have to take.

A major stumbling block, however, according to the two officials, is that unlike Delhi, Rajasthan does not allow banking of solar power. The centre could take the lead in sorting out this issue between the two governments.

Further, the electricity act, which could be amended in the next session of parliament, may also require some tweaking for such a proposal to become viable.

[<Source>](#)

## IIM-A's incubator to launch water accelerator programme

**Source Name:** *BusinessLine*

With a view to kick-starting the ecosystem for water innovation and technology in India, IIM-Ahmedabad's technology business incubator — Centre for Innovation, Incubation and Entrepreneurship (CIIE) — will launch the country's first water accelerator in partnership with global organisations.

Partners in the initiative include Asian Development Bank, Rohini Nilekani's Arghyam Foundation, Luminous Water Technologies' Livpure, the World Bank's Water and Sanitation Program, and other purification solution providers.

Nishesh Mehta and Mudit Narain from CIIE will lead the programme that aims to accelerate, nurture, and invest in early stage start-ups that have the potential to become scalable and competitive enterprises. Selected start-ups will be provided intensive capacity building, mentoring and advisory support by leaders in industry, government, academia and practitioners.

### Rajasthan offer

The Rajasthan government is expected to review and award pilots to the top start-ups to field-test their solutions. The programme will run a separate track to support non-profit organisations looking to become financially independent or scale-up rapidly, and help passionate individuals looking to venture in to the water and sanitation sector.

Applications for this accelerator will be received by July 26 from early-stage start-ups working on breakthrough technologies and business models in various areas such as water supply, sanitation, treatment and purification, water management and mobile technology, irrigation and Internet of Things. The programme expects to select about 10 to 12 teams.

Kunal Upadhyay, CEO of CIIE, said the incubator will also assemble leading water-focused funds and companies such as Livpure to consider potential investment in the shortlisted ventures.

"More than 100 million people in India live in places where water is severely polluted. It is critical to find and support promising entrepreneurs to develop and scale breakthrough solutions to help address this issue," said Xuedu Lu, Advisor from ADB's Sustainable Development and Climate Change Department.

[<Source>](#)

## Govt rolls out incentives for renewable energy

**Source Name:** *Times of India*

The state government has come out with its promised New and Renewable Energy Policy under which sops have been declared for developing various types of renewable energy. It has set a target of generating 14,400 MW through renewable sources. Many sops are common for the sources while some are sector-specific.

The government has decided to promote six sources of renewable energy. They are: wind (5,000 MW), cogeneration using farm waste (1,000 MW), small hydel (400 MW), farm waste gasification (300 MW), inorganic industrial waste (200 MW) and solar (7,500 MW).

As per the policy, Maharashtra Electricity Regulatory Commission (MERC) will declare separate open access (OA) regulations and cross subsidy surcharge (CSS) for renewable energy. If MSEDCL does not grant OA within time stipulated by MERC, the promoter will get deemed OA.

A committee will be constituted under the chief secretary for mid-term review of the policy. In case a promoter has power purchase agreement (PPA) with MSEDCL and wants to sell his renewable energy elsewhere, he can terminate the agreement.

Some of the sops are common. If the developer wants to use renewable energy for captive purpose, then he will get waiver on electricity duty for 10 years. MSEDCL and Mahatransco will not levy supervision charges for setting up transmission infrastructure. Maharashtra Energy Development Agency (MEDA) will give a grant of up to Rs 1 crore for transmission network.

Many incentives are common for solar and wind. They can get industry status if the developer wants. The land used for energy generation will be deemed non-agricultural (NA) use. No consent or no-objection certificate (NOC) will be

needed from Maharashtra Pollution Control Board (MPCB).

The policy has identified four ways of selling renewable power: to MSEDCL and other distribution companies in the state to fulfill their renewable energy purchase obligation (RPO), captive use, direct third party sale or selling power to the exchange through renewable energy certificate (REC) mechanism.

The target for wind generation is 5,000 MW. Private players already have 1,350 MW capacity. So 3,500 MW will have to be for captive use or outside the state sale. In case of solar energy, Mahagenco is the sole generator at present. Now, it will create 2,500 MW capacity on public private partnership (PPP) basis. The remaining 5,000 MW will be developed by private players on their own. MERC will give preferential tariff to solar and MSEDCL will give it priority for open access. MEDA will give land up to 4 hectare without auction.

[<Source>](#)

## Cheaper loans for RE projects

**Source Name:** *Energy Next*

The Renewable Energy Act, which is still in the process, might mandate 50 per cent of the balance in National Clean Energy Fund (NCEF) to fund renewable energy projects. This was said by GM Pillai, a member of a six-member sub-committee that drafted the law and is also Director-General of the World Institute of Sustainable Energy.

The NCEF has a corpus of over Rs 17,000 crore, from the coal cess. Pillai said that the suggestion has been made by MNRE to the Technical Committee on Renewable Energy Law that renewable energy projects should be provided with the subsidized NCEF loans so that the industry gets funds for interest rates of at least 9 per cent.

Pillai also brought the high operations and maintenance (O&M) costs of wind farms in perspective of the various state electricity regulatory commissions. It is typical of wind turbine manufacturers to undertake O&M charges for a fee. He said that these charges fixed without any transparency. Pillai also suggested that instead of the fixed fees on the basis of capital expenditure, the O&M fees should be based on power generation or revenues of the wind farm.

[<Source>](#)

## Metro will run completely on solar power soon, says DMRC

**Source Name:** *Hindustan Times*

A senior DMRC official confirmed that the proposal might involve the DMRC signing a power purchase agreement with a third-party developer in Rajasthan. "We do not plan to spend any money of our own. We could bid out the contract via an open and transparent process," the official said, adding that the DMRC is looking at buying solar power at a tariff lower than `6.94 per Kilo Watt per Hour, the rate at which it currently buys thermal power. The official added that an initial proposal is likely to be moved within a week.

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Further, the electricity act, which could be amended in the next session of parliament, may also require some tweaking for such a proposal to become viable.

[<Source>](#)



## Indian companies target children to push green messages ... and sell products

*Horlicks, Surf and other India-based brands are tapping into the younger generation to promote sustainability. Does it matter that the end aim is to increase sales?*

By Ashok Prasad



*Children cover their faces against pollution and fog in New Delhi, India. In the city, 40% of children have weak lungs due to air pollution, which makes them prone to respiratory infections. Photograph: Sanjeev Verma/Hindustan Times via Getty Images*

As the UN finalises the new sustainable development goals to replace the millennium development goals, India is a living example of the importance of ensuring that growth is sustainable.

India ranked 155th out of 178 countries in a recent survey on environmental quality and came almost last in air pollution exposure. Thirteen of the 20 most polluted cities in the world are in India, according to a WHO survey.

The country's annual GDP growth of 8% over the last decade has allowed millions to emerge from poverty, but has been clouded by environmental damage and poor social infrastructure. These challenges are being addressed at a governmental level through initiatives such as Clean India Mission, a five-year effort to eliminate open defecation, provide access to improved sanitation and clean up the River Ganges, among other targets. But they are also increasingly being tackled by businesses.

Domestic and multinational corporations are looking to play a more positive role in India's sustainable development. Several have identified a common audience on which to focus their efforts: children.

Organisations such as Unilever, IT giant Wipro and regional language daily paper Mathrubhoomi are working on initiatives that use children to increase support for environmental causes.

These social and environmental campaigns fall broadly into three main categories. The first includes initiatives that engage children to push for positive behaviour change in adults. Surf Excel's Keep India Clean, where children urge adults not to litter, is one such example.

The second focuses on behaviour change among children. Unilever brand Lifebuoy's Help a Child Reach 5 seeks to develop a hand-washing habit among children to prevent deaths from diarrhoea.

The third group consists of brands aligning themselves with children's causes. Horlicks'Ahaar Abhiyan (nutrition mission), for example, focuses messaging about its malnutrition prevention programmes on children under five. Noodle maker Ching's Secret's Hunger Ki Bajao initiative seeks donations for Akshayapatra's mid-day meal programme, which currently serves 1.4 million children across schools in India.

These initiatives indicate a very different trend to the pester power normally used by advertisers in India to persuade people to consume. So what is behind this shift to engaging children for cause-marketing in one of the fastest growing economies of the world?

### An educated generation

This is the first generation of children in India to receive formal environmental education in school, after the Supreme Court of India ruled that environmental education should become a compulsory subject from 2005. Up to the age of seven, children receive activity-based environmental education, and from the

ages of eight to 10, they study it as a separate subject. For older children, education on issues such as global warming, waste management and the health impacts of pollution are integrated into other subjects.

### Effects of pollution

These problems aren't just theoretical; water shortages, waste mismanagement and air pollution are affecting children's health and their daily lives. A recent report indicated that 40% of children in New Delhi and 36% in Bangalore have weak lungs due to air pollution, which makes them prone to a range of respiratory infections.

### Children are already environmental activists

The on-ground activism of children on environmental causes is evident in several cities. In Mumbai, children have been involved in the creation of eco-friendly idols of the Hindu god Ganesha. Thousands of these idols, traditionally made with chemical-laden fluorescent paints, are immersed in the sea during the annual Ganesh Chaturthi festival. Children have also been involved in the Save Water for My Tomorrow campaign in Bengaluru, which reached out to 350 schools, the cracker-free Diwali and the Earth Saviours project in Delhi, which organised street plays in schools.

### Captive audience in schools

While savvy marketers in India have long known that children are a key target audience, the availability of on-the-ground activation teams, the openness of the new generation of schools to corporate sponsorship and the leverage of digital media have made it easier to engage with school children throughout India.

This raises an obvious criticism. The end-objective of these environmental corporate initiatives is not altruism. Children are a very large market for a wide range of products that they can buy or influence their parents to buy. By linking themselves with a positive environmental and social message, brands want to take advantage of this halo effect to gain new customers.

[<ReadMore>](#)

## India may be hotter by 8 degrees, lose \$200bn per year: Study

Source Name: Hindustan Times

Global warming is at a much faster pace than estimated. The visible impact would be temperature crossing 50-degree mark by the turn of the century and water stress in the northern part of India, a new global study released on Monday in London and Mumbai said.

Climate change could cost India US \$200 billion per annum if it fails to ensure adequate adaptation measures and the countries fail to reduce their carbon emissions, the study — Climate Change: A Risk Assessment — conducted by climate advisors to the governments in United States, United Kingdom and China, the world's biggest carbon emitters, said.

They analysed data from across the world to arrive at the conclusions.

"The water stress will increase in coming years and will have implications on India's food security," said Arunabha Ghosh, chief executive officer of Council on Energy, Environment and Water, the Indian partner for the study funded by UK foreign office.

The authors have clearly outlined the northern part of India, including Delhi, Chandigarh, Bihar and Uttar Pradesh, as high impact zone of climate change in India.

In the report, they said, said high heat stress can have various implications, including restrictions on outdoor work and sports and not getting sound sleep.

Different scenarios presented in the report say the temperature could rise 8 degrees Celsius, crossing the 50-degree mark in cities like Delhi, Jaipur and Chandigarh during summer.

The study reiterated the fact that extreme rainfall will increase in India and sounded an alarm that frequency of floods will increase in the Gangetic plains.

Its implication will be on India's food security with an estimated loss of up to US \$200 billion per year by the turn of this century.

This is in tune with the assessment made by the Indian Agricultural Research Institute.

The report for the first time also showed internal security risks arising because of climate change.

It is well documented that a reason for rise of IS in was back to back droughts and food crises, the study said.

[<Source>](#)

## The innovative waste disposal plant that can convert even hazardous waste into energy

By Shreya Pareek

The waste will be collected from various cities of Uttarakhand for the innovative waste disposal plant that will convert it into energy. All types of waste, including hazardous, agricultural, biomedical waste can be used in the process. Know more.

We all know about biogas and how organic waste can be converted into energy. But did you know even non-segregated waste can produce energy? The Uttarakhand government will soon come up with India's first project to produce electricity from non-segregated waste.

The innovative technology will produce 25 megawatt of electricity every day, using 500 tonnes metric of waste. Not only this, there will be no emission, landfill or other waste from the process.



Photo: [www.waste-management-world.com](http://www.waste-management-world.com)

All of this will be done through a German based technology gasification which treats unsegregated waste at ultra high temperature without oxygen to produce a synthetic gas. This gas will then be used for production of electricity.

The gasification plant will have temperatures above 1000 degree Celsius and it can reach up to 2500 degree Celsius. The entire process will produce a synthetic or green gas that will be used to produce electricity and the end result will be non-leachable inerts which can be used for other purposes like construction and road making.

The waste will be collected daily from Dehradun, Roorkee, Haridwar, Rishikesh and other nearby cities. Requiring an investment of Rs. 500 crore, the plant will function throughout the year.

The Uttarakhand government is planning to set up the first such plant in Roorkee where land has already been given to a private company for kickstarting the project.

The State Industrial Development Corporation of Uttarakhand (SIDCUL) will be leading the project, along with several other departments that will be involved in running the plant.

The company that owns the plant will be responsible to build, own, operate and maintain it, and the government will not be incurring any expenditure. The electricity generated would cost Rs. 10 per kilowatt, which will be sold by them to UPCL.

All kinds of wastes, including hazardous, biomedical, agricultural, slaughter can be included in the process of making the energy. However, construction waste and demolition and radioactive waste, inert materials will be excluded.

[<Source>](#)

## No One Can Recycle Old, Broken Toys like This 11-Year Old. His Latest Innovation Is Outstanding!

By Tanaya Singh

Vedant is no ordinary kid. While other children throw away broken toys and buy new ones, he collects the scrap from his discarded ones to make new and ingenious gadgets.

Vedant Dhiren Thaker is a student of Class 6 in Shantinagar High School, Mira Road, Maharashtra. Like many other kids his age, broken toys are a regular feature of his growing years. But, not all his toys break accidentally. Some of them are disassembled carefully and all the electronic parts obtained from inside saved.

Vedant is interested in using these broken parts – the remote controls, magnets, batteries, etc. — to build new things, things that are completely different from the original toys.

So, when one of his remote control cars broke down recently, he decided to use it to make a device which would help him solve a daily household problem for his mother.

"During my summer vacation, I keep going outside the house many times. Many of my friends also come over frequently. The doorbell is constantly ringing and every time it goes off my mother has to leave whatever she is doing to open the door. I realised that this was a troublesome task and my mother used to get irritated at times," says Vedant.

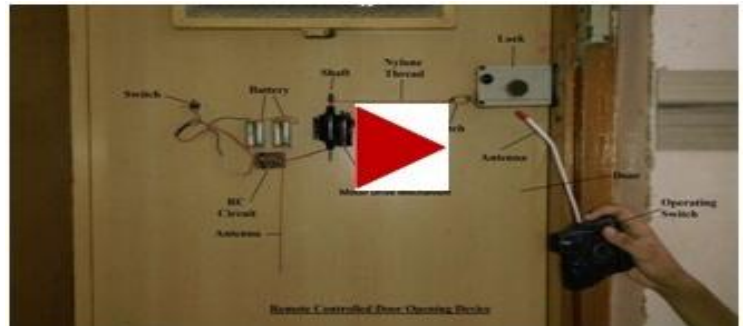


Vedant decided to do something to help his mother. He put his gadget-loving brain to use and made a remote control door operating device with the following spare parts obtained from a broken remote-controlled toy car:

- Remote control
- The motor drive mechanism circuit
- Rechargeable batteries
- The remote control (RC) circuit used inside the car

Vedant connected these to make a prototype device that opens the lock of the main door in his house with a remote control, and has enough range to be easily operated from any part of the house.

