

Centre for Business Sustainability, IIM Lucknow  
Prabandh Nagar, Off. Sitapur Road, Lucknow- 226013  
E-mail: cbs@iiml.ac.in Phone: +91 522 2736987, +91 2736989

## Business Sustainability News

## International

### What will it take to make shipping sustainable?

By James Murray



*Cargo ships entering the port of Singapore.*

A group of leading shipping operators is calling on the wider industry to embrace new finance models to fund clean tech upgrades and back calls for a new international framework for tackling shipping emissions.

The Sustainable Shipping Initiative (SSI), which represents 17 firms from across the shipping sector including Bunge, Cargill, Maersk Line, ABN AMRO, Lloyd's Register and AkzoNobel, this week published its annual progress report, detailing its work to accelerate the rollout of clean technologies, promote sustainable ship recycling practices and make the shipping industry a more attractive employer.

The progress report is intended to act as a forerunner for the group's new road map for delivering rapid improvements in shipping operator's environmental performance through 2040, which is due to be published before the end of March.

Specifically, the group revealed plans to establish by 2018 a "cost-efficient way" for SSI members to support Ship Recycling Facilities (SRFs) in achieving "minimum safe, environmentally and socially responsible requirements" and complying with the International Maritime Organization's (IMO) Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (HKC), which has been internationally agreed, but not yet ratified sufficiently to enter into force globally.

**There is no room for complacency, and we must be under no illusion of the significant challenges that lie ahead.**

It also urged more shipping owners, operators and owners to take advantage of the SSI's recently launched Save as you Sail (SAYS) finance scheme, which aims to ensure owners and charterers share the benefits that come with efficiency upgrades.

"SAYS includes a financial model that owners, charterers and financiers can use to model returns on investment and profits from more efficient vessels; and a set of legal considerations needed to enable third-party financing of the retrofit costs in the short-term time charter market," the SSI explained on its website.

Alastair Fischbacher, chief executive of the SSI, urged more firms operating in the shipping industry to join the group.

"There is no room for complacency, and we must be under no illusion of the significant challenges that lie ahead," he said. "But we have shown that when organizations within the industry come together to make a difference and drive

more sustainable behaviors, great things can be achieved. We will continue with this mission, and welcome organizations from all elements of the shipping supply chain to join with us and work to deliver a sustainable industry."

In related news, environmental NGO Carbon War Room announced it was launching a new Shipping Efficiency Advisory Board to support its efforts to deliver an efficiency labelling system for ships.

The new board includes Jan Dieleman, incoming president of ocean transportation at Cargill; Henrik Overgaard Madsen, former chief executive of certification giant DNV; Mark Cameron, chairman of the International Parcel Tanker Association (IPTA) and COO of Ardmore Shipping Corporation; Juha Heikinheimo, president of maritime software specialist NAPA; Mark Clintworth, head of shipping for the European Investment Bank; and Dr. Tristan Smith, director of the Research Council U.K.-funded project Shipping in Changing Climates and reader in energy and transport at the UCL Energy Institute.

[<ReadMore>](#)

### Why Do US Citizens Have Double the Carbon Footprint of People in Europe?

#### SustainableBusiness.com News

While people in the US and Europe have similar lifestyles, those living in Europe produce half the carbon emissions as those in the US - why is that?

Flying over Sweden, Denmark, Germany, the Netherlands, and Wales, aerial photographer Alex MacLean shows us why in an article in *Yale360*.

It's about how efficiently Europe designs its built environment, MacLean says. Dense urban centers encourage walking and bicycling, and connect easily with public transportation. Suburban and rural communities are compact with sharp boundaries on growth, and commercial and retail space is integrated into the fabric of residential areas, he points out.

In the US, the "smart growth" movement seeks to replicate Europe's approach, and has been accepted as best practice by many municipal planning agencies. But with so much of the country built-out based on sprawl, it will be hard to match Europe's efficiency.

*Rysum, Germany has a sharp growth boundary:*



[<ReadMore>](#)

## New Apple Peel Battery Could Compete With Tesla's Lithium-Ion Batteries

By Tina Casey, *CleanTechnica*

Researchers at Germany's Karlsruhe Institute of Technology have come up with an energy storage solution that could make good use of waste from the country's apple processing industry. They have found that leftover apple waste has "excellent" electrochemical properties for use in sodium-ion batteries, when reduced to a carbon material.

Sodium-ion technology is beginning to emerge as an alternative to the lithium-ion batteries used by Tesla and many other EV manufacturers as well as stationary energy storage companies (that would include Tesla, too) so let's take a look under the hood and see what's cooking.

### From Apples To Energy Storage



You can find the new energy storage study in the journal *Advanced Energy Materials* under the title "Layered Na-Ion Cathodes with Outstanding Performance Resulting from the Synergetic Effect of Mixed P- and O-type Phases."

For those of you on the go, the Karlsruhe press material breaks it down in plain language, leading off with, "A carbon-based active material produced from apple leftovers and a material of layered oxides might help reduce the costs of future energy storage systems."

If that sounds a little off the rails, consider that here in the US, researchers have found that bee pollen and pollen from cattails can also yield excellent results. Here's the rundown from Karlsruhe:

*For the negative electrode, a carbon-based material was developed, which can be produced from the leftovers of apples and possesses excellent electrochemical properties. So far, more than 1000 charge and discharge cycles of high cyclic stability and high capacity have been demonstrated.*

The research team also points out that the sodium oxides used on the positive electrode are non-hazardous, abundant, and inexpensive. The lab results indicate that the energy storage properties — capacity, voltage, and stability — are the same as that of a lithium-ion battery with cobalt.

### Sodium-Ion Energy Storage

As we often say here at *CleanTechnica*, everything has impacts, and while battery EV technology solves a global warming conundrum, it also involves the use of hazardous materials.

Specifically, the sodium-ion energy storage solution proposed by the Karlsruhe Institute team would replace the cobalt used in conventional lithium-ion batteries:

*Sodium-ion batteries are not only far more powerful than nickel-metal hydride or lead acid accumulators, but also represent an alternative to lithium-ion technology, as the initial materials needed are highly abundant, easily accessible, and available at low cost.*

It would also enable Germany to put its massive amounts of agricultural waste to more productive use, providing the kind of green twofer that extractive industries can't achieve.

That could explain why US researcher John Goodenough, who is credited with inventing the lithium-ion battery, has been moving on to sodium-ion energy storage. The last time we checked in, he was experimenting with a Lord-of-the-Rings sounding mineral called eldfellite with an eye on commercial development.

It's been a long road — back in 2008, our sister site *Gas2.org* predicted the replacement of lithium-ion with sodium-ion batteries — but it looks like things are starting to move along. A research team from France also appears ready to crack the sodium-ion code.

For its part, the Karlsruhe team is aiming primarily at the stationary energy storage market, but at least one company, Faradion, has introduced a sodium-ion electric bike as a first step to commercializing the technology for larger vehicles.

Here in the US, the company SimpliPhi has come up with a non-cobalt energy storage solution to challenge the Tesla Powerwall stationary battery (if SimpliPhi doesn't ring a bell, think LibertyPak and you're on the right track).

Speaking of Tesla, would or could the forthcoming Tesla Gigafactory convert to new energy storage technology if something superior does emerge? Elon, JB, and crew

have said it could. If you have more thoughts about that, leave us a note in the comment thread.

[<ReadMore>](#)

## Canada Charts New Path, An End to Tar Sands Pipelines?

SustainableBusiness.com News

If Canada follows through on the new path it's on, we should finally be clear of its deadly tar sands expandarama.

The latest from Prime Minister Trudeau is that all new fossil fuel infrastructure - pipelines and a LNG terminal planned for British Columbia - will have to pass the climate test.

Since tar sands pipelines can't pass any climate test, if the government actually analyzes the impacts, no more will be built. We look forward to the final and complete rejection of Energy East and Trans Mountain pipelines, which have no other purpose than transporting tar sands oil for export.

### Tar sands extraction has turned the boreal forest into a moonscape:

"The federal role is to put into place a process by which TransCanada and any other company can demonstrate their projects are in the public interest and have public support," Trudeau told reporters.



"And what we are going to roll out very soon, as we promised in our election campaign, is to establish a clear process which will consider all the greenhouse gas emissions tied to a project."

He also promised that local governments and indigenous tribes would be full participants in these decisions - an about face from the previous Prime Minister, Stephen Harper.

"It's not just governments which give permits. Communities must also give their approval," says Trudeau.

"There is a lot of cautious optimism, though people have been conditioned to expect the worst from Ottawa, especially with regard to the environment and indigenous rights," says Kai Nagata at the Dogwood Initiative.

"It's an enormous relief that the Harper decade is finally over," says Keith Stewart at Greenpeace Canada.

Tzeporah Berman, co-founder of Forest Ethics, says she "cried like a baby" when she read Trudeau's first environmental memos," reports *Sierra*.

Read our article, *Congratulations Canada! For Throwing Harper Out*, which details Trudeau's initial promises.

After his election, Trudeau renamed Canada's environment ministry to "Ministry of Environment and Climate Change," and followed that with actions like banning oil tanker traffic on British Columbia's north coast - effectively killing the Northern Gateway pipeline. Gee, he even made a point of allowing government scientists to speak freely to the media without fear of losing their job!

Besides the climate impacts of tar sands oil, banning oil tankers protects the ecologically sensitive coast from becoming an industrial zone where hundreds of dangerous tankers would have traveled each year. Two pipelines would have carried 525,000 barrels of tar sands oil from Alberta to the coast every day, winding their way across critical salmon habitat in rivers and through coastal rainforests.

Enbridge, of course, still plans to move forward on the pipeline, noting that it's being doing a good job of convincing First Nations and other citizens of its value. Good luck!

### Alberta's New Path

Since the Liberal Party won in Alberta last year, the provincial government has been steadily moving into the 21st century.

As the tar sands headquarters of the world, it's amazing to hear that it will tax carbon emissions economy-wide starting in 2017 and will phase out all coal-fired power plants by 2030 they do not capture carbon.