His mother can now open the door from anywhere, without having to leave the work she is doing.



For those who want to know how exactly the device works, here's more: [\(Geek Alert: Read at your own risk\)](#)

An RC car has a transmitter in the form of a remote control, and a receiver in the form of an antenna and a circuit board placed inside the car. There is a motor drive mechanism which turns the wheels and operates the steering of the vehicle. Finally, there is a power source in the form of rechargeable batteries.

For functioning, the transmitter sends Radio waves as the control signal which drives the motor, leading to the specified action (like rotation of wheels or steering), which then causes motion in the car.

**Vedant utilised this entire process for the working of his device.**

He attached the RC circuit, along with the motor drive mechanism of the car, to the door. The RC circuit also includes the antenna. From the remote control of the car, he sends radio waves to the antenna, which then gets transmitted to the motor drive mechanism through the battery.

This rotates the shaft of the gear box. Vedant has connected the shaft to the latch of the lock with a simple nylon thread. As the shaft rotates, the thread winds itself, thus pulling the latch, and the door opens. When the remote switch is released, the latch goes back to its original position.

"He never keeps any of his toys in their original form. Always makes something new out of them," says Vedant's father Dhiren. With his wonderful and inspiring curiosity, Vedant has built numerous things like electronic boats, a power source, and crackers made from scrap. Read more about the solar power source that he has developed from a discarded laptop battery here.

**Kudos to the young genius and his love for electronics!**

[<Source>](#)



## Forthcoming Events

### 3<sup>rd</sup> INTERNATIONAL CONFERENCE ENVIRONMENTAL MONITORING AND ASSESSMENT

1-2 OCTOBER 2015

AARHUS, DENMARK

The 3<sup>rd</sup> International conference is being organized by Danish Centre for Environment and Energy, Aarhus University together with Partnership for European Environmental Research (PEER), Aarhus University. Environmental monitoring and assessment is fundamental to the understanding of our ecosystems, to prevent adverse effects on ecosystems and human health, as a basis for policies, and as a tool to follow the outcome of regulations.

The conference shall provide a platform to bring together researchers and practitioners to discuss the future challenges and opportunities for environmental monitoring and assessment, with the aim of discussing and sharing ideas on future methods and technologies, document and discuss the value of combining research and monitoring, strengthen the chain from monitoring and assessment to environmental policies, regulation and management and strengthening an interdisciplinary, joint international and integrated approach.

Themes of the conference are: Environmental monitoring, Monitoring strategies & data evaluation, and New and alternative methods for monitoring. Speakers from various countries are expected to give deliberations at the conference. Speakers include renowned personalities like **Hans Bruyninckx**, Executive Director of the European Environment Agency (EEA), **Katherine Richardson**, Professor, University of Copenhagen, Denmark, **Arko Lucier**, Senior Lecturer, University of Tasmania, Australia, **Nigel Gilles Yoccoz**, Professor, UiT, Arctic University of Norway, **Daniel Conley**, Professor, Lund University, Sweden, **Michael Rode**, Professor, Helmholtz Centre for Environmental Research-UFZ, Germany, **Grant Miller**, Community Manager at Zooniverse, Oxford, England and **Mark Desholm**, Head of Conservation and Science Department, Birdlife Denmark.

[<ReadMore>](#)



3rd International Conference on Sustainable Environment and Agriculture (ICSEA 2015) will be held in New York, USA. during 11-12 October, 2015 at New York LaGuardia Airport Marriott. ICSEA 2015 is sponsored by the Asia-Pacific Chemical, Biological & Environmental Engineering Society (APCBEEs). It is one of the leading international conferences for presenting novel and fundamental advances in the fields of Sustainable Environment and Agriculture. It shall also serve fostering communication among researchers and practitioners working in a wide variety of scientific areas with a common interest in improving Sustainable Environment and Agriculture related techniques.

Topics of interest for conference include, Biodiversity, Climate Change, Environment & Water Management and Soil Conservation. It is expected that conference will attract speakers and participants from many countries.

[<ReadMore>](#)

**International Seminar (CC 2015)**  
**On**  
**CLIMATE CHANGE: IMPACT ON DEVELOPING COUNTRIES**  
**15th- 17th October 2015**  
**Shillong, Meghalaya, India**

Conference titled Climate Change: Impact on Developing Countries is being organized by Union Christian College, Umiam, Shillong, Meghalaya during 15<sup>th</sup> to 17<sup>th</sup> October, 2015 at their college campus. The cost of climate change will be borne by all. Technologically advanced countries are better prepared for responding to climate change, particularly by developing and establishing suitable policy, institutional and social capable for dealing with the consequences of climate change. Even the richest nations face the prospect of economic recession, threats to economic and national security and a world in conflict over diminishing resources. Yet, it is the poor and developing countries that will be hardest hit by climate change related disasters, because they are economically and politically least developed and lack the sound technologies or scientific development to deal with the impacts of climate change. In developing countries like ours, climate change is an additional burden because ecological and socioeconomic systems are already facing pressures from rapid population growth, industrialization and economic development. Developing countries, thus, are the most vulnerable to climate change impacts because they have fewer resources to adapt: politically, socially, technologically and financially. While our society is in the grip of a dangerous greenhouse gas habit, a concerted global action is needed to enable developing countries to adapt to the effects of climate change that are happening now and will worsen in the future.

This conference is being organized at a very opportune time. Objectives of this conference are:

1. To understand and ascertain the artificial/man-made dimensions of climate change.
2. To foster the exchange of pedagogical information, ideas and experiences acquired in the execution of climate change adaptation projects, especially successful initiatives and good practice on the key aspects of the theme.
3. To study and examine the existing relation between contemporary economic development and Climate Change Variability.
4. To examine the areas of vulnerabilities and the potential impacts of Climate change in developing countries.
5. To discuss methodological approaches and experiences deriving from case studies and projects and explore the adaptation and response strategies to climate change which can be implemented in practice in the developing countries.
6. To identify the key areas of tension and conflict in the realm of policy-making and international collaboration in dealing with Global Climate Change.

[<ReadMore>](#)



**ASIA  
CLEAN ENERGY  
SUMMIT**  
27 - 28 October 2015  
Sands Expo and Convention Centre  
Marina Bay Sands  
Singapore



The Sustainable Energy Association of Singapore (SEAS) is organizing in collaboration with The Energy Research Institute at NTU (ERI@N) and the Solar Energy Research Institute of Singapore (SERIS). Asia Clean Energy Summit (ACES) is Asia's leading event focusing on clean energy technology, policy and finance supported by leading government agencies, research institutes and industry in Singapore. ACES provide a common platform for regional thought leaders in both the public and private sector to collaborate on critical issues and opportunities in harnessing clean energy for the future. As the regional platform to share and co-create innovative clean energy solutions, ACES supports the vision to be a clean energy hub for Asia.

This conference provides a platform to discuss, understand and experience Singapore's "living laboratory" for solar adoption, the integration of renewable energy and electric vehicles, and learn how sustainable energy management is essential to liveable cities. It helps shape the future of lean energy and smart-sustainable cities. ACES explores collaboration and innovative clean energy solutions within a vibrant ecosystem of technology / service companies, research institutes and energy leaders.

The conference is expected to be attended and addressed by representatives of major players in the field of clean and renewable energy and associated areas.

[<ReadMore>](#)



*The Economic Times, Delhi dated June 26, 2015*

## Govt Plans Flexi-fuel Policy for Automobiles to Cut Dependence on Imported Fossil Fuels

Notifies ethanol up to 85% for petrol & diesel-run vehicles that would allow the sugarcane-based byproduct to be used in CVs in first stage and eventually for other segments

Chanchal Chauhan  
@timesgroup.com

New Delhi: Government plans to introduce flexible-fuel policy for the automotive industry to promote new sources of alternative energy and reduce dependence on imported fossil fuels that has been a major burn on forex reserves.

In the first step, government has notified ethanol up to 85% for petrol and diesel-fired vehicles that would allow the sugarcane-based byproduct to be used in commercial vehicles in the first stage and eventually for other segments.

While provisions for blending 5% fuel with ethanol are already there and plans to hike the content to 10% - due since 2008 - is being expedited by the current NDA government. The new notification has framed the broad contours to have 85% ethanol content allowing the bio-fuel to be used in neat-energy source in the automotive industry.

As per the notification issued last month, the newly-manufactured petrol vehicles fitted with spark ignition would be able to run on a mixture of petrol-ethanol mix of up to 85% (Ethanol) blend.

"There vehicles would require to meet emission standards as prescribed for other vehicles depending on this special fuel. Besides notifying the new norms,

the Bureau of Indian Standards would make the ideal ISI specifications for the new fuel in the next three months for its commercial availability in the future," a senior government official said.

The government is pushing for higher usage of sugarcane by-product in petrol in an effort to improve the environment. Used widely in many foreign countries like Brazil, a pilot project to introduce bio-fuels in the Indian market was started in Nagpur in Maharashtra, where Swedish manufacturers Scania had introduced its first ethanol-run buses for public transport.

*The Times of India, Delhi dated June 26, 2015*

## Trucks will pay fee for polluting city air

₹100-₹1,500 Depending On Vehicle Size, But Buses And Diesel Cabs Exempted

TEAM TOI

New Delhi: Diesel heavy vehicles plying in Delhi at night will have to pay for polluting the city's air. In its first budget, the AAP government has proposed congestion fees of Rs 100 to Rs 1,500 on different classes of goods vehicles in the form of a tax. More than 50,000 heavy vehicles enter the city every day. However, there will be no charge on buses and diesel taxis.

The money thus collected will be used to improve public transport facilities, install weighbridges that can check the weight of moving vehicles, and for other initiatives to improve air quality, deputy CM Manish Sisodia said while presenting the budget.

Environmentalists welcomed the step but said more can be done to discourage use of personal vehicles by residents of the city as well as visitors. "It's good that the government has come up with tax measures to control air pollution and that they are going to use the fund to improve the public transport network, but they should also have fiscal measures to discourage use of personal cars," said Anumita Roychowdhury,

### CONGESTION FEE ON COMMERCIAL VEHICLES ENTERING DELHI

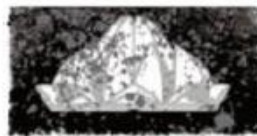
TYPE OF VEHICLE	FEE PER ENTRY (in ₹)
Tempo	100
4-wheel truck	500
6-wheel truck	750
10-wheel truck	1,000
14-wheel truck	1,500

### ONE-TIME SUBSIDY FOR BATTERY-OPERATED VEHICLES (in ₹)



head of Centre for Science and Environment's (CSE) Clean Air campaign. She added that personal cars should also be taxed.

Among other environment-related measures, more than Rs 3,500 crore has been earmarked for procurements related to public transport. Delhi government will provide subsidies on battery-operated vehicles in addition to



LET DELHI BREATHE

the 30% subsidy from the Centre. An electric four-wheeler costing more than Rs 5 lakh, for instance, will get a subsidy of Rs 1.5 lakh from the state.

The government will modernize the pollution under control (PUC) system by making PUC monitoring centres run online from July. This will reduce manual interference and tampering with data.

Yamuna will be a priority for the government. "We will clean Yamuna so effectively that people can have picnics on its banks and enjoy boating," Sisodia said while an-

nouncing that a project worth Rs 3,656 crore had been prepared to "provide sewerage services in uncovered areas and to prevent flow of wastewater in Najafgarh and supplementary drains. The project will involve setting up 15 new sewage treatment plants, three new sewage pumping stations and peripheral sewer network."

The National Green Tribunal (NGT) had recently directed the government to implement this project based on recommendations by an expert body of scientists. "As these drains contribute 70% of the pollution in Yamuna, this project will significantly reduce pollution. It will be completed in two years," the budget said.

Sisodia also announced that Delhi Urban Shelter Improvement Board (DUSIB) would construct 4,000 toilet seats in 53 slum clusters.

Based on Energy Efficiency and Renewable Energy Management Centre's rooftop solar policy, the government plans to increase solar power generation capacity from 7MW currently to 14MW this year. The plan outlay for renewable energy is about Rs 10 crore.



*Deccan Chronicle, Hyderabad  
dated June 28, 2015*

**POLLUTION | ROW**

■ **HC ordered TSPCB to identify polluting units**

## Green laws ignored in TS

V.NILESH | DC  
HYDERABAD, JUNE. 27

Polluting industrial units in and around Hyderabad continue their operations without fear while the industries department of Telangana and the Telangana State Pollution Control Board are busy playing blame games.

Last December, Hyderabad High Court had ordered the Telangana State Pollution Control Board to identify all the polluting units in the 10 kms radius of Osmansagar and Himayathsagar lakes and take appropriate action.

However, six months on the TSPCB officials are still lumbering over the job. When asked an official from the TSPCB Hyderabad zonal office said, "We have identified 48 industrial units which fall in the red category of polluting indus-

tries of which six are non-operational now.

However, a report is yet to be prepared if each of the remaining 42 are complying as per pollution control norms. After this, the report will be sent to a committee which will then decide what action is to be taken against the units found to be non-complying."

TSPCB blames the Telangana State Industrial Infrastructure Corporation for not developing enough infrastructure at Indrakaran, Buchinelly and Rakamcherla industrial areas to facilitate the shifting of industrial units out of Hyderabad.

The TSPCB official said, "Owners of the polluting industrial units are not ready to shift out of Hyderabad because in the city they have got all the required infrastructure for

smooth conduct of business. They have been operating here since decades.

The TSIIIC has not developed even an effluent treatment plant at the new industrial areas even though we are ready to bear the cost."

When asked a senior official belonging to the office of Commissioner of Industries said, "We are ready to process applications and give land to units if they are to shift to any of the industrial areas outside the city.

Our responsibility ends there. The PCB should shut down polluting units or take whatever action they deem fit. We cannot force the industries to move out of Hyderabad."

He added that there have been no guidelines or orders from the government on shifting of polluting industries.

**48 POLLUTING UNITS IDENTIFIED IN 'RED' CATEGORY IN 10 KM RADIUS OF OSMANSAGAR AND HIMAYATHSAGAR**

■ **POLLUTING INDUSTRIES INCLUDE EDIBLE OIL REFINERIES, STEEL RE-ROLLING AND TEXTILE DYEING**

■ **TEXTILE DYEING AND EDIBLE OIL REFINERY UNITS SHOULD HAVE BEEN SHIFTED TO INDRAKARAN AND BUCHINELLY IN MEDAK**



**GO 111 ON SHIFTING POLLUTING UNITS STILL PENDING AFTER TWO DECADES**

*Deccan Chronicle, Hyderabad  
dated June 29, 2015*

## CLIMATE CHANGE: OBAMA INTERVIEWS ATTENBOROUGH

Washington, June 28: US President Barack Obama has lamented the slow progress in combating the threat posed by climate change as he discussed global warming and pressing environmental issues with celebrated British naturalist David Attenborough. Obama interviewed

Attenborough to the White House for a discussion to celebrate David's 89th birthday. Obama is a fan of Attenborough, who has created numerous science and nature documentaries for the BBC. The two taped an interview, in which Obama told David he grew up watching his programmes.

*The Times of India, Delhi dated  
July 01, 2015*

## Pollution war: Construction waste focus of draft rules

Vishwa.Mohan  
@timesgroup.com

**New Delhi:** In order to deal with 'construction waste', a key source of air pollution in cities including the Capital, the government's draft rules on solid waste management make it mandatory for construction agencies to segregate concrete, soil, steel, wood and plastic waste for proper disposal.

The draft rules on plastic waste propose fines on street vendors for using substandard carrying bags among a slew of stringent steps to tackle the issue. These are part of the government's overall plan to come out with new rules for all kinds of waste including municipal waste, e-waste, bio-medical waste and plastic waste.

A separate set of rules deal with the utilisation of fly ash within 100 km from coal or lignite-based thermal power plants.

Making the draft rules public on its website, the environment ministry has sought opinion from experts and others by July 31. After getting views and suggestions from stakeholders, it will notify the rules for managing all kinds of waste for towns across India.

"The environment ministry will also come out with rules for 'sand mining' which will be applied across the country. We will also take help of technology like satellite mapping system while identifying the mining zones," environment minister Prakash Javadekar said on Tuesday.



*The Times of India, Delhi dated  
July 01, 2015*

# Green body to track gas emissions online

Data From 1,320 Units To Be Scanned 24/7

## MONITORING MECHANISM

ROUND-THE-CLOCK MONITORING OF EMISSIONS & EFFLUENTS FROM HIGHLY POLLUTING INDUSTRIES

> 920 units have installed **24x7** sensor-based sophisticated monitoring devices

> 400 units have moved towards **zero liquid discharge (ZLD)** system - treating and re-using entire water discharged from units; **such units will not discharge water into drains or rivers**

> Remaining units (primarily petrochemicals, refineries and power plants) **will install such devices by September**

> Mandatory for **17 categories of industries** to install online effluent quality and

emission monitoring system

> State Pollution Control Boards (SPCBs) have installed **necessary software and hardware at their respective headquarters**

> Online monitoring devices/system at industrial outlets are **linked to SPCBs' headquarters** which are, in turn, connected to CPCB headquarters in Delhi

> If CPCB Delhi finds any unit exceeding the prescribed limit of pollutants for continuously 15 minutes, it will **send SMS alert to those units for correction**

**2800**  
highly polluting industrial units in India

If they don't correct, the CPCB will initiate **against them, including imposing fine**

STATUS OF **HIGHLY POLLUTING INDUSTRIAL UNITS**

**630** units **ALONG THE RIVER GANGA**

**440** tanneries (currently catered by Central Effluent Treatment Plants; The CETPs are being upgraded to achieve ZLD)

**80** of the remaining 190 units have installed monitoring devices

**30** units have placed orders for installing



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**New Delhi:** Taking a significant step forward in its efforts to deal with pollution by monitoring effluents and emissions from polluting industries, the Central Pollution Control Board (CPCB) has started getting round-the-clock online data on the compliance status of 1,320 out of 2,800 industrial units across the country.

While 920 of these 1,320 units have set up real-time sensor-based sophisticated monitoring devices, another 400 have moved towards the 'zero liquid discharge' (ZLD) system, where they treat the entire water and reuse it.

Such units will not discharge a drop of waste water into drains or rivers.

Though there was a deadline of June 30 for all industries to install sensor-based monitoring devices at their ends, certain industries like petrochemicals, oil refineries and power plants will get it done during their phase-wise scheduled shut-down period in next three months.

"This is a big leap in the management of pollution in the country", said Union environment minister Prakash Javadekar while announcing the launch of the 24x7 real-time monitoring system here on Tuesday.

He said, "Polluting industries will be dealt with strict-

ly. We will not spare any unit which is found to be discharging emitting pollutants beyond prescribed limits".

The environment ministry has also made it mandatory for new distillery, textile, tannery, chemicals, fertilizer, pesticides, dyes and pharmaceutical units to go for ZLD system before getting final order for commissioning.

Under the system, government will send SMS alert to those industries whose pollutant parameters are found to be exceeding the prescribed limits for more than 15 minutes at a stretch.

*The Times of India, Delhi dated  
July 02, 2015*

*The Times of India, Delhi dated  
July 02, 2015*

# Soon, animal fat, farm waste to power flights

Jad Mouawad & Diane Cardwell

Now that relationship is showing signs of taking off.

Sometime this summer, a United Airlines flight will take off from Los Angeles International Airport bound for San Francisco using fuel generated from farm waste and oils derived from animal fats.

For passengers, little will be different — the engines will still roar; the seats in economy will still be cramped — but for the airlines and

On Tuesday, United plans to announce a \$30 million investment in one of the largest producers of aviation biofuels, Fulcrum BioEnergy, the biggest investment so far by a domestic airline in the small but growing field of alternative fuels. (Cathay Pacific, based in Hong Kong, last year announced a smaller investment in Fulcrum.)



Growing pressure to reduce carbon emissions and lower costs has prompted airlines to seek environment-friendly fuels

The quantities that United is planning to buy from Fulcrum constitute a small drop in its voluminous fuel consumption. Last year, United's fleet consumed 3.9 billion gallons of fuel, at a cost of \$11.6 billion.

But airlines are increasingly under pressure to reduce carbon emissions.

The Obama adminis-

tration proposed this month that new limits on aviation emissions be developed, and the International Civil Aviation Organization, a United Nations agency, is expected to complete its own negotiations on limiting carbon pollution by February 2016.

For the first two weeks, four to five flights a day will carry a fuel mixture that is 30% biofuel and 70% traditional jet fuel; after that, the fuel will be blended into the overall supply, United said. NYT NEWS SERVICE

the biofuels industry, the flight will represent a long-awaited milestone: the first time a domestic airline operates regular passenger flights using an alternative jet fuel.

For years, biofuels have been seen as an important part of the solution to reducing greenhouse gas emissions. And airlines, with their concentration around airports and use of the same kind of fuel, have been seen as a promising customer in a biofuels industry that has struggled to gain traction.



The United Nations on Wednesday voiced its concern about the state of the Great Barrier Reef, and urged Australia to initiate greater efforts to conserve the 2,300km reef off the Queensland coast. However, Unesco's world heritage panel stopped short of designating the site as endangered. Experts said the reef, the world's largest living ecosystem, is threatened by climate change, waste water, fishing and coastal developments



*The Economic Times, Delhi dated July 03, 2015*

## BMW Starts Testing First Fuel-Cell Car



A BMW 5-Series Gran Turismo hydrogen fuel-cell prototype car

ELISABETH BEHRMANN

BMW will test a vehicle powered by hydrogen fuel cells on public roads this month as the German automaker looks to expand clean-car offerings after rolling out the battery-powered i3 in 2013.

The company plans "a technically mature, customer-ready vehicle some time after 2020," Matthias Klitzsch, head of powertrain research, told journalists at BMW's test track in Miramas, France. "By around 2025 to 2030, we expect fuel cell cars to have an established presence, but there are challenges that remain, like building the refuelling infrastructure."

BMW is developing fuel cells with Japanese partner Toyota Motor, and it demonstrated a 5-Series Gran Turismo prototype in Miramas on Wednesday that uses the companies' joint technology. The model is part of the car industry's multibillion-dollar effort to create alternative powering setups and improve fuel use to meet tightening emissions rules.

Fuel cells, which have provided spacecraft with power since the 1960s, produce electricity by reacting hydrogen with air, enabling longer travel than battery-driven vehicles while emitting only water vapour rather than carbon dioxide. Disadvantages include a lack of service stations equipped to replenish the hydrogen gas, and the high cost of rare metals needed for the technology.

On a trip around the Miramas track, the Gran Turismo handled like any other electric car, except for a hissing sound during sharp acceleration from a pump passing hydro-

gen and air through the fuel cells. BMW also showed a plug-in hybrid version of its van-like 2-Series Active Tourer, due to go on sale next year, and a 1-Series compact equipped with a conventional motor that uses water injection to boost fuel efficiency.

### DEMAND CHALLENGE

By the start of 2018, the world's fleet of fuel-cell cars will number just 8,400, up from a total 1,275 at the end of this year, Bloomberg New Energy Finance estimates. Toyota and Japanese competitors Nissan and Honda pledged on Wednesday to contribute funds to developing a hydrogen-fueling network in the country. The fuel-cell Gran Turismo has a range of 500km before refuelling. That's more than triple the i3's 160km. The i3's batteries take at least five hours to recharge, compared with five minutes to fill the prototype's hydrogen tank.

"Technically, we're ready to put fuel-cell cars on the road, but so far it remains too expensive," said Axel Ruecker, who's part of the hydrogen development team at Munich-based BMW. "Making fuel-cell technology a reality is a task not just for carmakers, but for the whole of society."

### TOYOTA'S MIRAI

Toyota, the world's biggest auto manufacturer, began sales in December of the Mirai fuel-cell sedan, its first production vehicle to run on hydrogen. The four-door model costs \$62,000 in the US, where the company is targeting 3,000 deliveries of the car through 2017.

Bloomberg

*The Times of India, Delhi dated July 03, 2015*

## Forest official cuts 4k trees in Taj eco zone, sells them

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Agra: A former district forest officer (DFO) illegally cut down thousands of trees in Taj Mahal's special eco-sensitive zone and sold them off without any written orders or intimation. In a report sent to the state government, a copy of which is with TOI, chief forest conservator AK Jain said that all the trees were more than 30 years old and a majority of them were of rare varieties.

According to the report sent to the state government on June 26, former Agra DFO NK Janu had cut 8,000 trees in Babupur and around 4,000 trees in the 500-metre-radius of the Taj Mahal, which is an eco-sensitive zone mandated by the Supreme Court. As per the rule, trees in this zone cannot be cut without obtaining permission from the apex court.

Most of these trees were cut during 2011-12. The report said that the area had thousands of Prosopis trees, which is a genus of flowering plants in the pea family. The official allegedly cut down 80% of the adult trees in the area. Despite repeated attempts, Janu was not avail-



MONUMENTAL LOSS

ble for comment.

The Supreme Court had earlier in March rapped the Uttar Pradesh government for making false claims on plantation of trees in the Taj trapezium zone (TTZ) to protect the Taj Mahal from pollution. After a two-member panel submitted its report on the anomaly, it had come to light that the state government's claim of having planted 15,000 trees around the world heritage site was patently false. The report said not even one sapling had been planted to compensate for trees that had been felled in the area.

As per the SC order, the state government is required to plant over 2.58 lakh trees in 790 hectares of land. The state government had then suspended two senior forest offi-

cials of Agra division for not complying with the order and for laxity in the afforestation drive. TTZ is a 10,400 sq km trapezium-shaped area covering five districts of the Agra region. It comprises over 40 protected monuments, including three World Heritage sites — Taj Mahal, Agra Fort and Fatehpur Sikri.

The SC has been monitoring the case for the last 31 years after it was contended that growing pollution levels in the city posed serious danger to the Taj Mahal. It has from time to time allowed the state government to cut down trees for purposes of creating infrastructure, including widening of roads, with a direction that sufficient number of saplings would be planted to compensate for the loss of trees.



The Economic Times, Delhi dated July 04, 2015

# INDIA TO MARKET ITS VOLUNTARY STEPS AT PARIS CLIMATE MEET

Officials say New Delhi will announce actions to cut down on emissions and will also tell the world how much the country has already done and is doing to protect the environment

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As the world gears up for the UN Climate Change Conference to be held in Paris this year-end, a lot of attention is focused on India and the role it will play in what many see as a make-or-break deal on climate change.

With the US, Europe and now China having put out their Intended Nationally Determined Contributions (INDCs), or emission target actions, for the Conference of Parties (also known as COP 21), India is the next country to be watched out for. India has to submit its INDCs by September 30.

The 21st session of the conference will be hosted in Paris in December 2015 to find consensus on keeping global warming below 2 degree Celsius by cutting down on greenhouse gas emissions.

India, as a developing nation, is seen as a key partner on climate change talks and is taking an increasingly visible leadership role on the issue. The BJP-led government has taken a strong and clear position on climate change, emphasising its commitment to the cause and its voluntary initiatives. It has also at the same time

pointed out repeatedly that developed nations cannot escape the responsibility towards greater action to check climate change.

Top government officials said India's INDCs will be focusing also on the environmentally-friendly measures it has already adopted. India hopes to use the global forum to tell the world just how much it has been working on a voluntarily basis on the matter, owing to its concern for climate change.

Prime Minister Narendra Modi's very own proposal to co-launch a book with French President Francois Hollande on slogans related to climate change ahead of the Paris talks is an indicator of New Delhi's efforts to highlight its views. Incidentally, the government's plan also fits in perfectly with the larger global political impetus that France is trying hard to build to ensure that an agreement is arrived at when 196 countries converge in its capital in December.

"We will take a range of actions towards cutting down emissions, but we will also tell the world how much we have already done and are doing. While India already exercises a range of measures that work towards checking climate change, the problem is that we have not managed to package this and market this well. We intend to correct that," a senior official at the

## UNENDING QUESTIONS

- 1 The Most Important Element**  
Whether stakeholders will agree to set up a well-defined funding structure that will help build trust for concerted global action and commitment to tackle climate change challenges. Developed countries have agreed to mobilise \$100 billion every year from 2020, but there isn't much clarity where this money will come from.
- 2 Scepticism Creeping In**  
This week, China declared its INDCs pledging to reduce the emissions intensity of its GDP by 60-65% compared with 2005 levels by 2030 and to raise the share of non-fossil fuels to 20% of its primary energy mix by 2030. Those tracking the INDCs have started saying the INDCs put out by the major polluters — US, Europe and now China — are not ambitious enough to limit global warming increase by only 2 degrees Celsius.
- 3 The Big Downer**  
The shadow of the failed Copenhagen talks. Lack of an agreement or even a weak agreement is bound to be a big setback.
- 4 Buzzwords At Paris**  
Bringing a 'solution agenda' involving all stakeholders. France is keen to project Paris as a starting point and not the end of the game. Consensus-building is key with Paris averse to imposing any kind of 'presidency text' for the agreement in case Paris goes the Copenhagen way and into a 'crisis COP'.
- 5 Bilateral Engagements**  
The French government is investing considerable energy in engaging with the political leadership of all major economies. It plans to invite all heads of state for the opening of the meeting in December. Prime Minister Modi is expected to attend the event. In October, France will call a special ministerial meeting in Lima where finance ministers from across the globe are expected to take up contentious issues like a structure for climate funding.



**India will strongly raise the need to mobilise climate funding and assert its right to development and sustainable industrialisation as a developing nation with aspirations**

environment ministry told ET. "From our ambitious solar and wind power targets, we will also be pointing to the huge lifestyle changes that will bring about greater energy efficiency. We also intend to move increasingly towards green buildings, are bringing in several pollution control measures and will work across ministries and departments for a concerted action plan."

Ministry officials said India is taking its INDCs very seriously and will also indicate clear timelines for achieving the targets it sets out to show its commitment to the cause.

Globally, too, India's 'Make in India' plan, the focus on lifestyle choices towards climate change, PM Modi's idea to create a coalition of nations for solar power, the ambitious solar power targets and efforts aimed at bringing renewables at par with coal in costs are eliciting curiosity and attention.

The tone and tenor of India's stance at COP 21 has in fact been set well in advance by Modi. During his visit to Berlin earlier this year, Modi said "India

will set the agenda for the upcoming Conference of Parties." The emphasis on common but differentiated responsibility and the historical responsibility of developed nations had also been underlined.

Modi also expressed his surprise at some criticism India has been facing on its stance on climate change, saying "...that the world is scolding us even though our per capita gas emission is the lowest...The whole world is posing questions to us. Those who have destroyed climate are asking questions to us. If anybody has served the nature, it is Indians."