This is expected to result in about \$2.25 billion a year, which will be spent on to diversify into efficiency, renewable energy, and public transportation. Some of the funds will go toward research and some will offset financial assistance to help affected families and small businesses.

[<ReadMore>](#)



# Why a carbon price would cut emissions more than we expect

By Noah Kaufman



Shutterstock / Amy Johansson

How big of a dent would stricter climate regulations make in global carbon emissions?

How much would a carbon tax reduce U.S. emissions?

The U.S. Energy Information Administration (EIA) found that if the country had set a carbon tax of \$25 per ton in 2015 and increased it by 5 percent each year, CO<sub>2</sub> emissions would have fallen to 32 percent below 2005 levels by 2030. But new research shows that this may underestimate a carbon price's true potential.

In the new World Resources Institute issue brief "Putting a Price on Carbon: Reducing Emissions," we outline the specific ways a carbon price (meaning either a carbon tax or cap-and-trade program) would encourage emissions reductions by changing the behavior of producers, consumers and investors throughout the economy.

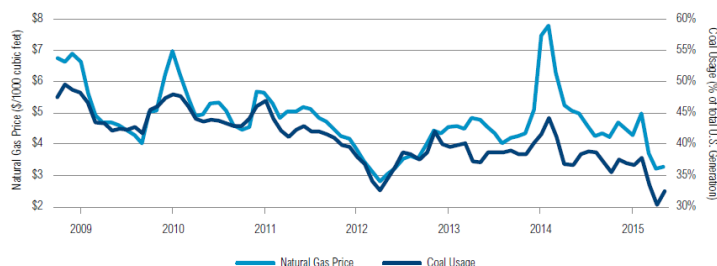
We compare these incentives to the corresponding forecasts in EIA's model, and we find that the model is likely underestimating emissions reductions in important ways.

Models underestimate electricity emissions cuts

Take the electricity sector: A carbon price will increase the cost of electricity in proportion to the carbon content of the fuel, thus encouraging the replacement of high-carbon sources such as coal with lower-carbon options such as natural gas and renewables.

The response of the U.S. electricity grid to price signals is remarkably rapid and strong — the figure below shows how coal usage has correlated with large shifts in natural gas prices in recent years. Computer model forecasts are designed to mimic such historical relationships, so natural gas usage is assumed to increase when a carbon price raises the relative price of coal-fired electricity.

**FIGURE 3: RELATIONSHIP BETWEEN PRICE OF NATURAL GAS AND COAL GENERATION IN THE UNITED STATES**



Notes: Data from the U.S. Energy Information Administration. Prices are for natural gas used by electric generators.

[Click to enlarge](#)

Naturally, models are not as good at predicting relationships without a strong precedent, such as the replacement of fossil fuels with renewables. In fact, models are highly pessimistic about the future of renewables.

For example, the costs of building a utility-scale solar photovoltaic plant have been declining at more than 10 percent per year, yet EIA assumes these costs in 2025 are no lower than the median cost of a plant installed in 2014. If the technology continues to improve — as industry experts expect it will — solar energy will be

available to replace fossil fuel generation quicker and to a larger degree than computer models predict, thus increasing the effectiveness of a carbon price.

The same is true when you look at electricity use by individuals and businesses. Computer models again use past precedent as a guide, assuming electricity customers respond to a carbon price as they have responded to price fluctuations in the past.

But consumers may be more responsive to price changes caused by taxes, and it's easy to see why — few of us notice when our electricity rates change, but carbon-pricing legislation would be highly publicized. When the U.K. instituted a climate change-inspired tax on electricity in 2001, a study of commercial customers found a response over twice as large as estimates based on the EIA historical data would have predicted.

Perhaps more important, using past consumer behavior as a guide misses major advancements in the electricity market — smart grids, time-differentiated pricing and demand response programs are all designed to increase consumers' responsiveness to price changes.

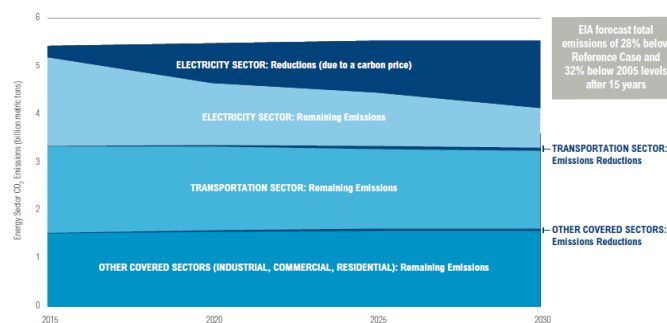
Carbon pricing goes beyond power

Beyond electricity, a major advantage of a national carbon price is the broad array of emissions-reduction activities it encourages. With a carbon tax or cap-and-trade program in place, households and businesses in virtually every sector of the economy have a financial incentive to reduce their carbon footprints.

Any given emissions target therefore can be met more cost-effectively compared to a policy that requires all reductions from a single sector or region.

Yet outside the electricity sector, computer models assume carbon prices have little to no effect on emissions. The figure below displays the EIA's emissions reductions forecast for its \$25 per ton carbon price scenario. With minor exceptions, the model suggests that households and businesses do not respond to increasing heating bills, manufacturers do not adjust to rising input costs, and neither producers nor consumers respond to the increased costs of transportation fuels.

**EIA'S PESSIMISTIC FORECAST OF CO<sub>2</sub> EMISSIONS REDUCTIONS FROM A CARBON PRICE**



Notes: Data from EIA's Annual Energy Outlook 2014. EIA Reference Case (dark + light blue) scenario is a forecast of the U.S. energy system assuming only "on the books" policies as of late 2013, and its carbon pricing scenario (light blue area only) scenario reflects a \$25 per metric ton carbon price implemented in 2015 and increasing 5% per year thereafter. Emissions from the transportation, industrial, commercial, and residential sectors exclude emissions from electricity generation.

[Click to enlarge](#)

Any of these pessimistic forecasts may come true, but it's highly unlikely they will all come true. For example, while drivers are notoriously unresponsive to gasoline prices, transportation is changing with remarkable speed.

The major auto manufacturers are almost all investing heavily in electric or fuel cell vehicles, and the growing "sharing economy" makes individual ownership less of a necessity. Ten years from now, the transportation sector could look more like the electricity sector, where small price signals have large effects.

Recognizing the full emissions benefits of a carbon price

Our intention is not to pick on EIA, which provides an invaluable source of public information, and whose forecasts differ little from other prominent carbon-pricing studies. Still, all these pessimistic modeling assumptions combine to produce pessimistic results, selling short the benefits of a carbon price.

There is no doubt the exact effects of a carbon price are uncertain, but to the extent that our expectations are shaped by the modeling results, the bulk of the uncertainty points in the direction of greater emissions reductions than those forecasted.

Alongside a smart portfolio of complementary policies, a carbon price can help us achieve our emissions targets — and at prices that may be lower than we think.

[Source](#)

## From Davos: Unleashing the power of nature in cities

By Mark Tercek and Pascal Mittermaier



A playground in Vancouver, British Columbia.

At the World Economic Forum in Davos this week, the important topic of urbanization keeps coming up in various discussions. For environmentalists like us, it's a critical issue, too.

As the world's population grows and as our planet increasingly urbanizes, we need to redefine the relationship between cities and nature. It is no longer enough for us to "protect the last great places," as we used to say at our organization, the Nature Conservancy.

Don't get us wrong — nature needs TNC and the other great environmental organizations to continue championing protection of the lands and water on

which all life depends. But if we are to have a broader impact and if our work is to be relevant in the future, we need to expand our environmental mission to include work in cities.

We need to unleash the power of nature to help make cities more resilient, livable and ultimately flourishing so both nature and people can thrive.

We now need to work closely in partnership with the people and organizations who have been focusing on cities for a long time.

Since our founding more than 60 years ago, TNC has built a strong track record of helping solve major environmental challenges. We have developed world-leading expertise in science-based outcomes, worked hard on inclusive policy work and often have acted as reliable conveners in multi-stakeholder approaches. We always have worked hard to collaborate with others.

We can now bring these same skills to our work with cities.

**Nature-based solutions can play a major role in providing clean drinking water and cleaner air, and they can help lower pollution impacts from cities.**

Nature can help cities solve some major environmental, social and financial challenges. Nature-based solutions can play a major role in providing clean drinking water and cleaner air, and they can help lower pollution impacts from cities.

And, perhaps even more important, our work in cities can help connect new, younger and more diverse people with nature to ensure the next generation of environmental stewards and supporters.

Take our work to provide clean water, for example. We are working with more than 40 cities around the world on water funds — using a small levy on urban water consumption to help preserve the pristine area above a city, thereby ensuring clean, cost-effective drinking water for city residents.

It's a great win-win: Clean nature assures clean drinking water. TNC's urban water blueprint report has identified cities around the world where this approach could work especially well, affecting more than 700 million people.

What about the impact of water once it leaves a city? Stormwater — rain that falls on paved areas, flows into overtaxed sewers and then carries all the pollutants directly into rivers and oceans — is now the biggest form of water-related pollution coming from cities. Two trillion gallons of untreated water per year flow out of cities in the U.S. alone.

Several TNC pilot projects in cities such as Washington, D.C., Detroit and Bridgeport, Conn., show that deploying natural — or green — infrastructure dramatically can reduce the speed and pollution content of stormwater at much more cost-effective levels than traditional manmade — or gray — infrastructure such as sewers.

Green infrastructure's potential is enormous here — not to mention the benefits for biodiversity in an urban context.

**Green infrastructure's potential is enormous here — not to mention the benefits for biodiversity in an urban context.**

Nature also can help clean dirty city air. TNC is working in several cities to examine nature's role in removing pollutants from the air. In Louisville, we are working with several partners, including the city and the University of Louisville Medical School, to demonstrate the beneficial role of trees and vegetation on asthma and cardiovascular health.