Environment minister Prakash Javdekar, speaking in June at the sixth Petersburg Climate Dialogue in Berlin, also emphasised the need for developed countries to take enhanced mitigation pre-2020 measures to prevent dangerous human interference with the climate system before the COP 21 targets would kick into effect if the agreement comes through.

Even on the subject of hydrofluorocarbon, the Modi

government has marked a shift in stance, agreeing to move an amendment to the Montreal Protocol for a phase down of gases used extensively in refrigeration and air-conditioning in India, but also setting out its own terms of negotiations.

India will also strongly raise the need to mobilise climate funding as assured earlier by developed nations and will assert its right to development and sustainable industrialisation as a developing nation with aspirations.

India is among the nations that have talked repeatedly about the nature and structure of climate funding as well as the need for the developed nations to enhance action on their own for the pre-2020 period the emission cut targets specified under the Kyoto Protocol are in effect only until 2015 and the COP Paris agreement, if arrived at, will kick into effect after 2020. Developing nations have been asking for the need to take enhanced measures before 2020 as well.



The Times of India, Delhi dated  
July 04, 2015

Deccan Chronicle, Hyderabad  
dated July 05, 2015

# Solar Impulse sets solo flight record

## Borschberg Clocks Over 100 Hours In Air, Plane Lands In Hawaii After 5-Day Sojourn

**Honolulu:** The Solar Impulse 2, an airplane powered by the sun, landed on Friday in Hawaii, ending a nearly five-day, 8,200-kilometre flight from Japan—the longest and most dangerous leg in an attempt to fly around the world without a drop of fuel.



**POWERED BY THE SUN:** A picture released by the Solar Impulse team shows pilot Andre Borschberg after flying for three consecutive days en route to Hawaii

The flight was the longest leg of an around-the-world voyage planned by two Swiss pilots, who have been taking turns flying the single-seat airplane. It is also the riskiest because the plane has nowhere to land in an emergency.

One of the pilots, Andre Borschberg, broke the record for the longest non-stop solo flight on way to Hawaii, the organizing team said. Borschberg clocked up more than 100 hours in the air — supplanting the previous longest

solo endurance flight by Steve Fossett, who flew for 76 hours and 45 minutes in 2006. The whole trip from Japan to Hawaii was expected to take 120 hours.

“Can you imagine that a solar-powered airplane without fuel can now fly longer than a jet plane?” Bertrand Piccard, the aircraft’s other pilot, said in a statement, flagging the possibility of clean technologies achieving impossible goals.

The plane is visiting Hawaii just as the state has embarked on its own ambitious clean energy project, with Gov David Ige signing a legislation last month directing the state’s utilities to generate 100% of their electricity from renewable energy resources by 2045. The Solar Impulse’s next destination is Phoenix, but the departure date hasn’t been announced. The plane started its global voyage from Abu Dhabi in March. It has stopped in Oman, India, Myanmar, China and Japan in the months since.

The wings of the carbon fiber aircraft have more than 17,000 solar cells. The plane flies up to about 28,000 feet during the day to recharge its batteries while descending to under 10,000 feet at night to minimize power consumption. However, bad weather is a challenge because the plane isn’t designed to withstand rain, turbulence and heavy winds. Diverting around clouds takes extra energy. The aircraft travels at about the same speeds as an automobile. The pilots aim to demonstrate the potential of energy efficiency and renewable power with the project. AGENCIES

While countries may still be sleeping, people have taken the problem head-on

# GORAI SHOWS WAY IN DUMPING WASTE

● BHAGWAN PARAB

**P**ollution from dumping grounds has always been one of the major concerns in Mumbai. With the city daily generating about 7,500 metric tonnes of garbage, it is a huge challenge for the Brihanmumbai Municipal Corporation to treat the waste properly and also maintain the ecological balance of the city.

Against this backdrop, BMC’s Public Private Partnership project of scientific closure of the Gorai dumping ground — the first such case in the country — has won international accolades. By converting one of the biggest dumpsites into eco-friendly surroundings the civic body has managed to improve the quality of human as well as marine life.

The Gorai site, spread over an area of 19.6 hectare, is located adjacent to environmentally sen-

sitive Gorai creek area and was operational since 1972. Approximately 2,200 ton of solid waste from western suburbs was being dumped daily at the site. Approximately about 2.34 million ton of waste was lying at the site.

## MAHARASHTRA

As the complaints about the foul odour, smoke and fires causing pollution increased gradually, the local residents moved court against the dumpsite. Based on a SC order, the BMC started Gorai dumping ground scientific closure project.

In 2007, the BMC stopped dumping fresh waste and decided to convert the dumpsite into a green landscape with scientific measures. The work of closure was completed in July 2009.

WHILE BEIJING’S POLLUTION PROBLEM IS MORE FAMOUS, THE WORLD’S MOST POLLUTED CITY IS NEW DELHI

BREATHING THE AIR IN MUMBAI, FOR JUST ONE DAY IS EQUIVALENT TO SMOKING 100 CIGARETTES.

1,000 CHILDREN DIE IN INDIA EVERY YEAR DUE TO DISEASES CAUSED BY THE POLLUTED WATER.

100 MN PEOPLE HIT BY POLLUTION WORLDWIDE

1 BN PEOPLE WORLDWIDE DON’T HAVE ACCESS TO SAFE DRINKING WATER

80% OF URBAN WASTE IN INDIA IS DUMPED IN THE GANGA

THE GARBAGE DUMPED IN THE OCEAN EVERY YEAR IS ROUGHLY AROUND 14 BILLION POUNDS. PLASTIC IS THE MAJOR CONSTITUENT.

5,000 PEOPLE DIE AS A RESULT OF DRINKING UNCLEAN WATER.

THERE ARE OVER 73 VARIOUS KINDS OF PESTICIDES IN GROUNDWATER, WHICH IS USED AS DRINKING WATER.

CHINA IS THE WORLD’S LARGEST PRODUCER OF CO<sub>2</sub>, FOLLOWED BY THE US

1MN SEABIRDS KILLED DUE TO POLLUTION EVERY YEAR. AND 100 MN MAMMALS TOO

Courtesy: www.conserve-energy-future.com

# Water pollution crossing limits

DC CORRESPONDENT  
HYDERABAD, JULY 4

The pollution of groundwater in specific areas in Hyderabad could worsen to such an extent that it will be difficult to manage it, according to a study conducted by four researchers, including three from Osmania University.

According to the three-year study, *Impact of urbanisation on groundwater in the central basin of Hyderabad*, the pollutants detected in the groundwater varied according to the area under test.

The concentration of total dissolved solids was found to be nearly 1,800 mg/l in Jeedimetla and Kukatpally and 1,500mg/l in Balanagar and Sanathnagar.

The reason for the differential has been attributed to leaching of solid waste and industrial effluents from Kukatpally industrial area into the groundwater.

Chloride concentration

● The concentration of total dissolved solids was found to be nearly 1,800 mg/l in Jeedimetla and Kukatpally and 1,500mg/l in Balanagar and Sanathnagar.

was found to be over 250 mg/l in Kukatpally, Yusu-fguda and near Rasool-pura, along with an increase in sulphate concentration in Sanathnagar and Balanagar.

Nitrate level was above 10 mg/l, the result of poor disposal of urban solid waste.

The study noted that Hussainsagar’s polluted water might start affecting the groundwater at Indira Park and Ashok-nagar.

The study warned that intense rainfall in the Hussainsagar’s catchment area could cause flooding downstream most of the catchment area is cemented, leaving no space for water to seep into the ground, the study noted.

Deccan Chronicle, Hyderabad  
dated July 05, 2015



*The Times of India, Delhi dated  
July 05, 2015*

# 100,000MW of costly solar power can sink 'Make in India'

## SWAMINOMICS

SWAMINATHAN S ANKLESARIA AIYAR



Narendra Modi has raised the target for solar electric capacity from 20,000MW to 100,000MW by 2022 at a cost of maybe \$100 billion. This is a serious blunder. It will sabotage his "Make in India" plans by technically disrupting the whole electricity grid, and raising the cost of a critical manufacturing input — electricity.

India already has the highest interest rates among its Asian competitors. Its new land law will raise land prices maybe four-fold, making India uncompetitive there too. Indian electricity has long been uncompetitive: bulk power costs Rs 6-7/unit or more in most states, one and a half times as much as in competing Asian countries. Solar power will be even more expensive, despite massive subsidies. So, "Make in India" will take a hit.

As long as solar power was a small fraction of total power supply, its national impact was marginal. Experimentation with various solar technologies made sense, preparing for the day when solar power would finally become competitive. Its cost has halved in the last decade, but needs to halve again.

However, 100,000MW of solar power by 2022 will constitute maybe a quarter of total power capacity. This will upset the whole grid, since solar power disappears when the sun sets, just as electricity demand rises to its daily peak, with homes switching on lights and stoves. Meeting peak needs will require a big cushion of idle thermal power during the day, a huge hidden cost of solar power.

Since 100,000MW of solar power by 2022 will disrupt the grid and raise electricity costs for manufacturers, we must ask: what's the hurry? Why not wait till solar power becomes competitive, and then go all out?

Steel or cement manufacturers will tell you, if new developments promise to will halve costs five years hence, it would be mad to invest today. Yet that madness is proposed for solar power.

Solar electricity is most promising. But it is also hugely subsidized today. Stripped of subsidies, solar power currently costs 14 cents/unit (around Rs 9.5/unit). With subsidies, solar producers have been able to reduce their bids substantially in recent years. Adani has just signed a deal in Tamil Nadu to supply solar electricity at Rs 7.01/unit.

But add transmission and distribution costs, various levies, plus cross-subsidies for farmers and homes, and bulk power for industry will cost Rs 9/unit. That is prohibitive and will make users uncompetitive. Big companies producing captive power from captive coal mines say their electricity costs just Rs 2/unit. This will go up a bit after high auction prices for new captive mines, but will remain far below even subsidized solar power. But not every manufacturer can generate captive power.

Most state electricity boards are bust, with accumulated losses approaching Rs 300,000 crore. Some electricity distribution companies refuse to buy even small amounts of expensive



**POINT TO REFLECT:** Why not wait till solar power becomes competitive, and then go all out?

solar power that they are mandated to buy, and many refuse even cheap conventional power for want of funds. So, who can credibly guarantee that they will actually pay for Modi's huge additions of costly solar power?

Being non-polluting, solar power deserves some price preference. But it already enjoys huge preferences. Taxes, cesses, royalties and auction prices are levied on fossil fuels. Equipment for thermal power and coal mining equipment is taxed, while solar equipment is highly subsidized and mostly duty-free.

Solar costs have plummeted recently with new technologies and scale economies. Hopefully this will continue, but it's not guaranteed. The US gave large subsidies to a glamorous solar company Solyndra, hailed as a US champion by Obama. Alas, Solyndra couldn't match Chinese companies cutting prices, and went bust.

The biggest Chinese solar company, Hanergy, became a stock market darling. Its owner, Li Hejun, became the richest man in China. But Hanergy has just suffered a meltdown in Chinese stock markets after revelations of dodgy accounting. This should sober all those who have become euphoric about future solar prospects. At least some of the recent fall in solar prices has been due not just to subsidies but unsustainable price-cutting. Warning: falling solar prices can represent distress sales, not cost breakthroughs.

Hopefully, a cost breakthrough will ultimately come. Yet that is not guaranteed. We should move forward modestly, starting with rooftop solar panels that eliminate transmission and distribution costs. We should experiment with new ideas like solar pumps for farmers: these can be economic if they replace free farm electricity.

Apart from such experiments, we should go all out on solar power only after it is fully established as competitive, and even then only to the extent it does not disturb the grid. Otherwise we will be risking the entire edifice of Indian manufacturing on a bet that could go badly wrong.

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*The Economic Times, Delhi  
dated July 06, 2015*

*Deccan Chronicle, Hyderabad  
dated July 06, 2015*

# Energy wing pulled up on farm power

Bh. RAMAKRISHNA | DC  
HYDERABAD JULY 5

The Telangana finance department has asked the energy department why its subsidy should not be cut down, as its supply to the agriculture sector would have been lower in the Rabi season.

According to the Telangana State Electricity Regulatory Commission, the total subsidy promised for 2015-16 was ₹4,227 crore. The government agreed to release ₹354 crore every month as subsidy. Now, the finance department has pointed out that paddy cultivation was substantially lower in the Rabi season due to lack of ground water. The sowing of all crops including paddy was nearly 32 per cent less compared to the previous year.

The state government had campaigned intensively to dissuade farmers from sowing paddy as the ground water levels were totally

depleted. Farmers largely complied, and paddy output fell by 32 per cent.

Consequently, the power supply to agricultural pumpsets was reduced from 7 hours to 6, and in some areas to 5.5 hours.

The finance ministry is now pointing out that if sowing was reduced and so was power supply, the amount that was spent on free power to the agriculture sector should also come down.

It has become a habit for discoms to show in their annual revenue requirement that its losses were mainly due to free supply of power to over 23 lakh agricultural pumpsets. Both discoms together claim a loss of over ₹2500 crore. But experts say the consumption estimates are faulty. The finance ministry's query in effect questions the basic estimation methodology and it is for the power utilities as well as the energy department to explain, sources said.

## AGRI CONSUMPTION in MU

Year	TNPDC	TSPDC
2013-14	4348	6694
2014-15	4715	7238
2015-16 (estimate)	4904	7528
Per pumpset (units)	4567	7697
Total pumpsets	10,73,870	9,78,028



**Billionaire Masayoshi Son** of SoftBank Corp is betting big on India's solar energy sector

**Telecom czar Sunil Bharti Mittal's Bharti Enterprises**, SoftBank and Foxconn plan \$20-billion solar investment

**Dilip Shanghvi**, India's richest man, has invested in Tulsii Tanti's Suzlon

**Gautam Adani** has mega solar plans of 10,000 Mw in 7 years. Plans \$4-billion investment with Sun Edison

**Mukesh Ambani** sees huge prospects for solar energy in India

**Anand Mahindra** is hot on renewables. Can add 1,000-Mw renewable capacity in few years

**Anil Ambani** has set up solar capacity, which is likely to expand



## IT HAS BECOME A GAME OF BIG NUMBERS



## SOLAR PRICES HAVE CRASHED



## India's Renewable Energy Capacity is Growing Faster than Coal, Gas & Hydro



## RENEWABLE ENERGY CAN BEAT THERMAL HOLLOW. WHY?

Solar Power will expand at 20,000 Mw per year

**No new coal-fired plants** are being planned. New coal capacity will be a trickle after 2019

**Gas-fired plants** are already a liability for producers. Domestic gas is scarce, imported LNG is costly

**Diesel plants** are prohibitively costly. Power will cost more than ₹20 per unit, triple the solar power cost

## GLOBALLY, RENEWABLES ARE BEATING FOSSIL FUELS

Globally, 2013 saw 143,000 Mw of new renewable capacity and only 141,000 Mw of fossil fuel capacity

International Energy Agency says solar energy will be the world's biggest single source of energy in 35 years

The cost of renewable energy is crashing. In India, renewable and conventional will cost the same in two years

## RENEWABLE ENERGY IS ALREADY GIVING CONVENTIONAL POWER THE JITTERS

Consumers in some Western countries are disconnecting from the grid and depending on rooftop solar and wind

When consumers migrate, utilities will have to recover costs from the remaining consumers. This will accelerate exit from grid

Growing concerns about climate change will be a big drag on coal-fired plants.