This first and largest study of its kind will help us understand which kind of trees, deployed in the right context, strategically can improve air quality. The outcomes of this and other studies no doubt will help redefine planting trees and vegetation as a major strategy to combat poor city air.

We are exploring the health and well-being power of nature even further. TNC is working with schools, hospitals and offices to prove the power nature can have on cognitive learning, hospitalization time and increased well-being, productivity and engagement in the workplace.

[<ReadMore>](#)

## TIPS

We often hear news related to scarcity of water and that water is getting polluted as a result of industrial waste, excessive use of: fertilizers, pesticides and insecticides etc.

Life cannot be thought of without water. Though about 70% of earth's surface is covered with water of which 97% is salt water, 2 percent is glacier ice at North Pole and South Pole etc. Only 1% is fresh water fit for human consumption. The pressure on which is increasing every day. We know if not used sensibly we will starve for water in future.

Therefore to ensure availability of water for future generations it is very important that we stop wasting water, polluting water and recycle and reuse water.

Everyone is very much aware of how can we conserve water but just to refresh memories we are providing herewith some tips.

1. Turning off the tap while you brush your teeth can save about 4 gallons of water a minute. That will save hundreds of gallons/ week.
2. Likewise turning off the water while shaving can save more than 100 gallons of water a week.
3. Fix all the leakages in pipeline and replace washers of taps leaking. This will also save huge amount of water.
4. Do not let the kitchen water go down the drain instead use it for watering plants and lawn.
5. Put a brick or bottle filled with water in the flush tank of the toilet this will result in saving lot of water.
6. Taking a shower instead of using bath tub will save water considerably. Even if you are taking showers reducing it by a minute or two will save gallons of water every week. The timing of shower can be curtailed by closing showers while shampooing hair.
7. A dishwasher uses the same amount of water whether it is full or just partially full of dishes, so you should delay the washing of dishes until you are able to fill the dishwasher and avoid multiple washings.
8. A front loading washing machine uses lesser water almost 30%. So if you are going to buy a new one please opt for front loading machine.
9. Collect rain water from roof top in a tank and use it for watering plants, lawn and other suitable purposes.
10. When washing car don't allow water to run continuously. Wet the vehicle and close the tap. Apply soap or shampoo on your car using a bucket of soapy water and after that turn on the water to rinse.
11. Water your lawn or plants in the early evening or early morning that will not allow water to evaporate.
12. Fill a pan or container with water to rinse vegetables, instead of running water.
13. Always ensure that all taps and faucets are properly shut and there is no dripping of water.



## 'First-of-Kind' Desalination Plant Wastewater Converts into Freshwater

Source Name: Environmental Leader

By Jessica Lyons Hardcastle

A commercial water plant located next to a desalination plant in Texas will convert wastewater from the desalination process into fresh drinking water, extracting contaminants and transforming them into reusable mineral products, and boosting El Paso's drinking water supply.

This wastewater project is the result of a partnership between global water and waste giant Veolia and Texas-based Enviro Water Minerals (EWM), a company that is commercializing technology to recover the minerals discharged in wastewater from brackish water desalination plants.

The two companies say the new water treatment plant is the first of its kind globally.

EWM awarded Veolia a 10-year operations and maintenance agreement to manage its commercial water plant in El Paso. EWM has broken ground on the new water production and chemical manufacturing facility located next to the city's Kay Bailey Hutchison (KBH) Desalination Plant, the world's largest inland desalination plant.

This zero-discharge wastewater facility will be equipped with EWM's technology to recover minerals and desalinated waste brine discharged from brackish water reverse osmosis. The plant will take the waste brine concentrate from the KBH Desalination Plant, extract and transform salts and minerals into commercial products, and produce more than 2 million gallons of drinkable water a day for the region.

"Waste brine disposal has long been the Achilles' heel of inland desalination facilities," EWM CEO Hubble Hausman said in a statement. "Our El Paso project will demonstrate that it is possible to produce multiple marketable chemical and mineral products from the waste brine while increasing the recovery of potable water and eliminating waste."

The EWM plant is scheduled to begin operations in early 2017.

In other efforts to monetize wastewater, and use it to produce freshwater and energy, Veolia recently designed and built an onsite wastewater treatment plant for multinational food manufacturer Associated British Foods (Thailand). Veolia says the plant will allow ABF to handle its wastewater treatment needs on premise while also generating biogas.

[\[Source\]](#)

## UK families blow twice as much money on food waste as they think, research shows

*YouGov study for Sainsbury's reveals high cost of Britain's food waste, with the average family of four throwing away the equivalent of 11 meals – or nearly £60 – a month*

By Rebecca Smithers

British families squander twice as much money on food waste each month as they think they do, according to YouGov research commissioned by Sainsbury's.



*An estimated 15m tonnes of food is thrown away in the UK each year. Photograph: Murdo MacLeod for the Guardian*

The supermarket said it found that 81% of families of four believe they throw away less than £30 worth of food a month, when in reality they waste nearly double that at £58.30 a month, on average.

At the same time, 93% of Britons believe they waste less than five meals a month, when on average they actually waste double that - the

equivalent of 11 meals per month.

The environmental and financial impact of food waste has come to the fore recently with chef and campaigner Hugh Fearnley-Whittingstall's TV series, Hugh's War on Waste, which has blamed supermarkets for much of the food thrown away.

Sainsbury's this week started a partnership with Swadlincote in Derbyshire, where it is spending £1m to cut food waste by trialling new technology. The 'Waste

Less, Save More' project aims to reduce food waste by 50% and save the average household £350 a year.

In the first steps of working with the 35,000-strong town, it will be giving a free fridge thermometer to all households, to ensure appliances are at their optimum temperature.

Swadlincote beat 188 areas in the UK to be awarded the project and Sainsbury's now plans to spend £10m over the next five years to develop similar schemes across the UK.

Mike Coupe, Sainsbury's chief executive, said: "Food waste is one of society's biggest environmental issues at the moment and there is a genuine passion across the UK to tackle it. We hope to work with shoppers and householders to find ways of making behavioural change, which is key to long-term success."

The supermarket - which in Swadlincote has one large store and three smaller ones - is also looking at special 'leftover labels' that display a mini countdown to tell householders when food needs to be eaten before going off. Throughout the project it will also look at the role packaging and labelling can have on food waste.

Later, it hopes to test smarter kitchen appliances, for example, a smart fridge so that people can check on their phone what they have at home, and a 'zero waste' personal shopper who will help residents shop for what they actually need.

Trewin Restorick of the environment charity Hubbub, who was part of the judging panel that selected Swadlincote, said: "It is a very interesting experiment and quite unusual that it is a supermarket that has taken this leap. Swadlincote won because of its community spirit. Hopefully this will go on to have a national impact."

Just over 1% of food wasted in the UK - 200,000 tonnes - comes from stores, according to figures from the government-backed Waste Resources Action Programme (Wrap).

Of the estimated 15m tonnes of food thrown away in the UK each year, more than half is disposed of in people's homes. Fearnley-Whittingstall has criticised supermarkets for excessively exacting cosmetic standards of vegetables.

[\[ReadMore\]](#)

## Fabric line planned from deep sea plastic waste

Source Name: Ecotextile

A Spanish sustainable apparel business is set to begin spinning yarn from polymers derived from plastic bottles which have been collected alongside the catch of almost 200 Spanish fishing boats in the Mediterranean Sea. The Up-cycling the Oceans initiative of Madrid-based Ecoalf plans to launch three fabrics from the collected sea waste in early summer.

The initiative is the first which Ecotextile News is aware of which is collecting deep sea plastic bottle waste to produce apparel, and differs from the high profile Parley For the Oceans project which collects ocean waste close to the shoreline.

Asked about the inspiration behind the work, Javier Goyeneche, founder of Ecoalf told us: "I was at the ports one day and the local fishermen were telling me about the huge amount of trash they were [inadvertently] gathering with each catch. I went fishing with them one day and saw for myself - and it was all being thrown back into the ocean. My vision was to collect this trash - which I believe is destroying the Mediterranean - and turn it into top quality thread."

Remarkably, Javier has so far managed to convince 180 fishing vessels to save rather than return the trash they collect, this then being sorted for plastic back at port. At an average collection of 4 to 6 kilos of trash per day (PET bottles represent 20 per cent) this equates to around one tonnes of per day.

So far, waste is being collected from Alicante to Castellón, although Javier is in talks with the Spanish Government to see if trash can also be collected from Tarragona to Cadiz near Gibraltar.

The first 15 tonnes of polymers will be spun into yarns this week, with fabrics to be produced in February and March.

If quality permits, three fabrics will be spun in summer, the first a summer product with a recycled cotton or linen blend, the second a technical fabric for outdoor clothing and the final one a soft fabric for swimwear. The variable consistency of quality and quantity of supply of the ocean waste means a percentage of each fabric will be derived from ocean trash, the remainder from other recycled sources, including recycled polyester.

Ecoalf was formed in 2010 and launched its first collection of fabrics, made from fishing net waste, in 2012.

[\[Source\]](#)

## Why China's shifting economy could be a boon for climate action

By RP Siegel

There are many forces at play on both sides of the challenge to rein in carbon emissions before it's too late. Some of the most important, like the plummeting



China is at an inflection point for sustainable development.

price of oil, or China's need to protect citizens by reducing air pollution, are not even directed at the problem. Still, they both have enormous impact.

Another such trend is the recent decision by Chinese leaders to initiate a supply side reform in their economy. What this means is that at the beginning of the 13th Five Year Plan, the Chinese want to shift away from a production-based consumer and service-based.

The primary reason for this is the economic slowdown that China is experiencing, which has led to substantial overcapacity in their manufacturing sector. The Chinese economic growth rate dropped to 6.9 percent in 2015, the lowest since the downturn of 2008.

But at the same time, in the post-COP21 world, the desire to cut emissions plays a key role. A full 25 percent of China's emissions comes from the production of goods for the export market.

Furthermore, Premier Li Keqiang, is looking to heavy industries like steel and coal to take the lead. Specifically, he said, they should, cut "overcapacity, digest unreasonable inventories, reduce costs and improve efficiency."

At the same time, they have made a strong commitment to renewables, with a target of 200 GW of solar and 250 GW of wind by 2020. To put that in perspective, that's a number that represents roughly 40 percent of the entire U.S. power generation capacity, of which roughly 18 percent comes from renewables today.

**"The Chinese want to shift away from a production-based economy to one that is more consumer and service-based."**

President Xi Jinping called innovation, coordination, green development, opening up and sharing, the five cornerstones of secure resilient and sustainable growth.

The president emphasized the need to develop strategic emerging industries and the modern service sector, and increase the supply of public goods and services. Among these emerging industries will be the production of solar and wind technology.

The past five years saw a 65 percent increase in China's GDP, while per capita disposable income among urban dwellers grew by about the same amount.

The premier asked that the plan be "a scientific, feasible and forward-looking blueprint to guide the country's overall development" over the next five years.

The outline of the plan will be reviewed by the Communist Party of China Central Committee and the State Council and then submitted to the National People's Congress (NPC) for deliberation and approval in March.

These measures illustrate clearly the commitment on the part of the Chinese to take meaningful action on reducing their carbon footprint which has, since 2007, been the largest in the world. At this point, no one can use the excuse of waiting for China to act before taking action themselves

Many forces are at play on both sides of the challenge to rein in carbon emissions before it's too late. Some of the most important, such as the plummeting price of oil, or China's need to protect citizens by reducing air pollution, are not even directed at the problem. Still, they both have enormous impact.

Another such trend is the recent decision by Chinese leaders to initiate a supply side reform in their economy. What this means is that at the beginning of the 13th Five Year Plan, the Chinese want to shift away from a production-based economy to one that is more consumer and service-based.

The primary reason for this is the economic slowdown that China is experiencing which has led to substantial overcapacity in their manufacturing sector. The Chinese economic growth rate dropped to 6.9 percent in 2015, the lowest since the downturn of 2008. But at the same time, in the post COP21 world, the desire to cut emissions plays a key role. A full 25 percent of China's emissions comes from the production of goods for the export market.

Furthermore, Premier Li Keqiang is looking to heavy industries such as steel and coal to take the lead. Specifically, he said, they should, cut "overcapacity, digest unreasonable inventories, reduce costs and improve efficiency."

At the same time, they have made a strong commitment to renewables, with a target of 200 GW of solar and 250 GW of wind by 2020. To put that in perspective, that's a number that represents roughly 40 percent of the entire U.S. power generation capacity, of which roughly 18 percent comes from renewables today.

[<ReadMore>](#)

## Navy's Great Green Fleet Deploys With Biofuels

SustainableBusiness.com News

The first Navy ships running partially on biofuels as part of everyday operations are at sea after leaving San Diego.

The ships are part of the **Navy's Great Green Fleet** - its effort to convert to much more efficient ships that run on renewable fuels. While initial fuel blends contain only 10% biofuels, they are on track for 50/50 blends as prices come down, they say.

The Navy's goal is to get half its fuel from renewable sources by 2020.

A blend of waste fats, they are considered "drop in" fuels as they can be used without any change to a ship's engine, transport equipment or operational procedures. And, as instructed by Congress, they are cost-competitive with fossil fuels.

Midwest cattle farmers and ranchers sell waste beef fat to California-based AltAir Fuels, which blends it with diesel and then sells it to the Navy under a contract for \$2.05 a gallon.

*Sailors prepare to board the USS John C. Stennis for regularly scheduled deployment from San Diego, this time with biofuels:*



Republicans tried to block the use of biofuels because they cost \$15 per gallon when the Great Green Fleet held its first demonstration, but since then prices have declined substantially as Mabus expected.

While Republicans still say it's a waste of money, Mabus disagrees. "We absolutely have to have - particularly in this

constrained budget environment - a stably priced, domestically produced alternative to fossil fuels that don't spike based on world crises. Every time the price of oil goes up \$1 per barrel, it costs the Navy an extra \$30 million."

To boost production, the Navy awarded \$210 million to three companies that are building biorefineries at Department of Defense facilities. They come online this year, with full production in 2017 using cooking grease and oil and other feedstocks that don't depend on cropland.

**On the efficiency side**, advances include dashboards that show how much energy is being consumed, stern flaps that reduce drag and the use of LED lighting greatly reduces energy demand.

Greater efficiency gives the Navy and Marines great advantages - they can stay longer without refueling, for example. "It gives us a strategic advantage," says Mabus. "Diversifying our energy sources arms us with operational flexibility and strengthens our ability to provide presence, turning the tables on those who would use energy as a weapon against us. We won't be at the mercy of fluctuating oil prices and oil-producing nations.

"In 2010, we were losing too many marines in convoys carrying fossil fuels to outposts in Afghanistan, and the prohibitive cost of oil was requiring us to stop training at home in order to keep steaming abroad, a dangerous and unsustainable scenario," Mabus explains. Some ships are now electric-diesel hybrids.

Since 2009, when the program began, the Navy has cut oil consumption 15% and the Marine Corps, 60%. The Navy consumes about 25% of the 14 million gallons of fuel used by the Defense Department every day - the world's biggest energy consumer - according to the Defense Logistics Agency.

The Great Green Fleet honors President Teddy Roosevelt's Great White Fleet, which helped usher in America as a global power. This time it ushers in an era of energy innovation in the Navy and Marines, they say.

[<Source>](#)



## Mini “Solar In A Box” Featured In New Hawaii Accelerator Program

**Source Name: Clean Technica**

Here's a new twist on concentrating solar power: a complete CSP system that fits tidily into shipping containers for easy transportability. The new system is from a startup called Edisun Heliostats, which just made a very competitive cut to join the Energy Excelerator umbrella. Located in Hawaii, the clean tech incubator is supported by the U.S. Navy among other partners.

### Shipping Containers Rule

We were just mentioning that shipping containers are one of our favorite clean tech topics, partly because transportability is a key factor for off-grid solar and wind energy harvesting.

Generally speaking, the farther off grid you go, the tighter your infrastructure scale, making it impossible to navigate huge solar and wind components through twisting roads, low underpasses, and narrow tunnels.

Getting your components to fit into a shipping container is a major victory. You can see that at play in Lockheed Martin's transportable solar array, Samsung's solar powered shipping container classrooms, and GE's "Space Frame" modular wind turbine tower.

### Concentrating Solar Power Rules

A few years ago the consensus was that the market for concentrating solar power was evaporating, partly due to the extra complexity and expense of such systems. However, throw energy storage into the mix and you have a whole new ballgame in the form of reliable, 24-7 power.

Here in the US the Energy Department has continued to pour new funding into concentrating solar power R&D. Even without energy storage, CSP appears to have a future in some regions. One good example is the Shams 1 concentrating solar power plant in Abu Dhabi. After two years of operation the system has been outperforming expectations despite the harsh desert conditions, suggesting that CSP can replace new gas powered "peaker" plants during daytime high-use hours.

### Concentrating Solar Power In A Shipping Container

That brings us to Edisun Heliostats. Leveraging its experience working with other leading clean tech companies, Edisun is "completely rethinking" CSP technology to come up with a relatively inexpensive, small scale solution.

The system includes a particle bed — rocks — for built-in storage, which according to the company is less complicated than conventional molten salt storage while still providing the potential for 24-7 operation. If the Stone Age strategy surprises you, we just took a look at an experimental solar energy storage system based on similar passive principles, deploying a concrete storage system to reduce costs.

Edisun has also designed its heliostats (the special mirrors that concentrate sunlight) to ratchet into a protective position during high, potentially damaging winds. That reduces the need to engage in more costly engineering for wind resistance.

The company's soup-to-nuts cost cutting approach also includes cutting manufacturing costs along with the aforementioned shipping containers for streamlined transportability.

### Hawaii's Energy Excelerator

Along with our sister site Gas2.org, CleanTechnica took note of the Energy Excelerator when it kicked off in Hawaii back in 2013, with a hefty \$30 million in funding from the U.S. Energy Department and the Navy as well as the State of Hawaii. The incubator's corporate sponsors are GE and DENSO among others, so startups making the cut deserve a second look.

Edisun is part of the Energy Excelerator's 2016 cohort round, selected from "hundreds" of applicants around the US. As a group, the new cohort encompasses a range of clean tech solutions. Here's the rest of the list from the Excelerator press release:

- Carbon Lighthouse: software for low cost, whole-building energy efficiency.
- PlotWatt: cloud-based platform enabling customers to act on data from smart meters.
- Pono Home: comprehensive "greening service" for energy and water efficient homes.
- T-REX: risk analysis software to encourage renewable energy investment by large financial institutions.
- Autowatts: "instant" online solar for residential property owners
- SheerWind: low-cost wind systems for populated areas
- Blue Pillar: centralized energy management for single and multi-site facilities
- Geli: software for energy storage and microgrid systems
- UtilityAPI: software for new energy companies

- WaySine: LED and LCD signs for transit customers
- GOMeter: water usage monitoring and conservation without the need for smart meter upgrades
- WaterSmart Software: data analysis for water utility managers

The new group also includes Lastwall, a cloud-based cyber security platform. While not exclusively related to clean tech, when you consider the extensive data collection involved in smart metering alone, advanced cyber security is critical for the development of the clean tech sector.

[<ReadMore>](#)

## Plastic now pollutes every corner of Earth

*From supermarket bags to CDs, man-made waste has contaminated the entire globe, and become a marker of a new geological epoch*

**By Robin McKie**

Humans have made enough plastic since the second world war to coat the Earth entirely in clingfilm, an international study has revealed. This ability to plaster the planet in plastic is alarming, say scientists – for it confirms that human activities are now having a pernicious impact on our world.

The research, published in the journal *Anthropocene*, shows that no part of the planet is free of the scourge of plastic waste. Everywhere is polluted with the remains of water containers, supermarket bags, polystyrene lumps, compact discs, cigarette filter tips, nylons and other plastics. Some are in the form of microscopic grains, others in lumps. The impact is often highly damaging.