Those who remain in the grid will need to pay more

Storage technology, the main drawback of renewables, is improving rapidly.

## INDIA'S ADVANTAGES:





The Economic Times, Delhi dated July 06, 2015

# India's Green Steps Turn Talking Point



## Made in India, Hailed in Paris

Steps to bring cost parity between renewable and coal energy

PM's proposal to create a coalition of countries on solar called a "very interesting idea"

The lifestyle changes that Modi had been talking of

Attempts would be made to have more "concrete discussions" on "what are the lifestyle changes"

IT WAS ONLY "FAIR" THAT EVERY COUNTRY WANTED TO DECIDE ON ITS OWN TERMS. BUT THEN, I THINK THE PERCEPTION THAT WE ARE IN COLLECTIVE DANGER AND WE CANNOT ACT ALONE, IS SHARED TOO

LAURENCE TUBIANA, French ambassador for climate negotiations

Solar mission, lifestyle changes mooted by PM draw attention ahead of Paris climate meet

Anubhuti.Vishnoi@timesgroup.com

Paris: Prime Minister Narendra Modi's projection of India's voluntary initiatives - from Make in India to the solar mission and lifestyle changes aimed at addressing climate change challenges - have become talking points on the global stage ahead of the mega climate meet scheduled to be held in Paris in December.

Amid increasing attention on India's target actions for the 21st session of the Conference of Parties (COP 21) and the Modi government strongly arguing its case, Laurence Tubiana, special representative of the French foreign minister for COP-21 and the French ambassador for climate negotia-

tions, said it was only "fair" that every country wanted to decide on its own terms. "But then, I think the perception that we are in collective danger and we cannot act alone, is shared too", Tubiana told journalists during a recent interaction in Paris.

COP 21 is a significant climate meet to find consensus among 196 countries on keeping global warming below 2°C by cutting down on greenhouse gas emissions.

Europe, the US and China have all submitted their emission cut targets or Intended Nationally Determined Contributions (INDCs) for COP 21 and doubts are already being raised about how these will be enough to control global warming. India is expected to submit its INDCs by September.

Tubiana said most countries were not open to a review of INDCs, but COP 21 would urge them to try and "overachieve" the targets and link these to the flow of finance.

## ATTENTION ON INDIA

India to submit its emission cut targets for 21st session of Conference of Parties in September

Tubiana appreciated that India was deliberating on parity between renewable and coal in costs and the lifestyle changes that Modi had been talking of. She said attempts

would be made at the COP level to have more "concrete discussions" on "what are the lifestyle changes". She termed the Make in India programme as a "massive step forward" to bring technology and investment to the country and termed the PM's proposal to create a coalition of countries on solar a "very interesting idea".

On the issue of pre-2020 targets that India has been raising, asking developed nations to take enhanced measures until 2020 when the possible new Paris agreement comes into effect, Tubiana said efforts were being made and the philosophy would be the same as after 2020 - overachieve the targets - but "one should not point fingers at anybody". (This reporter was in Paris at the invitation of the French government)

The Times of India, Delhi dated July 06, 2015

Deccan Chronicle, Hyderabad dated July 09, 2015

## Paris talks to push for voluntary hike in emission cut

Jayashree.Nandi@timesgroup.com

New Delhi/Paris: The legally binding climate agreement likely to be forged in December 2015 in Paris will be based on the "willingness of each country" to implement its plan to cut carbon emissions.

Every country will also be expected to "overachieve" its own targets in a joint effort to keep global temperature rise below two degrees, which is the scientific threshold when impacts of climate change become extremely pronounced.

France's chief climate diplomat Laurence Tubiana recently shared with a group of Indian journalists how the negotiations in Paris ought to be long-term, "not just ten years", and how countries will have to "unilaterally" enhance their commitments to prevent dangerous impacts of climate change.

This is because most big polluters have said they are not willing to reopen discussions or set higher targets than what they have already

presented in their Intended Nationally Determined Contributions (INDC). INDC contains details of what actions each country will voluntarily take under a new international climate agreement. But even INDCs put together may not be able to meet the two degree Celsius target.

"I understand that China has been very clear, and many others as well, that they would not reopen discussions on their contributions formally. But what

could be possible, and through cooperation, is that countries begin to act unilaterally on their contributions even if these are conditional to flow of finance," Tubiana said. In brief, the cost of reducing CO2 emissions will reduce enormously over the years making it easy for countries to meet and perhaps "overachieve" their targets. This could be embedded in the agreement itself. For instance, the EU is targeting at least 40% reduction in CO2 emissions by 2030 from 1990 levels.

For the full report, log on to [www.timesofindia.com](http://www.timesofindia.com)

## CLIMATE | APPEAL

## PM calls on Europe to reduce greenhouse gas emissions

# Water rising over Tavalu due to warming

London, July 8: Tuvalu Prime Minister begs for help to stop his country disappearing off the face of the Earth. The prime minister of the world's fourth smallest nation, Enele Spoaga, has appealed for help from European leaders to stop it disappearing from the face of the Earth.

Spoaga arrived in Brussels on Wednesday to call on EU leaders for support ahead of the next UN climate change summit in Paris in December.

The group of islands, home to just 10,000 people, is under direct threat by rising sea levels due to climate change as it is no more than 4m above sea level at its highest level.

He called on Europe to reduce greenhouse gas emissions to keep global warming down to 1.5C, which scientists say is a safer limit than the current goal of 2C, the Brussels Times reported.

He said: "We need to save Tuvalu to save the world. If this island disap-



Fongafale Island in Fungafuti.

— via web

pears under water, it is not the end of climate change. And I ask you what future do we hold? We need to collaborate as one human face to save human kind.

"We are told that even 2 degrees global warming is too dangerous as it would mean that Tuvalu would disappear under the water. Yes we can move the

Tuvalu inhabitants to other peoples' lands but it will not stop climate change."

Tuvalu is one of several island chains in the Pacific which are vulnerable to rising sea levels.

In 2009, the President of Maldives staged an underwater meeting of his cabinet to high the threat countries like his face from climate change.

Six metres below the surface, the ministers ratified a treaty calling on other countries to cut their greenhouse emissions.

The Economic Times, Delhi dated July 10, 2015

## GO SOLAR



SOLAR PLANT: Aerial shot of the solar power plant in UP taken by state government official/s

## INCENTIVE FOR PRIVATE PRODUCERS

Government to incentivize private production of solar power on rooftops of industrial, commercial and residential buildings

Consumers producing solar power for personal consumption can supply excess solar energy back to the grid

1KW installation will cost about Rs 80,000 with government subsidy

Rooftop solar PV plants are more cost-effective in the long-term



# Power boost to state's solar sector



Chief Minister Akhilesh Yadav with former president Dr. APJ Abdul Kalam during inauguration of a 250 KW mini solar power system in the Kannauj district

Arunima Srivastava  
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**Lucknow:** Solar power prospects are all set to get brighter in Uttar Pradesh. To meet the demand for electricity supply, the state government has decided to incentivise private production of solar power on the rooftops of industrial, commercial and residential buildings.

As per the new system, notified by the UP Electricity Regulatory Commission in March, consumers producing solar power for personal consumption will

also be allowed to supply excess solar energy back to the grid. The excess amount will be adjusted in the consumer's monthly power bill.

Having already started the process, in May this year, Kanpur Electricity Supply Company (KESCO) became the first distribution company (DISCOM) in UP to install bi-directional meters for a 200 KW rooftop solar photo voltaic power plant at Kanpur Plastipacks Limited, set up by private solar production company Ujaas Energy Limited.

Discussing the case, Selva Ku-

mari J, managing director, KESCO, said, "Till now the installed meters were unidirectional, allowing distribution companies only to supply power to consumers. Post bi-directional or net metering, both import and export of power from the grid is allowed. In effect, rooftop owners can generate power, or lease their roofs to production companies for solar power production up to their sanctioned thermal loads."

Realising the benefit of bi-directional net metering, the concept is now catching up in the

state. Though setting up a solar power plant continues to be costlier - a 1KW installation will cost about Rs 80,000 with government subsidy.

Experts say that Rooftop Solar PV (RSPV) plants are more cost-effective in the long-term, following which KESCO has already received 20 more applications

## SOLAR ENERGY

- ✓ No VAT to be paid on the purchase of solar energy devices, equipments and their parts
- ✓ Solar equipment worth Rs 10,000 will be made cheaper by Rs 500
- ✓ Poor families under the Janeshwar Mishra Gram Yojana will get subsidy on Solar Power Pack
- ✓ The 11,250 selected households of over 10,000 villages of 2014-15 will get subsidised Solar Power Pack

for the installation of bi-directional meters in Kanpur, since the installation of the first RSPV plants. Its offices are headed in the direction of turning to solar power too. KESCO has sent proposal to UP New and Renewable Energy Development Agency (NEDA) for approval of a 208 KW power plant on its office rooftop.

Among other areas, under the Meerut Discom, covering Noida area, so far about seven applications for bi-directional metering have been received too. Among them, applications have come up for four 100KW power plants to be constructed at two offices of NTPC in Noida, at the National Fertilisers and two offices of Dharampal Premchand Ltd.

One week after the houses in Kannauj were wired, former president APJ Abdul Kalam turned on the power switch at a 250 KW mini solar power plant and electrified 450 rural homes that had

lived in darkness for over 68 years.

The initiative, a part of the chief minister's pilot project to provide solar electricity to villages, was much appreciated by the former

president, who has been advocating the use of green energy.

Fakirpur and Chadauhar are now officially UP's first two villages to be entirely solar powered.

*The Economic Times, Delhi dated July 10, 2015*

*The Times of India, Delhi dated July 10, 2015*

## No rainwater harvesting, hospitals fined

TIMES NEWS NETWORK

**New Delhi:** The National Green Tribunal on Thursday pulled up several hospitals, malls and hotels in the city for not complying with its orders on rainwater harvesting.

None of these buildings, including at least five hospitals and several malls, are prepared to store rainwater. They either don't have any harvesting structures or they are not functional. The tribunal imposed fines ranging from Rs 25,000 to Rs 3 lakh and issued bailable warrants against many of them.

A bench, headed by NGT chairperson Justice Swatanter Kumar, also issued several bailable warrants against officials of the units whose representatives were not present in the tribunal despite notices issued to them.

"The reply has not been filed. The executive engineer of the public works department submits that existing system has been made functional while new system will be installed by July 31. We impose a fine of Rs 25,000 each on the executive engineer and the medical superintendent of the hospital to be realized from their salary," the bench said, referring to one of the defaulting hospitals.

*Deccan Chronicle, Hyderabad dated July 10, 2015*

## DISPOSAL | GROUND ■ Importers hoodwink Customs on origin of junk

# India turns e-waste dumpyard

S.N.V. SUDHIR | DC  
VISAKHAPATNAM, JULY 9

India is turning into a dumping ground for e-waste from western countries like US, Canada, Australia and European nations. Despite curbs on import of used electronic goods from Western countries especially laptops, desktops, mobile phones and servers, they are finding their way into India.

While India itself is unable to manage the locally generated e-waste, dumping from the West is adding to the woes of e-waste disposal. With the fear of dumping of e-waste by western countries into India, the Centre restricted import from the West

■ Vizag port among other ports in Chennai and Gujarat has emerged as major import point of e-waste into the country

■ Local customs feign ignorance of any import of these used gadgets

■ Traders in Delhi confirm that, they get these used items from Vizag



though there is no complete ban. Prior permission is needed from MoEF to import these used goods.

Vizag port among other ports in Chennai and Gujarat has emerged as major import point of e-waste into the country. Though, local customs feign

ignorance of any import of these used gadgets, traders in Delhi, confirm that, they get these used items from Vizag.

Though India has not ratified the Basel ban, it has ratified Basel convention, an international treaty, on trans-boundary movement

of hazardous waste and therefore there are restrictions on e-waste import from the West.

Importers adapt various methods to bring these goods to India, chief programme coordinator, of New Delhi based environmental NGO, Toxics Link, working on issues related to e-waste, Priti Banthia Mahesh said.

Often local importers, hoodwink, customs authorities by changing the consignments of used electronic goods emerging from the West at ports of Asian and Middle East countries. Since there are no restrictions on import of second hand goods from these countries, they enter India without any hassles.



The Economic Times, Delhi dated July 10, 2015

# POWER TO ALL

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**Lucknow:** The journey from a developing to a developed nation is marked by a country's resources. It has been every Indian's dream to live in a country, which has life's basic necessities like electricity and food in abundance. In this regard, Uttar Pradesh (UP) government has been making regular efforts towards rural electrification and ensuring that villages get solar power connectivity. As a result, the state has become a force in perpetrating the use of direct current (DC) for providing electricity to homes and running electronic gadgets.

With this aim, the Samajwadi Party launched the Lohia Samagra Awas Yojna. As a part of this scheme, the state government identified certain villages as Lohia villages. The government went on to construct and provide homes to all below poverty line (BPL) families in these villages. Each home was fitted with a 120 Watt-peak (Wp) solar power pack, each of which had two 3-watt LED and 5-watt LED light bulbs.

er," he said. DC power is also gaining popularity as it allows decentralised production of power and promotes a widely distributed network of solar power production units.

Listing the issues with existing grid supplies, Solanki said, "The major fault is that the existing grid power system is unable to reach every resident of the country. In addition, it makes us heavily dependent on coal and other thermal power resources, leads to transmission and distribution losses and also raises a question on the quality and quantity of the power being supplied." He said that although last mile connectivity with thermal grid power is an expensive alternative, solar power is still viable for a smaller cluster.

UP's solar initiatives have become a trendsetter. Although the CM claims that he did not start this solar mission with the aim of propagating direct current, the achievements made by his mission have attracted many eye balls. For example, the Union Ministry for Power, Coal and New and Renewable Energy, has initiated a proj-



Solar power plant

In addition, there was a 25-watt direct current ceiling fan with a mobile charging facility. All this combined to make UP's 10.5 MW solar initiative a first-of-its-kind, off-grid solar system of this scale in India.

It can be said that this off-grid solar system has helped replace a 'black-out', a common result of grid network connections with a 'brown-out', which means a reduction in the availability of electrical power in a particular area. Elaborating, Chetan Singh Solanki, associate professor, Depart-

The SP government has made it mandatory for government buildings to cover 25% of their plinth area with solar plants. The government is also providing subsidised solar pumps for irrigation purposes



ment of Energy Science and Engineering, Indian Institute of Technology (IIT), Bombay, said, "When the grid system was introduced, emphasis was put on alternate current as long distance transfer of power was easier through AC grids networks."

He further said that since gadgets like mobile phones, tablets and personal computers run on DC, a definite shift can be seen. "Using DC power saves the cost of conversion from alternate current (AC) to DC. As solar energy naturally runs on direct current, this shift is in favour of solar power."

ect wherein the present alternative current lines will be replaced by direct current lines in two batches of 5,000 and 1,000 homes at two separate locations. The objective is to ensure at least a minimum supply of undisturbed electricity.

Piyush Goyal, Union Minister for Power, mentioned the project in his address during the closing ceremony of the Bharatiya Vidyam Sammelan in Goa in February this year. He said that discussions regarding the project have ensued with 40 IIT professors, most of whom are of the opinion that DC lines will not only help reduce consumption of electricity, but will also ensure all black outs are replaced by brown outs. Through its rural electrification initiative, UP is on the brink of 'inclusive development'. The government is not yet satisfied, as it has already kick-started plans to perpetuate solar power.

Partha Sarthi Sen Sharma, secretary to CM, and Department of New and Renewable Energy, Renewable Energy Development Agency, said, "The state government is already working on popularising the concept. We have distributed close to 1.09 lakh solar street lights in villages. Furthermore, the government has also started installing a one kilowatt capacity solar power plant along with a reverse osmosis (RO) system to make clean and potable water available in 50 primary schools across Lucknow, Gorakhpur, Kannauj, Etawah and Ghaziabad."

In addition, the SP government has made it mandatory for government buildings to cover 25% of their plinth area with solar plants. The government is also providing subsidised solar pumps for irrigation purposes, and has commissioned the installation of solar mini grids in rural areas through private developers.

## ROOFTOP SOLAR PV POLICY

- Rooftop owners can set up RSPV plants or lease terrace out to power production companies
- To avail the benefits of bi-directional or net metering, the rooftop owners, power production company (if separate) and the Discom concerned sign an agreement
- A bi-directional meter is installed at the consumer's building, allowing her to seek adjustment in monthly bill, against the solar power supplied to the grid
- Solar power supplied to the grid cannot exceed consumer's sanctioned load
- Adjustment in the bill is not made in cash; it is reflected in units consumed versus units supplied

## LOGISTICS

- A 1KW unit can be set up on 10 sq meters of roof top space
- A 1KW unit will support 3 fans, 4 CFL lights, a television and one computer
- 1KW roughly translates into 1500 units of electricity per annum, or 125 units per month
- At present setting up a 1KW unit can cost up to Rs 80,000 with subsidy. Without government grants, it can go up to Rs 1 lakh per kilo watt



*The Economic Times, Delhi dated July 10, 2015*

# OFF GRID INITIATIVES

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## Solar Street lighting Systems

Solar street lighting for community lighting purposes, are being installed in rural areas. About 1,09,874 solar street lights have been installed in the state, of which 69,936 solar street lights (5.243 MW capacity) have been installed, during the last two years. Of the solar street lights installed in the last two years, 43,289 solar street lights have been installed in 3,702 villages identified as Dr Ram Manohar Lohia Samagra Villages. The state government has provided budgetary support of Rs 60.0631 cr for all these solar street lights installed. Subsidy of Rs 7,100 per solar street light system is also being made available by the state government on installation of street lights in rural areas. About 26,647 systems have been installed in rural areas with a total state subsidy of Rs 18.9193 cr. Installation of 26,715 solar street lights in 2,098 Lohia Samagra villages is under progress for which budgetary support of Rs 62.519 cr is being provided.

## Solar Power Packs in Lohia Samagra Awas

Under Lohia Samagra Awas Yojna, the state government

is constructing and providing houses to below poverty line families in villages identified as Lohia villages. For the year 2012-13 and 2013-14, the state government proposes to build a total of 84,481 houses. These Lohia Awas are being equipped with a 120 wp solar power pack. Each solar power pack consists of two 3 watt

In 2013-14, 950 solar pumps were installed, whereas 5000 solar pumps are targeted to be provided to small farmers

LED and 5 watt LED luminaries, and a 25 watt DC ceiling fan with mobile charging facility. This is one of the first-of-its-kind off-grid solar system being installed on such a large scale in the country (10.5 MW capacity). Entire expenditure of Rs 266.08 cr is being borne by the state government.

## Clean Potable Drinking Water with Fan Facility in Primary Schools

For making available safe and clean drinking water in schools on pilot basis, a 1 KW capacity solar power plant, along with RO water system, submersible pump with an

overhead tank, and three DC fans are being installed in 50 primary schools which are located in districts Lucknow, Gorakhpur, Kannauj, Etawa and Ghaziabad. In the next financial year the state government proposes to cover more number of primary schools in other districts. The state government will bear complete expenditure of Rs 1.34 cr on installation of these projects.

## Energy Access in Rural Areas through Solar Mini Grids

A Solar Power Mini Grid Policy is being prepared by the state government. Initially two mini grid solar power projects, consisting of solar power plants, of capacity 250 KW, which will cover 417 households in two villages Fakeerpur and Chanduhar in district Kannauj, at a cost of Rs 6.15 cr have been put in place. The entire budget is being borne by the state government.

## Solar Pumps for Irrigation

A large percentage of population in the state is dependent on agriculture for livelihood. The canal based irrigation system is limited to some areas only. As a result, farmers in most parts of the state are dependent upon pump sets for irrigation in



many areas that are not grid connected. Or if the power supply is not reliable, farmers incur high cost for diesel pump and recurring costs for diesel, making small and marginal farming economically unviable. Depending on the type and capacity cost of irrigation, a solar pump system ranges between Rs 2.5 lakh to 4.50 lakh. Total 454 solar pumps were installed in the state till 2012. However, with the provision of additional subsidy of 45% from the state government apart from 30% subsidy available from the central government, irrigation solar pump systems have become affordable by the small and marginal farmers, who have to pay only 25 % of the cost of the solar pumps. In year 2013-14, 950 solar pumps were installed, whereas 5000 solar pumps are targeted to be provided to small and marginal farmers. Subsidy amount of Rs 86.105 cr has been provided by the state government for distribution of these 5000 solar pumps.

*The Times of India, Delhi dated July 10, 2015*

# W Delhi plant to turn sewage into drinking water

TIMES NEWS NETWORK

**New Delhi:** The city has taken its first step towards decentralized waste water treatment in the form of a pilot project at Keshopur where sewage will be treated to drinking water quality and supplied to nearby areas.

Sujala Dhara, chief minister Arvind Kejriwal's pet project, was launched on Thursday by Delhi Jal Board in collaboration with NGO SANNA. The technology is in use in the US and will be replicated to treat sewage through five levels. However, with even cities like Singapore facing resistance from residents over consumption of treated sewage, the government is likely to be putting in major efforts to get people to accept this water.

To start off, water from this plant will be bottled and supplied to Delhi Secretariat and offices of Delhi Jal Board. DJB CEO S S Yadav said that once people see the CM and senior government officials drinking the water, they will eventually accept it. "We will set up six more plants by the end of the year. Tenders should be issued this week. They may not work on the same technology but we have specified output parameters and hope to get bathing quality water from these," he said.

Bio-filtration nano membrane filtration technology

has been used in the plant which was set up at a cost of Rs 55 lakh. DJB, however, did not bear the cost. "The plant will run on solar power and has a capacity of 25 million litre per year. Raw sewage will be screened and then pumped through the biofilter. This comprises five layers of organic and inorganic material including earthworms, cotton extracts, bacteria, organic sand, pebbles, stones, etc. The treated sewage will then be pumped into the membrane system which has a size of 0.001 micron where water will be chlorinated and made available for drinking. The plant will produce 66,000 litres of drinking water daily," explained an official.

## PILOT PROJECT

Delhi has once already contemplated use of treated waste water for drinking but pre-empting resistance, was to release the treated water in the Yamuna, upstream of the Wazirabad barrage, where it would not only mix with more water but also get treated additionally at the water treatment plant. That project stalled due to objections from Haryana. "Delhi is not likely to get more water from alternate sources. Centralized treatment is a good alternative but major planning is needed to get people to accept it," said sources.



LEADING THE WAY: CM Kejriwal checks the water treatment plant



*The Economic Times, Delhi dated July 10, 2015*

# Steps towards Renewable Energy by the UP Government

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## Grid Solar Power Projects

National Solar Mission, which is one of the eight core missions identified in National Action Plan on Climate Change, declared by the GoI in 2008, Solar Power Projects, (individual capacity of plants being 2 MW and 5 MW), with a total capacity of 12 MW of grid connected were installed in Barabanki, Bareilly, Jhansi and Allahabad.

The state government with the determination to explore other sources of power, to augment the gap in demand and supply of power through other sources, promulgated the Solar Power Policy-2013 in January, 2013. Solar Power Policy-2013 targets installation of 500 MW capacities of Grid interactive Solar Power Plants, for generation of power from solar energy during its operative period, till 2017.

In Solar Power Policy-2013, various facilities and incentives, on installation of solar power generation projects, have been declared by the state government. As the cost of generation of solar power is higher than the conventional power, a budgetary support, equivalent to the difference of cost of conventional and solar power, will be provided by the state government.

The state government approved 130 MW capacity of grid connected Solar Power Projects, in August 2013. 40 MW solar power projects, with a private investment of Rs 32 cr have been commissioned in Mahoba, and three in Lalitpur. Other solar power projects, each of capacity 50 MW capacity, involving investment of Rs 40 cr from private sector, will be commissioned by September end. All these projects are being set up by the project



**MAHOBA:** A 10 MW grid connected solar power plant

developers, on land purchased by them at their own cost. In the second phase, five solar power projects of 105 MW capacity have been allocated in January 2015. These projects are expected to be commissioned by October, 2016. A total of Rs 840 cr investment is expected from private sector, against installation of these projects.

A 50 MW capacity solar power project is proposed in district Jalaun by a joint venture company Bundelkhand Saur Urja Limited between UPNEDA and NHPC.

In the third phase bidding for installation of 215 MW grid connected projects have been completed. Tariff as low as Rs 7.02 /unit for a PPA of 12 years has been received.

## Solar Park

A solar park of capacity 600 MW is proposed to be developed, with a likely investment of Rs 720 cr, at Jalaun, Etah, Allahabad and Mirzapur. These solar parks will be a concentrated zone of development of solar power generation projects, where developers will be provided with an area that will be well characterised with proper infrastructure and access to amenities, with risk to projects being minimised. This

park will also facilitate the developers, by reducing the number of required approvals. The proposed solar park will be developed by a joint venture company formed between UPNEDA and Solar Energy Corporation of India (SECI) named Uttar Pradesh Solar Power Ltd. Allocation of projects to be set up in solar Park will be through bidding based on viability gap funding.

## Rooftop Solar Power Plant Policy

The state government had declared the Grid connected Rooftop Solar Power Plants Policy in September, 2014. The policy targets 20 MW of solar power plants installation, by 2017. Under this policy, it has been made mandatory for government buildings to cover 25% of their plinth area with rooftop solar power plants. These plants will be installed under net billing mechanism. Rooftop solar power plants of total capacity 700 KW have been installed on the roof of NTPC, National Fertilisers Ltd and Ansals Mall building in Noida, and also at Kanpur Plastic Factory.



*The Times of India, Delhi dated  
July 10, 2015*

## Fund to fight climate change will be routed via Nabard

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New Delhi: National Bank for Agriculture and Rural Development (Nabard) on Thursday got an accreditation from the Green Climate Fund (GCF) — a global multilateral fund that is meant to assist developing and poor countries in taking up their respective mitigation and adaptation measures to fight climate change.

Accreditation to Nabard means that the national financial institution will act as a channel through which the GCF will deploy its resources in India. It also makes the bank eligible to identify communities and areas which are most vulnerable to climate change and submit proposals to the Fund for financial support.

The funding will support a range of activities including installation of renewable (solar, wind and bio-mass) energy, enabling farmers to grow drought-resistant crops and reducing deforestation. Besides Nabard, the GCF has, so far, accredited 19 other institutions from across the globe.

### RICH NATIONS PLEDGE \$10BN

➤ GCF (Green Climate Fund) is multilateral fund to help countries fight climate change

➤ It is a financial arm of the UNFCCC

➤ Rich countries have, so far, pledged slightly over \$10.2 billion to the GCF as against the target of \$100 billion in this kitty by 2020

➤ 40% of pledges made to the GCF so far still to be converted into contributions

➤ Money to be disbursed to poor nations over four years from 2015

➤ There is a goal to mobilize \$100 billion a year from both public and private sources to the fund beyond 2020



It includes the Asian Development Bank (ADB), the United Nations Development Programme (UNDP), Germany-based Deutsche Bank AG, the United Nations Environment Programme (UNEP) and the Agence Française de Développement (AFD) of France.

Seven of these institutions had got their accreditation in March while the other 13 entities including Nabard got it during the GCF board meeting at Songdo in South Korea on Thursday.

Institutions which were accredited in March have already started submitting initial project ideas and concept

notes. Of these, nine proposals from nine different countries, including Thailand, Mali, Ethiopia and Rwanda, have been finalized.

"Seven months ago we invited institutions for the first time to become partners with us. Today, close to 100 well-established institutions from around the world are working towards becoming GCF accredited entities," Hela Cheikhrouhou, executive director, GCF, said.

"We have added to this momentum by boosting our number of accredited entities to 20," she said while announcing the decision of the board.

*The Times of India, Delhi  
dated July 12, 2015*

## 'Ambitious climate action plan on anvil'

### Javadekar: Rich Nations Must Share Cost Burden

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New Delhi: As the world waits word from India on how high a target it will set itself for cutting carbon emissions, New Delhi has said its contribution would be "much more ambitious than what people expect" but rich nations must be ready to share the cost burden.

"We will do our bit with utmost sincerity. However, let's not forget that every climate action has a cost. Who will pay the cost is an issue", said environment minister Prakash Javadekar while articulating New Delhi's position ahead of submitting its post-2020 'climate action plan' to the United Nations Framework Convention on Climate Change (UNFCCC).

Citing India's ongoing action to move on low carbon growth path, he said, "We will

### GLOBE'S GREEN STRATEGY

#### CLIMATE ACTION PLAN

➤ Climate Action Plan is called 'Intended Nationally Determined Contribution' (INDC) in climate change negotiation parlance

➤ Countries are expected to submit their climate action plan by Oct 1, specifying how they will fight global warming under a post-2020 agreement

➤ INDCs, comprising emission cut promises, will form the basis of climate negotiations in Paris in December

➤ 47 COUNTRIES HAVE, SO FAR, SUBMITTED THEIR INDCS TO THE UNFCCC

#### INDIA'S INDC LIKELY TO FOCUS ON

➤ Energy Efficiency (cutting carbon emission per unit of GDP)

➤ Renewable energy (present target of 175,000 MW by 2022)

➤ may be doubled by '30)

➤ Increasing forest cover



#### WHO PROMISED WHAT

➤ EU (28 countries): To cut emissions by at least 40% from 1990 levels by 2030

➤ USA: To cut emissions by 26-28% below its 2005 levels by 2025

➤ China: Commits to peak its emissions around 2030; Emission will decline only after reaching the peak; cut carbon intensity (emissions per unit of GDP) by 60-65% from 2005 levels by 2030

All these countries have also committed to increase share of renewable energy in their total energy mix

FIRST THREE TOP EMITTERS: China, the US and EU

INDIA, FOURTH BIGGEST EMITTER, WILL SUBMIT ITS INDC BY SEP

go ahead with our sustainable practices and will lead the Paris negotiation with our own contribution". He was addressing the 17th World Congress on Environment Man-

agement here on Saturday.

Though the minister preferred not to disclose India's 'climate action plan' (called Intended Nationally Determined Contribution in cli-

mate change negotiation parlance) in absolute terms on emission cut front, he dropped enough hints on the contour of its INDC and indicated how the country would

approach the issue.

It is expected that India will take the 'energy efficiency' route where it would pledge to reduce emission intensity (carbon emission per unit of GDP) substantially by 2030. At present, it has been on course to cut the emission intensity by 20-25% from 2005 levels by 2020. It is learnt that the country would try to cut the emission intensity by minimum 40% by 2020.

India's INDC may talk about doubling the present target of clean energy (1,75,000 MW of renewable energy with an investment of more than \$150 billion by 2022) by 2030.

India is likely to push its renewable energy goal further with a promise to raise share of clean energy in overall energy mix by 2030 like China or other developed/developing countries.