"The results came as a real surprise," said the study's lead author, Professor Jan Zalasiewicz, of Leicester University. "We were aware that humans have been making increasing amounts of different kinds of plastic – from Bakelite to



*Fishermen prepare to fish, amid floating rubbish off Manila Bay in the Philippines. Photograph: Erik de Castro/Reuters*

polyethylene bags to PVC – over the last 70 years, but we had no idea how far it had travelled round the planet. It turns out not just to have floated across the oceans, but has sunk to the deepest parts of the sea floor. This is not a sign that our planet is in a healthy condition either."

The crucial point about the study's findings is that the appearance of plastic should now be considered as a marker for a new epoch. Zalasiewicz is the chairman of a group of geologists assessing whether or not humanity's activities have tipped the planet into a new geological epoch, called the Anthropocene, which ended the Holocene that began around 12,000 years ago.

Most members of Zalasiewicz's committee believe the Anthropocene has begun and this month published a paper in *Science* in which they argued that several postwar human activities show our species is altering geology. In particular, radioactive isotopes released by atom bombs left a powerful signal in the ground that will tell future civilisations that something strange was going on.

In addition, increasing carbon dioxide in the oceans, the massive manufacture of concrete and the widespread use of aluminium were also highlighted as factors that indicate the birth of the Anthropocene. Lesser environmental impacts, including the rising use of plastics, were also mentioned in passing.

But Zalasiewicz argues that the humble plastic bag and plastic drink container play a far greater role in changing the planet than has been realised. "Just consider the fish in the sea," he said. "A vast proportion of them now have plastic in them. They think it is food and eat it, just as seabirds feed plastic to their chicks. Then some of it is released as excrement and ends up sinking on to the seabed. The planet is slowly being covered in plastic." In total, more than 300 million tonnes of plastic is manufactured every year, states the paper, *The Geological Cycle of Plastics and Their Use as a Stratigraphic Indicator of the Anthropocene*.

"In 1950, we virtually made none at all. It is an incredible rise," added Zalasiewicz. "That annual total of 300 million tonnes is close to the weight of the entire human population of the planet. And the figure for plastic manufacture is only going to grow. The total amount of plastic produced since the second world war is around 5 billion tonnes and is very likely to reach 30 billion by the end of the century. The impact will be colossal."

[<ReadMore>](#)

## This small island offers big lessons on clean power

By Alex Creed and Cleo Warner



Clean energy is spreading in Sumba, Indonesia.

*This article originally appeared on Ensia.*

As the sun sets on the small Indonesian island of Sumba, Danga Beru Haba begins weaving under the glow of a single incandescent lightbulb, the only one in her home. Although she is tired from working dawn to dusk in the fields surrounding her village of Kampung Kalihi, the sarong she is weaving to sell locally will provide extra income for her family.

Being able to weave at night is still a novelty for Haba. Her village has had electricity for two years, thanks to a small wind farm on a hill overlooking the village. Access to electricity means women can weave and children can study long after the sun goes down.

"I started weaving after we got electricity. Before that I couldn't do it," Haba said through a translator. "Now I can weave until midnight." She has saved close to \$200 as a result, which she said she'll spend on her children's education.

Sumba is a largely rural, sparsely populated island, one of thousands in the archipelagic nation of Indonesia. Due to rugged, hilly terrain and scattered villages, only 25 percent of its inhabitants had access to electricity before 2010. Nevertheless, this island of around 650,000 people, accounting for just 0.2 percent of the country's population, is aiming to set an energy example for all of Indonesia, the world's fourth most populous country and Southeast Asia's largest economy.

Through an initiative known as the Iconic Island Sumba project, international donors working with the local government plan to bring electricity to all of the island's residents using only renewable sources in the next 10 years.

It's an ambitious goal, one that is especially timely in light of the recent climate change talks in Paris, where renewable energy was on display as a potential strategy for combating climate change and as a development tool that may allow poorer nations to leapfrog prior roads to wealth dependent on dirty energy sources.

Africa has announced plans to provide universal electricity access across the continent, aiming to produce 300 gigawatts of electricity by 2030 using only renewable sources, and France has pledged \$2 billion to the cause.

A report published by the International Renewable Energy Agency says that increasing renewable energy's share of the global energy mix to 36 percent by 2030 — double what it was in 2010 — would boost global GDP by 1.1 percent and global human welfare — defined by such factors as health, education and environmental quality — by 3.7 percent.

### A blessed island

Sumba, like much of Indonesia, is blessed with an abundance of natural wind, solar and flowing water. In 2009 the Dutch non-governmental organization Hivos realized the potential these resources offered and conceived of a plan to fully electrify the island using only renewable sources by 2025.

Hivos helped launch the Iconic Island Sumba project to "show that access to renewable energy can alleviate poverty even in remote and isolated areas."

In the years since the project began, Sumba has managed to electrify more than half of the island. In addition to Hivos, the Indonesian NGO IBEKA, the Asian Development Bank and the Norwegian embassy in Jakarta have become involved in the project, along with local and national Indonesian governments.

"Now in East Sumba we have every form of renewable energy. We have solar, wind, water and biogas," said Daniel Lalupanda, chief of the local governmental Energy and Mining Division in East Sumba, through a translator.

Despite being a short two-hour flight from the popular tourist destination Bali, Sumba has remained largely untouched by tourism. Residents of the island, who live in mostly tin-roof cinder block structures and raised wooden shacks, are scattered, usually in small, rural villages dependent on farming that lack the infrastructure to transport electricity. Those who could afford it have historically relied on kerosene, a dirty and dangerous fuel, for cooking and lighting.

**"If the government supports us, we can accomplish our goal by 2025. But I'm concerned about the government at the top."**

But "wind, hydro, and biogas resources are found throughout the country," according to research done in 2010 by Hivos and Winrock International, a nonprofit organization dedicated to developing stable communities worldwide that assessed Sumba.

After considering "candidate islands" and performing an in-depth analysis on Sumba and one other island, Hivos and Winrock determined that "Sumba seems to have the upper hand being the island with the best technical and institutional potential for the implementation of the 'iconic island concept.'"

It didn't take long for the international community to get on board with Hivos' idea. In late 2012, the Asian Development Bank, which works to alleviate poverty and encourage sustainable growth in Asia and the Pacific, pledged \$1 million towards technical assistance aimed at scaling up access to renewable energy, including electricity, on Sumba. And the Norwegian Embassy in Jakarta pledged close to \$1 million to increase access to renewable energy in southeastern Indonesia, with Sumba as the primary focus.

"We have much potential for renewable energy, especially solar," said Lalupanda, who said support from such outside agencies is crucial.

### Local buy-in

The Iconic Island Sumba project has been strengthened by the support of IBEKA, which has provided funding and technical assistance for the construction of micro-hydropower plants on Sumba. IBEKA also has provided training for Sumbanese citizens to use the technology with the hope that locals will be able to manage the power plants and therefore get directly involved in the project and invested in its success.

Christian Rihimeha manages a micro-hydropower plant in the village of Kamanggih. He said the rest of his village worked on the project by digging out a hillside during construction, which took 10 months. The plant now produces 37,000 watts of electricity, enough to power 326 homes in the village.

Much of the demand for the plant's power comes at night. In fact, only the school uses electricity during the day, for things such as computers. But at night, most villagers turn on a light for weaving or for children to study.

[<ReadMore>](#)

## ThermalTech unveils world's first solar-powered smart fabric

**Source Name: Apparel Resources**

ThermalTech has launched world's first solar-powered smart fabric, which provides warmth to the wearer without the bulk found in traditional outerwear.

The ThermalTech fabric is made of stainless steel yarn, which makes it extremely lightweight and helps in gathering energy from sunlight or artificial light to keep the body warm even after sunset while maintaining the fashionable look. The lightweight ultra-thin stainless steel mesh fabric threads are breathable and lead to a longer lifetime of the fabric. The fabric is machine washable and can be embedded in any garment, from jackets to pants. It is capable of generating up to 10 degrees Celsius of heat gathered from the source of light in just two minutes. Instead of trapping the body heat and keeping the person warm, like in traditional jackets, ThermalTech smart fabric soaks energy from the light source and warms the person within minutes.

The fabric will first be used in a range of jackets available in three styles – Street, which is fashion-inspired and available in dark blue and green shades; Explorer, which is for everyday use and available in light blue and red; and Extreme, which is for outdoor sports – available in black and grey. "We believe that by introducing this solar-absorbing fabric into the apparel world, the next generation of outerwear will provide the consumer with an optimal temperature and fit. It allow everyone from a snowboarder to a fashion lover to be warmer in cold climates," said Carlos Cortes, CEO, ThermalTech.

[<Source>](#)



## How Polysolar's clear solar panels could replace glass window panes

By Cambridge News

A Cambridge company has a clear vision for the future of solar power, and is launching a new product which could replace traditional glass window panes.

Polysolar has unveiled its latest development, a colourless transparent solar glass in which the active photovoltaic layer has been glazed over the top.

The company's founder Hamish Watson, told Ideas: "It's made using printed electronics and becomes the pane of glass in the window."



Hamish Watson shows Daniel Zeichner Polysolar's technology



Hamish Watson

"It has the advantage of not only being able to generate electricity but also to help save energy because it insulates a lot better than standard glass."

"Windows are a big issue when designing buildings, because people want as much glass as possible to give a lot of natural light, but the panes are notoriously poor insulators and often don't meet building regulations."

"The implications of our technology are enormous, and it could soon be installed on office buildings and houses instead of conventional glass."

Hamish added that the company is working with the owners of a 40-storey office block in London's Canary Wharf. He believes using Polysolar's panels could generate enough electricity to meet a third of the building's energy requirements.

The firm is also developing patterned solar panels, which it hopes will be ready in the next couple of years.

"Another good thing about this next-generation technology is that it is low cost, as the printing process is very similar to standard printing on glass," said Hamish.

"Because of this, we hope to be able to license out the process to local manufacturers, rather than having to build a big printing facility somewhere like China."

Polysolar was recently visited by Cambridge MP Daniel Zeichner, who visited the company's offices at the Future Business Centre, where he met with Hamish and discussed the latest in solar technological innovations and what government can do to support Cambridge and UK businesses in leading the world in tackling climate change.

"We have to take measures to tackle climate change in the future," said Zeichner, "there's lots of enthusiasm for that in the city and when you've got technological innovations like this on our doorstep, it seems ridiculous to me that we're not taking advantage of them."

[<Source>](#)

## Landmark Agreement Protects Canada's Great Bear Rainforest Forever

SustainableBusiness.com News

In a landmark day for conservation, 20 years of work has been fulfilled in British Columbia, as much of the world's largest temperate rainforest finally receives full protection.

Stakeholders - including the logging industry - agreed to protect 85% of Great Bear Rainforest - 3.1 million hectares. The other 15% of this coastal temperate rainforest will be open to industrial logging, subject to the most stringent standards in North America. The moss-covered, old growth forest is the size of Nova Scotia.

Back in 2006, a third was protected, after blockades and boycotts of lumber products, which brought companies to the negotiating table. Until then, "almost

every valley of Great Bear was slated for clear cutting," says World Wildlife Fund-Canada.

With trees 1000 years old, Great Bear is among the most pristine wilderness left on earth, stretching 250 miles along BC's central and north coast. Lush forests range from glacier-capped mountains to the coast, where a labyrinth of fjords harbor marine life from whales and dolphins to sea otters and sea lions. This is wild salmon country, where grizzly bears gorge as they did for thousands of years, and wolves roam unfettered by man.



The agreement is between First Nations, British Columbia and five logging companies, with the support of ForestEthics, Greenpeace and Sierra Club BC.

"A milestone for collaboration between governments, environmental organizations and forestry companies," it provides economic certainty to loggers, while protecting biodiversity and mitigating climate change.

"The Great Bear Rainforest Agreements is one of the most visionary forest conservation plans on Earth," says Valerie Langer, ForestEthics Solutions Director. "It is a principled approach that sets a new legal and science-based standard for sustaining healthy forests and maintains intact, old-growth that will keep millions



of tons of carbon out of the atmosphere."

Great Bear is home to 26 First Nations tribes, which will finally have oversight of their own land. One of their first decisions is to end trophy hunting of grizzly bears.

"This should give hope to

other areas in the world that are currently in conflict, that those conflicts can move towards collaboration and eventually to conservation and economic prosperity and well-being for communities," Richard Brooks of Greenpeace told CBC News.

The next step is to protect the Great Bear Sea, one of the richest cold-water seas in the world, notes World Wildlife Fund-Canada. Virtually unprotected, it remains healthy and productive, but faces growing pressure from increased human activity. "Better planning and marine protection is needed in the face of proposed oil and gas pipelines, increased shipping, growing port construction and other industrial activities."

Last year, First Nations and British Columbia signed the Marine Planning Partnership (MaPP) agreement, which protects over 102,000 square kilometres of coastline. But federal agencies that regulate commercial fishing and shipping are not included. It's crucial that legislation be passed to ban tankers to discourage oil and gas pipelines from being planned through this sensitive region, says WWF-Canada.

The silence of Great Bear is striking, says National Observer. "We don't usually think of silence having presence. But to sit in one of the great valleys of the Great Bear Rainforest is to be enveloped by a silence so powerful it shakes your very sense of self. It is a primordial silence you feel right into your bones; a silence that feels even more ancient than the gnarled cedars that have loomed in the mist through the rise and fall of so many civilizations and human empires."

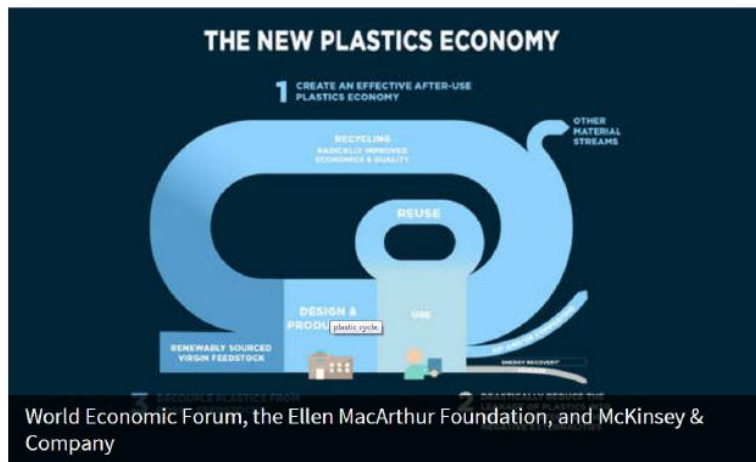
Several years ago, Manitoba protected the heart of Boreal Forest and the Canadian Boreal Forest Agreement was signed by environmental groups and 21 of Canada's largest forestry companies.

[<ReadMore>](#)

## To rethink the future of plastics, start with packaging

By Conrad MacKerron

More plastic than fish in the ocean (by weight) by 2050. 95 percent of plastic



Infographic from *The New Plastics Economy: Rethinking the future of plastics* report by the World Economic Forum, the Ellen MacArthur Foundation, and McKinsey & Company.

packaging's potential value lost after its first use. Only 14 percent of plastic packaging collected for recycling. Global waste disposal systems so challenged that nearly a third of plastic waste doesn't even make it to the landfill, and instead is littered on land or swept into the ocean.

These are some sobering findings of "The New Plastics Economy: Rethinking the Future of Plastics," a report released last month by the Ellen MacArthur Foundation in partnership with the World Economic Forum intended to move the circular economy a step closer from theory to practice.

The enormous waste of embedded value in plastic packaging has been going on for generations with scant attention often paid as landfills overflowed with discarded single use bottles, bags, plates and wrappers. The emerging awareness of the scope of ocean plastic debris and the potential for plastics to concentrate and transfer toxic chemicals into the marine food web and human diets finally may provoke enough concern from companies and policy makers to make ubiquitous plastic packaging a pilot program for the circular economy where it never becomes waste, but serves as nutrients for new products.

**"Brands need to step up and pay their fair share to cover the added costs of processing their materials."**

The report charts a path for transition to a circular path by first focusing on fostering a robust after-use economy through improving the economics and yield of recycling, reuse and composting. Reducing the dumping of waste onto land and oceans and decoupling plastics from fossil fuels are also important factors, but the report emphasizes that drastically improving the quality and economics of recycling, reuse and composting, is the cornerstone and first priority for a new plastics economy.

A five-point plan is proposed: engaging value chain players; forming a global plastics protocol to agree on design guidelines for optimal material use and processing systems; focusing technological innovation on projects with the most potential to improve materials sorting and processing at scale; promoting stronger secondary markets for collected materials; and exploring "the enabling role of policy" such as material, landfill or incineration bans and producer responsibility laws.

This effort by the Ellen MacArthur Foundation and its allies has a number of encouraging elements going for it, but the path is also fraught with challenges. Much of this has been proposed before in various forms.

On the hopeful side, Europe seems primed to move. In December, the European Commission approved a circular economy package including \$6.08 billion for improved waste management.

Greenhouse gas emissions by the plastics sector are expected to grow to 15 percent of the global annual carbon budget by 2050 so recycling can play a key role helping governments and global brands with GHG reduction. Increased recycling can reduce

GHG emissions. Incineration and energy recovery, often promoted as alternatives to recycling, release the carbon embedded in plastics.

The new data showing far more plastic waste is eluding collection and being swept into oceans than previously believed is elevating public concern about it from nuisance to potential global threat. About 8 million metric tons of plastic are estimated end up in the ocean each year, much of it packaging. Without significant intervention, that will result in a ton of plastic for every three tons of fish by 2025, and more plastic than fish by weight by 2050.

A few big consumer brands and value chain players are beginning to show interest. Ikea, Kimberly Clark, Marks & Spencer and Unilever were involved in the New Plastic Economy report, as were other critical parts of the packaging life cycle, such as Dow and Dupont, who make polymer packaging resins; packaging producer Amcor; and Suez and Veolia, which provide waste collection and recycling services.

It's an appealing vision of potential new business opportunities for companies that could unlock job growth through advanced repair and manufacturing, and enhanced waste management and secondary materials production.

However, there are just as many challenges. The apparent energy seems centered mostly around European governments and retailers so far. In the U.S. there's no evidence of strong promotion of a circular agenda by the EPA or federal policy makers equivalent to the EU's action. U.S. retailers outside of the beverage sector remain largely silent on responsibility for the ocean debris mess, packaging waste and low recycling rates.

The report's proposed answer is ambitious — a global plastics protocol, where business and governments align around the best materials and practices. But is it realistic? It's hard enough to get cities in the same county to collect and process the same materials, let alone most countries.

But beneath polite phrases such as "alignment" lie hard choices such as banning certain plastic materials, which the plastics industry has opposed. While some municipalities and nations have banned various plastics, reaching global agreement on preferred materials is likely too much to expect. Many developing nations are preoccupied with providing basics such as food and shelter and lack post-consumer collection and recycling systems, or the resources to carry out existing laws.

**"Beneath polite phrases such as 'alignment' lie hard choices such as banning certain plastic materials, which the plastics industry has opposed."**

A better approach might be one track for developed nations willing to move now and finance workable regional circular economy models; and a separate urgent effort aimed at using multilateral aid and producer fees to help developing nations build basic waste collection systems to stem the ocean plastics tide.

This is where the big global brands need to step up on both accounts. Unilever, Procter & Gamble and others are using increasing amounts of non-recyclable plastic packaging in developing markets, much of which ends up in waterways. They need to acknowledge the impacts of their products as negative environmental externalities and factor those costs into future operations. Then need to start paying fees or providing significant aid, likely billions of dollars, aid to help developing countries where they sell products build recycling and waste collection systems.