Efforts to increase forest cover will figure prominently in the country's INDC. Without disclosing the post-2020 plan and target, the minister said the country would spend \$16-19 billion for increasing the forest cover in the next five years.

For the full report, log on to [www.timesofindia.com](http://www.timesofindia.com)



The Times of India, Delhi dated July 15, 2015

# NGT fumes, govt hides behind fig leaf

## Centre Skirts Air Pollution Issue By Blaming It On Burning Of Dry Leaves

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New Delhi: The Centre claims vehicles are not the worst polluters but it's not saying what's behind Delhi's terrible air quality either. The Union transport ministry continued to skirt the issue before the National Green Tribunal (NGT) on Tuesday, with additional solicitor general (ASG) Pinky Anand submitting that dry leaves that are burnt in the "green city" could be composted instead to deal with poor air quality.

As soon as the Centre tried to push the blame onto dust and leaves, the NGT bench said, "Find out if you want to say anything that has not been said," showing its exasperation with the way the government has been avoiding a clampdown on vehicles.

Since October, the government has stubbornly refused to accept all the evidence linking vehicle emissions to harmful health effects. Questioning an IIT Delhi report cited by the Centre, the bench said, "According to the IIT report, 17% or 18% of the pollution is due to traffic, please define the rest of the 83%."

When Anand replied IIT Kanpur and Delhi Pollution Control Committee (DPCC) are still analyzing the contribution of different activities to air pollution, and their report won't be available before September, the bench said, what good is the IIT report "without analyzing the con-

### AND THE BATTLE CONTINUES

#### WHAT THE CENTRE AND STATES WERE TO RESPOND TO

1 Age of all vehicles to be allowed to run in Delhi with reference to sources of energy/fuel

2 Cap on number of vehicles to be registered in NCR

3 Incentives for people who pool cars



4 Benefits for new owners of vehicles prohibited to run in NCR

5 Concessions for people for scrapping their vehicles

6 Deploying public transport vehicles on priority at places with high commercial activities



7 Rationalization of parking charges to encourage people to use parking zones

8 Hiking registration cost and imposing other charges, like that for congestion, particularly on families with more than one vehicle

9 Controlling emissions from big power projects such as Indraprastha, Badarpur and Rajghat

#### THE CASE SO FAR

**NOV 26, 2014** | NGT imposes a ban on more than 15-year-old diesel and petrol vehicles in NCR with 13 other stringent measures in various sectors



**APR 14, 2015** | NGT stays the ban on diesel vehicles for two weeks

**APR 21** | SC backs NGT order, saying the 'tribunal is trying to do something which is good for people. Let us... not discourage them.'

**APR 27** | Centre files an

application in NGT appealing for a stay and for making fitness the criterion for the phase-out

**APR 7, 2015** The tribunal bans more than 10-year-old diesel vehicles

**MAY 1** | NGT extends the stay on ban. Centre and state fail to submit suggestions

**JUL 15** | Centre fails to submit its views; continues to claim vehicles are not the worst polluter

#### KEY ISSUES

**NGT HAS ASKED CENTRE TO DELIBERATE ON THESE ISSUES**

➤ **50%** of the cars registered in 2014 were diesel cars

➤ Studies carried out in China and Brazil show old vehicles cause pollution



➤ Staggering office/college timings to ease congestion



➤ Cap on number of vehicles to be registered

➤ BS IV compliance for diesel vehicles

➤ Hike in cess on diesel vehicles

tribution of all kinds of diesel vehicles, especially heavy vehicles?"

Earlier, NGT had criticized another IIT Delhi report prepared for the ministry that claimed traffic did not affect air quality as levels of PM2.5 (fine, respirable pollution particles) in RK Puram remained high even on Sundays and holidays, without stating the reasons for the high levels. "We have three studies that say vehicles are responsible but IIT wakes up one morning and says otherwise," NGT said on Tuesday.

Government agencies have not responded to the nine

issues NGT had raised earlier. Among other things, it had sought views on the on-road life of vehicles and directed that computerized check posts be set up at the nine en-



**LET DELHI BREATHE**

try points to Delhi. "I don't think even a single such post has been raised...Haryana hasn't responded still on the status of bypasses to Delhi."

As a way to reduce traffic

congestion and the resultant air pollution, NGT suggested staggering office timings. "Delhi is mostly government offices. Why can't you arrange the timings in a way so that buses are not crowded, there is less congestion on roads?" It asked the Centre to discuss the idea with all stakeholders. "You can also take the universities along. If a child can go to school at 7am, why can't a graduate?"

But the lack of responsiveness from the authorities irked the bench. "It has still not rung bells. This matter (air pollution) has been pending for a year, let's have at

least one thing done, let some people say okay, we will do it," it said.

To NGT's query on how many builders have been challaned for causing pollution, only East Delhi Municipal Corporation (EDMC) submitted that 66 have been challaned, of which six paid up Rs 50,000 each in fines.

The bench has now fixed the matter for day-to-day hearing starting Monday and asked all the authorities, including the Centre, and the governments of Delhi, Haryana and UP to file status reports on compliance with its orders.

The Times of India, Delhi dated  
July 16, 2015

## Air pollution kills 9,500 in London every year: Study

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**London:** Nearly 9,500 people are dying in London each year due to long-term exposure to air pollution, more than twice as many as previously thought. The premature deaths are due to two key pollutants, fine particulates known as PM2.5s and the toxic gas nitrogen dioxide (NO2), according to study by researchers at King's College.

The study — which was commissioned by the Greater

London Authority and Transport for London — is believed to be the first by any city in the world to attempt to quantify how many people are being harmed by NO2. The gas is largely created by diesel cars, trucks and buses, and affects lung capacity and growth.

Previous research had attributed 4,267 annual premature deaths in London to air pollution in 2008.

Researchers compared air pollution exposures for small areas in England with population characteristics including

deprivation and ethnic make-up. The EU Ambient Air Quality Directive set limits of 40 micrograms per cubic metre (µg/m3) at monitoring stations for both PM10 and NO2 pollution. Concentration averages across all neighbourhoods in England were within this limit for PM10, but 11% of neighbourhoods in England exceeded the NO2 limit, accounting for an affected population of 5.4 million. In England, the most deprived 20% of neighbourhoods had higher air pollution levels.



# 'Green cess, funds to clean air'

TIMES NEWS NETWORK

New Delhi: Delhi Pollution Control Committee (DPCC) submitted to the National Green Tribunal (NGT) on Wednesday that it has directed the law, finance and urban development departments to notify the public about a congestion charge that will be imposed soon on all heavy commercial vehicles entering Delhi.

Delhi government, in its affidavit to NGT, said a "green fund" has been set up to utilize all the money col-



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lected from the congestion charge as well as some other fines for installation of weigh-bridges and for improving public transport infrastructure.

While the congestion charge was already announced in Delhi government's budget recently, the affidavit states this is what they plan to do in response to NGT's query on congestion charge in Delhi. The Green Fund will also get the money collected from Rs 5,000 fine

## NOT ENTIRELY ON THE SAME PAGE

### WHAT DELHI GOVERNMENT SUBMITTED IN NGT EARLIER

#### 1 Banning more than 10-year-old vehicles

> A comprehensive study needs to be undertaken for measuring emissions from polluting diesel vehicles

> Delhi has sought Centre's opinion on old vehicles and making necessary amendments to Central Motor Vehicles Rules, if required

#### 2 Capping the number of vehicles to be registered

Not a feasible idea

#### 5 Public transport

> Integrated plan for plying non-polluting vehicles like e-rickshaws to be worked out

#### 3 Reducing use of private vehicles

> Uniform vehicle taxation policy across NCR

> Charges be increased for registration of more than two vehicles per family

> One-time parking charge imposed by municipal corporations be increased proportionally for each

#### 4 Incentive for carpooling

> Decrease in toll tax for full cars

> Benefits to be provided to transferee of vehicle, which is banned in NCR

> Manufacturers may provide a loyalty bonus to

additional vehicle

> Private diesel vehicles may be restricted to one per family

> Congestion charges may be imposed on vehicles registered outside Delhi

> At the time of registration, buyer may be asked to provide proof of parking. If one fails to do so, he/she may have to pay a fee for parking on road on a monthly basis

vehicle owners for exchanging old vehicles

> It should be the duty of the manufacturer to make arrangements for scrapping its vehicles

> Concessions by banks in terms of low interest loans to vehicle owners who scrap old vehicles

imposed for burning of dry leaves or waste. NGT had recently ordered that any person caught burning waste will be fined Rs 5,000.

"Deputy commissioner (revenue) is one of the authorized officers to collect the fine. For effective and strict compliance of the orders, SDMs along with *tehsildars*

(executive magistrate) may be authorized to take action," Delhi government's note to NGT said.

In previous affidavits, Delhi transport department had said it is open to setting a life for the on-road vehicle but had submitted that Centre needed to make changes to the Central Motor Vehicles

Rules to phase out old diesel vehicles.

The Centre had claimed in NGT on Tuesday that vehicles are not the worst polluters. Additional solicitor general Pinky Anand said that dry leaves that are burnt in the green city could be composed to deal with the poor air quality.

## Cut car numbers: NGT to colony

TIMES NEWS NETWORK

New Delhi: National Green Tribunal on Thursday asked members of aviation employees cooperative housing building society Ltd in Gagan Vihar to show what they are doing to control the number of cars in the colony.

The bench also directed the colony to submit details of the number of cars in the colony and the parking space available for them. The society had moved NGT against East Delhi Municipal Corporation pleading that 24 denting and painting shops in the area are causing noise and air pollution.

"If you are claiming that these shops are polluting the environment, we want to know what you are doing to protect the environment. It is for your cars that these service shops are there. If you claim certain rights then you owe

certain duties as well to the environment," said a bench headed by Justice UD Salvi, adding the number of cars and parking in the colony will have to be restricted as they also cause pollution. Residents have alleged that civic authorities have taken no action against the shops despite several complaints. Balendu Shekhar, lawyer representing



**LET DELHI BREATHE**

EDMC said, "We are ready to shut down unauthorized shops. But it's a fact that just removing poor people will not help, the main source of pollution, the number of vehicles will have to be restricted, too. Most of these denting-painting shops cater to people from the colony."

Residents are taken aback by the argument. "I can only say that we take our cars elsewhere for servicing. This area is not so affluent that every man has several cars," said a society member.

The Times of India, Delhi dated July 16, 2015

The Times of India, Delhi dated July 18, 2015

## NGT norms: Corpn fines 101 builders

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New Delhi: The South Delhi Municipal Corporation's building department has fined 101 builders for violating National Green Tribunal's orders.

"We conducted a drive and found that in areas like Defence Colony, Greater Kailash, and Nizamuddin rules are not being followed by any of the builders. Each builder has been fined Rs 50,000," said a senior corporation official of the central zone.

According to NGT guidelines, builders are supposed to provide masks to every worker on a construction site and during loading and unloading of building materials. A building under construction should be covered with tarpaulin sheets. Trucks carrying construction materials should also be fully covered to ensure that they don't pollute the air.

The central zone building department has directed its officials to keep a strict vigil in the area so that NGT orders are not violated and prompt action is taken against defaulters.

The Times of India, Delhi dated July 17, 2015



# Gardening app to help plant seeds of green love

## HOW IT WORKS

When you are out holidaying, the app will remind you to water your plants, based on the moisture content in the pots. All you need to do is tap the 'water the plant' icon. However, before leaving home you'll have to ensure the tanks at the bottom of the smart pots are full. Every time you tap on the icon, a pipe will stem out of the reservoir and sprinkle water on the plant.



## MANY WILL TAKE UP GARDENING

This is the future of gardening. Today, people love doing things that are app based. Many in the city don't have a garden because they keep travelling and it's sad to see plants dying. With this technology, many will take up gardening. But the cost may be a deterrent

**VANI MURTHY** | POPULAR KITCHEN GARDENER

## IT'LL BE A BOON

Balancing work, household chores and taking care of my daughter keep me extremely busy. That's why I

decided to have only cacti which need little attention. Smart gardening will be a boon for my plants and I can add new varieties to my garden

**ANUPRITA BHATTACHARYA** | HR PROFESSIONAL

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All set for a holiday but worried about what happens to your plants at home? Well, this smart-gardening app could soon dispel your worries (see graphic).

Greenopia, a mobile app, can actually do the job of a gardener. The technology helps one understand which plants grow well in which climate, the kind of material required to grow them, the level at which seeds should be sown, and the amount of water required.

The brainchild of four students from National Institute of Design, Ahmeda-

bad, the app was the result of a 2014 design talent challenge where youngsters had to use telecommunication technology to come up with ideas that could improve quality of life. "All of us are from small towns where we are used to having gardens, and we miss our plants," said Mayukh Pande, co-founder of Greenopia.

The app comes with a kit that includes smart pots fitted with sensors. It can detect basic plant parameters like the soil's moisture content, its composition and the plant's exposure to sunlight.

"The idea is to get more urban professionals to grow something on their own; the app will help peo-

ple make the right decision. People living in cities invest time tending to their plants but often lose interest after trial and error," added Mayukh.

"The app will guide you at every step. You'll know when the first leaves and veggies will appear from the time you have sown the seeds," she explained.

The start-up has raised Rs 9 lakh after a year of working on the crowd-funded model. Said Man HK, cofounder and CEO Greenopia: "The first set of kits will be only for those who have funded us. Commercially, the kit and the app will be available from November."

Deccan Chronicle, Hyderabad  
dated July 21, 2015

# Solar light propelled student into innovators club

Innovation is the key mantra in today's business scenario. It helps us face competition and also keeps the company ahead of it all. Some prestigious educational institutions in our county have given rise to 'Innovators' and one among these is JNTU, Kakinada. Sekhar Nori, the managing director of Skyshade Daylights, is in that famous club, wearing the hallowed crown of innovator in his chosen sphere of 'Daylighting' — a term often mistaken to be solar business.

A mechanical engineer from 1988 batch, he joined HPCL as Officer in Training in the marketing wing. "However, I soon realised this was not what I wanted to do. I wanted to be an employer rather than be employed. Hence I quit the job. My stint at IISc, Bengaluru, helped me learn instrumentation, especially in hot water systems using solar energy. So I set up a solar water



heater firm called Phoenix Solar Engineering Pvt Ltd in 1996 to make appliances that heat water using solar power," Mr. Sekhar recalled.

Though solar power is buzzword today, Mr. Sekhar did not have anything easy for him. So he attempted to innovate in the same field and the result was 'Daylighting'. Using natural sunlight to illuminate the interiors of

buildings, which are designed 'Gloomily'. "Our innovative products, that provide natural light, are patented. These products bring down the energy consumption considerably and give a natural connect to people employed working in these green buildings," he explained.

"Daylight Harvesting" as it is called has become a super hit with large factories such as the Integral Coach Factory, Coca Cola, Tatas, Birlas, etc.

Five product patents and one design patent are feathers in their cap. According

to Mr. Sekhar, R&D is on full swing to bring more items in this domain.

Solar Light Pipe Day Lighting System is the mainstay among these products and work on a harvesting sunlight without transmitting the heat related to such luminosity. Light diffusers are placed inside the building and provide light for close to ten hours a day without batteries. Anshu is a day lighting solution for small living spaces.

(In association with jobsdialog.com of TMI e2E Academy)



Skyshade Daylights MD  
Sekhar Nori



Deccan Chronicle, Hyderabad dated July 22, 2015

# 2°C CHANGE IS DANGEROUS

## James Hansen predicts monstrous damage

London, July 21: World's most famous climate scientist, James Hansen, outlines an alarming scenario for planet's future.

With his 1988 US congressional testimony, the then-Nasa scientist is credited with putting the climate change issue on the map by saying that a warming trend had already begun. Along with 16 other researchers, including leading experts on the Greenland and Antarctic ice sheets, he has authored a

lengthy study outlining a scenario of potentially rapid sea-level rise combined with more intense storm systems.

The paper takes, as one of its starting points, evidence regarding accelerating ice loss from parts of the planet's ice sheets, especially West Antarctica. He added that even a change in 2 degrees Celsius could be very dangerous for the climate.

One of the co-authors on the paper, Eric Rignot of Nasa, the lead author of a

2014 study that suggested, as a Nasa release put it, that the decline of West Antarctica could now be 'irreversible'.

Hansen suggests the "doubling time" for ice loss from West Antarctica — the period over which the amount of loss could double — could be as short as 10 years. In other words, a non-linear process could trigger major sea-level rise in a time frame of 50 to 200 years.



Nasa captures the first image of the sunlit side of Earth on Monday from a distance of 1.6 million km, which prompted US President Barack Obama to tweet about the need to protect the "only planet we have."

— PTI

## JUNE SETS RECORD IN TEMPERATURE

London, July 21: Last month was the hottest June on record globally, setting yet another in a string of temperature records, federal scientists said. A Monday report from the National Oceanic and Atmospheric Administration also concluded that land and water surface temperatures each hit a new record in June, and the first half of 2015 was also the hottest on record.

The average temperature across all of the world's land and ocean surfaces in June was 61.48 degrees

Fahrenheit, the hottest since federal records began in 1880. It beat the previous record by 0.22 degrees Fahrenheit, which was set only last year; June is the third month this year to break its monthly record, after March and May, NOAA said in its report. The other months of the year were not far behind.

January and February were the second hottest on record and April was the fourth. The first half of 2015 also set a record as the hottest since 1880, beating the record set in 2010, according to the NOAA. Additionally, the 12 months that ended in June now comprise the hottest 12-month period in the NOAA's records.

— Agencies

**0.22°C**

IS THE  
DIFFERENCE IN  
TEMPERATURE  
BETWEEN 2014  
AND 2015

## THE UK HAS TAKEN A NUMBER OF STEPS TO LIMIT EMISSIONS OF GREENHOUSE GASES THROUGH LEGALLY BINDING TARGETS

### THE CLIMATE CHANGE ACT

UK Climate Change Act was passed in 2008 and established a framework to develop an economically credible emissions reduction path

### THE CLIMATE CHANGE ACT INCLUDES THE FOLLOWING:

**80** The percentage by which UK intends to reduce greenhouse gas emissions

■ A carbon budget is a cap on the amount of greenhouse gases emitted in the UK over a five-year period.

### TWO KEY GOVERNMENT DEPARTMENTS CHARGED WITH SETTING CLIMATE POLICY ARE:

■ Department for Energy leads on policy to reduce emissions.  
■ Department for Environment and Rural Affairs (Defra) leads on the UK's domestic adaptation policy.

The Times of India, Delhi dated  
July 23, 2015

# SC's been kind, we won't: NGT

## Slams NHA, Haryana For Delay In Eastern Bypass Project

TIMES NEWS NETWORK

New Delhi: The green tribunal on Wednesday came down heavily on National Highways Authority of India (NHA) and the Haryana government for the inordinate delay in completing both eastern and western peripheral expressway projects. "We have to get things going or people must go," said a tribunal bench.

Once ready, the two expressways are expected to take more than 80,000 vehicles off Delhi's roads.

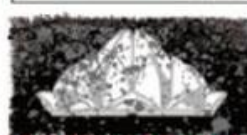
"You have taken seven years to decide a contract should be given or not. These days machines can finish work in weeks. The highest court of India has given you an order and this is what you are giving to public. The Supreme Court has been very kind; we will be harder on you. You have self-inflicted suffering for six years," the tribunal said referring to the eastern expressway project.

Tenders are yet to be floated for the eastern expressway pro-

ject, which was conceived in 2008. "What kind of efficiency is this? Will a private concern wait for six years to get a bid?" the bench said.

Additional solicitor general (ASG) Pinky Anand and Rajesh Ranjan, who is also representing the Centre, then sought help from another lawyer Pinali Mishra, to explain the reason behind the delay. "From 2011 to 2014, NHA had no chairman. It was headless," Mishra said.

A peeved NGT said, "Don't take help from each other...you can frustrate everything like this. You have to see your conduct...if you see the jail, you will do whatever is required." It also questioned NHA about the costs incurred because of the delays. Satish Chandra, NHA member (finance), said though bids were invited in 2008, 2012 and twice in 2014, only one quotation was received in 2008. Earlier, the project was in the build-operate-transfer (BOT) mode. NHA reportedly realized this me-



**LET DELHI BREATHE**

thod would not work and changed it to engineering-procurement-construction mode in 2014. The cabinet finally approved the project last week.

The NGT bench expressed its displeasure after learning that it took so long for the government to figure out which

mode will work.

The bench also pulled up the Haryana government, which has started work only on the Delhi-Manesar stretch of the western expressway while the second tender for the Kundli-Manesar section has not been finalized yet. Anil Grover, the lawyer representing Haryana, claimed the state had decided to meet the 10-year deadline to phase out government vehicles that run on diesel.

He added Haryana was even ready to phase out government vehicles that are just eight years' old. NGT asked the Haryana government to give an undertaking on the deadlines when the entire 135km stretch will be ready.

The bench once again asked the Centre and the Delhi government to submit their views on age of vehicles, cap on the number of vehicles to be registered and other interventions. "You are saying vehicles contribute to only 18% of pollution...let's at least do something to counter that 18%."

STOP polluting this city, it is the only one we have!



### POLLUTION FRIGHT

AIR QUALITY INDEX PM2.5		
Delhi	87	Good
Tomorrow	75	Good
Pune	37	Good
Tomorrow	33	Good
Source: SAFAR@MoES-IITM-IMD (00:00:00)		
Hyderabad	48	Good
Chennai	45	Good
Mumbai	41	Good

US Embassy data calculated as per Indian standards by SAFAR@MoES-IITM-IMD  
Based on 1 Station Data Per City at 4pm



The Times of India, Lucknow dated July 23, 2015

# City water table plunges sharply in past 8 years

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**Lucknow:** Is Lucknow going dry? With the city getting 60 per cent of its supply from groundwater, a report released by the UP groundwater department on Wednesday has led to alarm bells ringing – the city's groundwater level has gone down by an average 3.6 m between 2006 and 2014 and an average of 2.5 m between 2012 and 2014. The latest report presents figures of November 2014.

If the city is faced with the prospect severe ground water depletion, it's outskirts – where urbanization has been rapid – face a gloomy situation. These areas – including Chinhath, Maal, Malihabad and Mohanlalganj – have been declared "over-exploited" by the Union ministry of water resources and no survey is conducted.

► Max groundwater dip, P 2

## GOING DRY

In past eight years, groundwater level has fallen in all major areas

Year	Aliganj	Gomtinagar	Alambagh	Hazratganj	Jail Rd
2006	22.3	19.6	35.7	20.6	22.9
2012	21.4	20.3	39	23.6	36
2013	27.3	20.5	40.4	24.2	35.9
2014	28	27.8	41.9	25.2	37.8

Groundwater level in metres



## PARCHED CITY GROUNDWATER ON THE DECLINE

The latest report on groundwater level projects a grim scenario for the city, with many prominent localities showing a steady decline over the past eight years



## Jail Rd area witnesses max groundwater fall

► Continued from P 1

An area is declared over-exploited when withdrawal of water exceeds rate of recharge, leaving the water balance skewed.

In the city, the worst-hit area is Jail Road, which has seen a lot of construction taking place since 2007. It has seen maximum depletion in groundwater level since 2006, with water level going down by almost 15 m.

Localities like Hazratganj, Gomtinagar, HAL, Aliganj and Alambagh have shown a steep decline groundwater level in two years' time. The report enumerates decline in 41 localities surveyed between 2006 and 2014.

The drop has been stark in

areas that have seen proliferation of highrises and malls. In Gomtinagar, groundwater level has dropped by almost 8 m, from 19.6 m in 2006 to 27.8 in 2014.

Congested localities like Lalbagh and Alambagh which have pressure of population growing manifold over the years have recorded 10 to 6 metres fall in groundwater over the years.

Para and Rahimabad are the only exceptions where water table has risen by 0.1 and 0.7 m respectively since 2006.

"Forest cover is vanishing, rainfall is reduced and recharging of groundwater is not taking place," said Chandra Prakash, principal secretary, minor irrigation and groundwater department.

"In urban areas, there is a need to conserve excess runoff of rainwater. Roof-top rainwater harvesting systems have been installed on government offices but many remain dysfunctional. It should be ensured that the system works without fail," said UP chief secretary Alok Ranjan.

UP groundwater department assesses water table at 59 water-level stations in Lucknow every year in May-June for pre-monsoon reading and in September-October for post-monsoon reading by boring pipes and dropping measuring tapes.

Experts also fear that this may affect the Gomti which is fed and recharged through groundwater.

## Law to save, revive groundwater pending since '05

**Lucknow:** Enactment of a law to regulate indiscriminate extraction of ground water has been pending since 2001. The Union government formed the Centre Ground Water Authority following Supreme Court's direction on a PIL on regulation of indiscriminate extraction of ground water in the country.

The government of India also asked the state governments to enact law and circulated a model bill in 2001 followed by a reminder in 2003. In UP, a bill was drafted in 2005 but

enactment was deferred by then SP government. Mayawati government in 2008 decided to have a fresh look at the forgotten bill. A committee was formed to recommend changes in the bill. In July 2010, the amended draft of the UP Ground Water Conservation, Protection and Development (Management, Control and Regulation) Bill was released by the state government for inviting objections and suggestions from the public before enactment. However, things did not move after that. TNN

## WHAT THE BILL PROPOSES

► Ground Water Authority (GWA) comprising experts, government officers and representatives from NGOs be set up to notify

► Bulk users like industries and high-rises should pay an annual fee, seek permits to use groundwater and adopt area-specific rainwater harvesting technique

► Boring and drilling agencies should register with the Authority

► Installation of rainwater harvesting system to be mandatory

### PENAL PROVISIONS

► To punish user contaminating groundwater or directly disposing waste water/sewage into aquifers

► To award strict punishment to defaulter with a jail term of at least a month which can be extended to a year

► A fine of ₹5,000 on user not complying with the Act for first offence

► A fine of ₹10,000 for second and subsequent offence along with jail term extending to six months

### PROVISIONS FOR OVER-EXPLOITED & CRITICAL AREAS

► Complete ban on construction of new wells/tube wells (both private and government)

► Existing users to mandatorily adopt area-specific rainwater harvesting technique

► Mandatory twice-a-year inspection





*The Times of India, Lucknow dated July 24, 2015*

# Toxic air kills 80 daily in capital: Javadekar

TIMES NEWS NETWORK

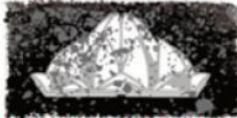
**New Delhi:** Union environment minister Prakash Javadekar said on Thursday air pollution is killing 80 people every day in the capital. In a written reply in Rajya Sabha, Javadekar said respirable particulate matter or PM 2.5 is one of the factors responsible for morbidity and premature deaths.

"An recent international study has claimed that foul air is killing up to 80 people a day in Delhi. The number of premature deaths given in the study is based on the constructive estimates and extrapolations of data," he said.

Last month, TOI had reported the findings of the study published in "Environmental Science and Technology" journal, which concluded that 45% of premature deaths linked to air pollution in Delhi could be avoided if the city met the national ambient air quality standard for PM2.5 that is 60 micrograms per cubic metre. In fact,

85% of these deaths could be avoided if the city's air can be cleaned up to the safe standards set by the World Health Organization, which is 10 micrograms per cubic metre, the study revealed.

Across India, as many as 4 lakh premature deaths could be prevented every year if the WHO standards are met.



LET DELHI BREATHE

The authors of the study extrapolated that PM 2.5, or fine, respirable pollution particles that can get lodged in the lungs or enter the blood stream, could be responsible for 10,000-30,000 premature deaths annually in Delhi—up to 80 deaths each day.

The study authored by Joshua S Apte from University of Texas, Julian D Marshall from

University of Minnesota, Aaron J Cohen from Health Effects Institute and Michael Brauer from University of British Columbia released a map of India showing places of highest morbidity due to air pollution.

Javadekar said the government had sponsored two studies in the national capital, "Epidemiological study on effects of air pollution on human health in Delhi" during the period from and "Study on ambient air quality, respiratory symptoms and lung function of children in Delhi. Commissioned by Central Pollution Control Board (CPCB), the studies were conducted from 2002 to 2005.

"The studies indicate cases of pulmonary and systemic immunity, damage to chromosomes and DNA as well as other health impairments are associated with cumulative exposure to high level of particulate pollution. This increases the risk of various diseases, including respiratory and cardiovascular diseases," Javadekar said.

# Plan afoot to make AIIMS a green zone

## Aim To Cut Energy Use Per Patient By 50%

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**New Delhi:** A proposal to turn AIIMS into a green institution—replacing old transformers with solar panels, swapping sodium vapour lamps for LEDs and setting up an energy management system—has been submitted. The aim is to reduce energy consumption per patient by 50%.

Deputy director (administration) V Sreenivas said several meetings have been held with the agency appointed for feasibility study and implementation will start soon.

AIIMS currently receives a monthly power bill of over Rs 1 crore. "When the institute was developed in the 1950s, energy and environment issues were not given appropriate consideration. The NDA government has taken up this project to make AIIMS a green hospital—an example for other hospitals to follow," said a senior health ministry official. Union health minister J P Nadda has been actively pursuing the initiative.

Nadda has asked AIIMS director M C Misra to formulate a booklet of guidelines for disinfection and sterilization of operation theatres and carrying out infection

## FOR AN ECO-FRIENDLY WORLD

### Heating ventilation air conditioning

**Current status |** Manual operation, no central control, constant chilled water flow  
**Proposed changes |** Automatic operation, energy management system, regulating chilled water flow

### Substations

**Current status |** Some substations run continuously. A few transformers are 23-55 years old  
**Proposed changes |** Improve power factor. Replace old transformers with solar panels and battery backup

### Diesel generator sets

**Current status |** No monitoring and control  
**Proposed changes |** Energy management system

### Lighting

**Current status |** Fluorescent lighting inside building. High pressure sodium vapour lamps for road  
**Proposed changes |** Replace with LED lights for recommended areas



control. About the Kayakalp initiative, Nadda said, "We have launched the Kayakalp initiative in central health institutions across the country. Participants will compete on various parameters—cleanliness, housekeeping and control of infection and germs."

"The winner of the first prize will be awarded Rs 5 crore, while the second and third prize winners shall receive Rs 3 crore and Rs 1 crore, respectively," said Nadda. "Similar guidelines have been laid down for district

hospitals, community health centres and primary health centres to encourage them to establish sustainable standards of cleanliness and hygiene."

Given the high footfall at AIIMS every day—33 lakh patients and their attendants visited last year—Nadda said it was indeed a challenge to keep its premises clean. "Keeping an institution such as AIIMS clean on a daily basis is a herculean task. It needs the cooperation of various stakeholders," he said.

*Edited by: Prof. Sushil Kumar  
Centre for Business Sustainability,  
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