Even developed nations are struggling with the economics of packaging recycling. These recommendations come at an especially challenging time for the U.S. recycling industry, where plummeting commodity prices for packaging materials such as plastic, glass and metals have slashed and often erased recyclers' profits.

Yet there's a silver lining — this crisis could force a much needed reality check for brands that commodity prices will continue to be volatile and that recyclers cannot build a business model based primarily on the value of recovered materials. Brands need to step up and pay their fair share to cover the added costs of processing their materials.

U.S. citizens historically have sent a strong message that recycling is a social good they want pursued and they are paying the cost for recycling not covered by commodities, not the big producer brands. In recent years, big U.S. consumer brands have avoided acknowledging responsibility, or taken only baby steps. The Closed Loop Fund makes more capital available for fixing infrastructure and market development, but avoids the key question of what ongoing financial commitment brands should be responsible for to relieve the costs of recycling and landfilling for taxpayers who have shouldered it for generations.

There is room for optimism that the prospect of wise conservation of resources, job growth and reduction of GHG emissions afforded by the new plastics economy vision will attract a critical mass of global brands to support efforts to optimize the value of the materials they place on the market. This effort is badly needed to develop 21st-century caliber systems that will move plastic packaging from a one-way trip to the landfill to many useful round-trips protecting consumer goods.

[<Source>](#)



## Can 'net positive' inspire a race to the top?

By Eric Olson

*A new approach to doing business that puts back more into society, the environment and the global economy than it takes out.*

*This article originally was published in BSR Insight.*



*A new approach to doing business that puts back more into society, the environment and the global economy than it takes out.*

Among sustainable business leaders, there has been a notable shift toward ideas and approaches that emphasize value creation, rather than the simple management of risk. Why settle for being "less bad" when business can — indeed, must — be part of the solution to the world's great challenges?

Many would say that building a new, sustainable, low-carbon economy will require focusing on small-scale social entrepreneurship and clean-tech start-ups, while big business largely works to reduce its negative impacts. But what if this focus on creating positive value for society were baked into the objectives of all businesses — large and small? How might the sustainability efforts of large companies change if they are designed to be part of a never-ending race to the top, rather than a means to "stay out of trouble"?

**"What if the focus on creating positive value for society were baked into the objectives of all businesses?"**

As it turns out, several prominent companies already have made or are considering what we call "net positive" commitments, or "a way of doing business that puts back more into society, the environment and the global economy than it takes out."

BT's "Net Good" commitments and program were one of the first examples, and they have been joined more recently by a diverse group of global players looking to achieve net positive impacts, either overall, or in specific areas such as carbon and water (including AT&T, Dell, Dow, IKEA, Kingfisher, PepsiCo, and Unilever, to name just a few). Proponents of these programs believe that raising the bar on company sustainability efforts also will enhance innovation, brand value and reputation, and, ultimately, sales.

**"Now here's the rub: There is no commonly accepted approach to measure and report on net positive claims."**

The need for net positive approaches became more visible and urgent with the adoption of the U.N. Sustainable Development Goals and ratification of a global climate agreement at COP21 in 2015. Both frameworks emphasize the critical enabling role of the private sector in delivering sustainable technologies, products and services. And many believe that our collective ambition on climate, laid out in the Paris Agreement, will require that we go "beyond zero" and find ways to remove carbon from the atmosphere.

Now here's the rub: There is no commonly accepted approach to measure and report on net positive claims. As a result, there is a high risk that companies will invest in redundant, fragmented or misaligned approaches to net positive that waste money, confuse stakeholders and create conditions ripe for greenwashing.

This gives rise to a question: Can we design and promote a net positive movement based on credible, aligned approaches, grow the number of companies making these commitments, and thereby help promote a race to the top that accelerates and scales our sustainability efforts?

We think the answer is yes, but only with an approach that is at once rigorously fact-based and extremely transparent and collaborative. To that end, we are

launching the Net Positive Project with a small group of interested companies and likeminded partners at Forum for the Future and Harvard School of Public Health's Sustainability and Health Initiative for NetPositive Enterprise (SHINE) initiative.

We are in the early design phase of what will be a multilateral coalition of interested parties to spread the Net Positive movement and promulgate a common set of principles and best practices. Current participants include AT&T, Capgemini, The Crown Estate, Dell, Dow, Eaton, Fetzner, Kimberly-Clark Foundation, Kingfisher and Owens Corning. We are looking to build company participation and also add more nonprofit and academic partners in the coming weeks and months

[<Source>](#)

## The Vastly Under-Estimated Role Ecosystems Play on Climate

SustainableBusiness.com News

As important as it is for the world to get off fossil fuels and switch to clean forms of energy to address climate change, protecting ecosystems is equally, if not more crucial.

We must allow ecosystems to store carbon as they have done for millennia, and that means maintaining healthy populations of top predators, which modulate the entire food chain.

Whether it's wolves on land or sharks in the sea, the outcome is the same. Remove these predators and the herbivores take over, releasing stored carbon - whether in soils or the ocean.

On the other hand, Africa's Serengeti ecosystem is so effective that it offsets all of East Africa's fossil fuel emissions. Thanks, in part, to bears and wolves, the vast Boreal Forest offsets all of Canada's emissions.

*Annual wildebeest migration:*



**In "How Natural Geoengineering Can Help Slow Global Warming," Yale360 explains:**

As natural wonders go, perhaps the most awe-inspiring is the annual migration of 1.2 million wildebeest flowing across East Africa's vast Serengeti grassland. It would be a tragedy to lose these animals. But we almost did in the mid-20th century when, decimated by disease and poaching, their numbers crashed to 300,000.

The consequences of that collapse were profound. Much of the Serengeti ecosystem remained ungrazed. The accumulating dead and dried grass in turn became fuel for massive wildfires, which annually burned up to 80% of the area, making the Serengeti an important regional source of carbon dioxide emissions. Then, conservation programs to eradicate disease and crack down on poaching led to recovery of the wildebeest, restoring the grazing system and reversing the extent of large-scale wildfires. Grazing now causes much of the carbon in grass to be released as animal dung, which is in turn incorporated by insects into soil reservoirs that are not prone to burning. The Serengeti ecosystem has now reverted to a carbon dioxide sink so large that it is estimated to offset all of East Africa's current annual fossil fuel carbon emissions.

The wildebeest decline and recovery shows how the loss of just one species has far-reaching ramifications for ecosystems and the climate, *Yale360* says, because of its impact on the food chain.

The same is true in coastal ecosystems, where marshes and mangroves can store carbon up to 40 times faster than tropical forests. Over-fishing predators has resulted in huge areas of marsh dying off, releasing carbon as sediments are exposed and preventing it from being absorbed.

We need to view enhancing biodiversity as one of the best tools we have to solving the climate crisis.

[<Source>](#)

## International Wastewater Systems: SHARC Recovering Heat From Sewage

**Source Name: Clean Technica**

We understand what's involved in recovering renewable heat from the Earth by deploying geothermal recovery technologies. Now it's time to become familiar with another untapped renewable energy resource: wastewater thermal energy.

Sewage happens to be an energy source flowing beneath the surface of almost all modern cities. Not only is it plentiful, it's free and mostly untapped.

That is, unless you're Lynn Mueller, CEO of Canada-based International Wastewater Systems (IWS). His company has developed an innovative heat exchange system which recycles heated wastewater and returns it as a heat source.

With a payback that happens over a short time, a growing number of building developers are inquiring after the installation of IWS's SHARC (sewage heat recovery) and Pirahana systems. IWS offers heat recovery solutions for space and domestic water heating in the winter, as well as for air conditioning systems in summer.

The company also provides engineering assistance, project feasibility assessments, cost estimates, and technical support, as well as third-party energy analysis studies to evaluate the capability of incorporating sewage heat recovery into a project.

"When you think of sewage, you think it's just a cost for everybody involved to deal with it, but about 30% of the energy in the world ends up going down the sewer pipes every day," he said in a January 6 interview with MidasLetter. "So our system has developed a cost-effective way to recover that energy. I like to refer to it as the world's most ultimate renewable energy, because you really use the same energy every day: you use it, it goes down the drain, you recapture it and you use it again."

This is not a new undertaking for IWS. In 2014, the company announced it had been selected to provide its state-of-the-art sewage heat recovery technology as a component of the Sechelt sewage treatment facility.

At the time, the LEED gold standard Wastewater Treatment Plant was slated to be the first of its kind in North America. This video shows the SHARC unit being installed at the Sechelt Sewage plant.

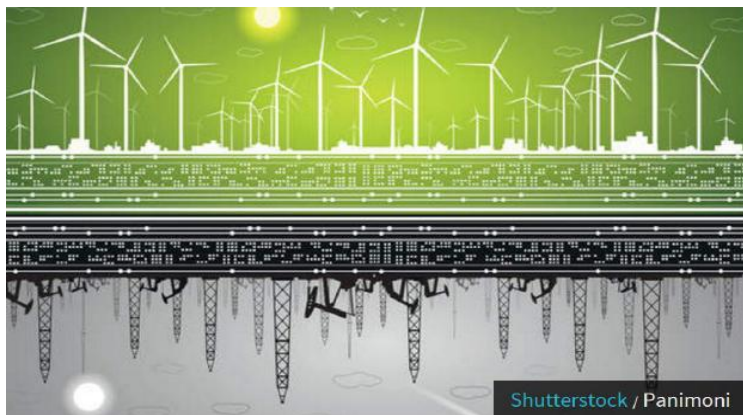
Case studies show the SHARC system allows for significant energy and water savings over the life of the plant by recapturing energy that would have otherwise have been wasted and would have just gone down the drain.

About that project, Sechelt Mayor John R. Henderson said, "This will be the largest infrastructure project in the District's history. The facility will ensure wastewater treatment capacity for Sechelt for the next 20 years (with provision to add capacity incrementally for up to 50 years more!). The facility will meet the highest Provincial standards for water quality, energy efficiency and resource recovery. It will be the first of its kind in North America, giving Sechelt opportunities to demonstrate and market to others."

[\[Source\]](#)

## Green infrastructure grows like a weed

By Heather Clancy



*With resilience in mind, many cities and companies are rethinking infrastructure.*

The following is an excerpt from the GreenBiz State of Green Business Report 2016.

The long-term effect of the landmark Paris Agreement guiding global emissions reductions won't be clear for years. But there's one place where its impact is being

seen almost immediately: private-sector investments in low-carbon alternatives for energy, water, transportation and other critical infrastructure projects. We're talking billions, if not trillions, of dollars of committed money.

The first hint came before the COP21 climate summit even began, when billionaire philanthropist Bill Gates announced the creation of the Breakthrough Energy Coalition, a multibillion-dollar fund for clean-energy alternatives that includes a Who's Who of entrepreneurs, from Virgin Group's Richard Branson to Facebook's Mark Zuckerberg.

Their mission is to scale and innovate in reliable, low-cost, carbon-free energy. (They don't actually use the "green" label.) Their imperative? The world moves far too slowly on this agenda due to both political and economic forces. After all, if you consider the history of fossil fuels, it took more than four decades for oil to supplant coal.

"Energy is already a trillion-dollar market, and clean energy could one day be a multitrillion-dollar market," writes Gates, in an essay rationalizing the coalition's creation. "But private investors are reluctant to get into the field, for the same reason that energy companies tend to underinvest in R&D: Breakthroughs can take decades to play out and their inventors see relatively little reward."

The Breakthrough Energy Coalition, Gates argues, will help get innovation out of the lab and into the marketplace faster. Its public-sector counterpart is Mission Innovation, a group of 20 countries — which currently provide roughly 80 percent of all clean-energy R&D — that have pledged to double funding levels for these technologies over the next five years.

**"If you consider the history of fossil fuels, it took more than four decades for oil to supplant coal."**

It's not just energy. Another group likely to shape the agenda is the Green Infrastructure Investment Coalition. The group represents the Climate Bonds Initiative, which promotes large-scale investment in a low-carbon economy; the Principles for Responsible Investment, an investor group representing more than \$1 trillion in assets; the U.N. Environment Programme (UNEP) Inquiry group, responsible for suggesting and advocating policy options; and the International Cooperative Mutual Insurance Federation. Together, they represent at least \$69 trillion in assets.

"One of the key gaps identified by the UNEP Inquiry was the absence of a common platform at the international level to mobilize global debt and equity capital markets for the transition to a green economy," explains the organization's co-director, Nick Robins. "This new coalition will help to fill this gap and deliver practical guidance on how to build on the power momentum we have seen in 2015."

It's important to note that the term "infrastructure" covers many different concepts, depending on the company in which you use it. Energy infrastructure is just one small piece.

From a CEO's standpoint, infrastructure probably conjures up images of office facilities and capital equipment. A public official, on the other hand, likely associates infrastructure with roads, bridges and water management systems. The common thread is this: Green infrastructure investments consider the impact on natural ecosystems far more carefully. The goal isn't just to minimize potential negative impacts, it's to maximize resilience by playing to the strengths of the natural world.

One oft-cited corporate example is a wetlands project in Seadrift, Texas, spearheaded by Dow Chemical subsidiary Union Carbide. When faced 20 years ago with the choice of building a traditional wastewater treatment facility or opting for one that borrowed filtration ideas from nature, the team in charge opted for the green infrastructure approach, where natural ecological systems, not chemicals, treat the water. That system wasn't just cheaper to build; it so far has delivered more than \$200 million in other benefits to the community, including freshwater habitat for dozens of species.

**"The goal isn't just to minimize negative potential impacts, it's to maximize resilience by playing to the strengths of the natural world."**

From the municipal point of view, the green infrastructure concept has gained more credibility thanks to projects in New Orleans, which rethought its coastal management system with an eye toward resilience after the devastation of Hurricane Katrina; and New York City, which started prioritizing bioswales, green roofs and other natural systems for handling stormwater runoff even before Superstorm Sandy exposed the city's vulnerabilities.

Canada's Prime Minister Justin Trudeau made headlines last fall when he emerged as a huge supporter of green infrastructure, describing it both as a defense against climate change and a way to grow the national economy. His administration has budgeted more than \$4 billion over the next four years to apply the concept to wastewater treatment and floodwater mitigation systems, and about the same amount to public transportation projects. It established the Canadian Infrastructure Bank to provide low-cost financing.

[\[ReadMore\]](#)



## “Instant” Solar Powered EV Fleet To Be Showcased At ARPA-E Summit

By Tina Casey

A company called Current Motor has come up with an “instant” EV fleet that combines four of clean tech’s favorite solutions — solar power, shipping containers, microgrids, and electric cargo bikes — in one tidy package. If that sounds too good to be true, you can see it in action for yourself. The Current Motor “Mini-fleet-in-a-box” is one of four new technologies selected as feature demonstrations at the upcoming ARPA-E Seventh Annual Energy Innovation Summit in Maryland, from February 29 to March 2.

ARPA-E is the Energy Department’s cutting edge technology funding arm. It was established by an Act of Congress under the Bush Administration to do for clean tech what the Defense Department’s DARPA (Defense Advanced Research Projects Agency) did for the Internet, so expectations run high for the annual ARPA-E Summit.

### Teaching An Old EV New Tricks



With all that in mind, including the Current Motor Mini-fleet-in-a-Box among the select group of featured projects is an interesting move for ARPA-E. The EV (electric vehicle) product doesn’t involve any spectacularly new cutting edge technology, but it does represent how now-familiar clean tech products can be

recombined and repackaged to attract customers. Getting new clean tech out of development and into the marketplace is, after all, the end goal.

Current Motor announced the debut of the Mini-fleet-in-a-Box last February, so we took a look back at press release and picked out the following highlights.

The shipping container angle means that the whole package is easily transportable without requiring modifications to existing transportation infrastructure. Transportability is an important consideration for remote, off-grid locations. It’s also one of the limiting factors for land-based renewable energy harvesting, primarily in the wind energy field, so the infrastructure issue is a significant one.

The EV angle lands squarely on the hot area of zero emission delivery vehicles. The idea is to provide for sturdiness without too much weight gain. Here’s the rundown on the Nb Electric Cargo Motorcycle from Current Motor:

...a 100% electric, zero emissions vehicle with very low maintenance requirements (no belts, chains or gears ). The Nb has a top speed of 70 mph, and can go up to 50 miles per charge. The Nb’s frame has been made stronger to carry more cargo (a driver and substantial cargo or 2 passengers and light cargo), and is 31% lighter to improve performance through the use of High Strength Niobium (Nb) micro-alloyed steel.

If Niobium sounds like something Scotty would need to make the Enterprise go, well, it does. Niobium is a silvery-gray transition metal commonly used to strengthen alloys used in manufacturing jet engines and rockets, among other things.



As for the solar power angle, Current Motor has a patent pending on the “Nb Solar Charging Station.” While at rest it takes the form of a shipping container with room for four Nb electric bikes. In action, the sides slide out to form a sizable solar array.

According to Current Motor, the four bikes can charge up fully in five hours from the charging station’s 22 kilowatt-hour battery.

The battery, in turn, fully recharges in 24 hours from the solar panels. Factor in the 50-mile range of the cargo bikes, and you’ve got a model for short range delivery usage during the day while the stationary battery is recharging, and using nighttime hours to recharge the EV batteries.

To ice the cake, Current Motors can outfit the whole EV package with optional microgrid capability (the company prefers to use “nano-grid,” but same idea) and office arrangements. GPS, carbon savings tracker, and fleet performance tracker come with the package:

### What Else Is Going On At The ARPA-E Summit?

You can get a sneak peek at some of the other EV and vehicle tech products exhibiting this year from the ARPA-E Summit website.

Two of the other three technology showcase demonstrations lean on EV technology.



One is an aerial robotics system (aka drones — presumably battery powered) for natural gas monitoring, a quite timely selection considering the massive natural gas leak in California.

The other EV-related demonstration involves both aerial and ground-based robotic systems for raising bioenergy crops (also presumably battery

powered). We’re not sure exactly what that is, but we’re guessing it has something to do with ARPA-E’s new TERRA program. Using sorghum as a platform, TERRA connects agriculture, robotics and advanced engineering, like this:

Rounding out the four demos is a “personalized wireless heating and cooling device for building efficiency.” That could have something to do with the ARPA-E DELTA program, which does this:

The DELTA program seeks to enable saving 2% of domestic energy use by funding the development of Localized Thermal Management Systems (LTMS). LTMS modify the local thermal envelope around the human body rather than the building. When implemented in a built environment, LTMS are expected to enable an expansion of the temperature setpoints in buildings. ARPA-E analyses demonstrate that a potential energy savings for building heating and cooling >15% is available when compared to traditional HVAC setpoints.



[<ReadMore>](#)

## Cornell University Student develops 3D-printed range of convertible clothing

Source Name: Apparel Resources

In a recent development, a student from Cornell University, USA has innovated a concept for custom-fit activewear that can be converted to workplace clothing without much efforts.

The multi-purpose convertible clothing range, called Recycl3-D features garments which can be converted to activewear or office wear by adding or removing collars, hoods, sleeves, and pockets. The garments are also fully recyclable, thus eliminating any waste produced in the design and manufacturing process.

“The real perks of 3D printing have not been used to their full potential. I brought together recycling with synthetic blends, customization from body scanning and optimization of the manufacturing process to drastically reduce production waste,” averred Eric Beaudette, the student behind the innovation.

A full-scale prototype garment was developed by Beaudette based on his measurements, which were recorded using Cornell’s 3D Body Scanner. The Recycl3-D range offers the wearers to create custom looks by choosing the colours, patterns, and accessories. The garment can also be returned and converted into raw material for new apparel, whenever the wearer plans to stop using it.

The student received the Geoffrey Beene National Scholarship worth US \$ 30,000 from the YMA Fashion Scholarship Fund for this concept.

[<Source>](#)

## Record hot years near impossible without manmade climate change – study

*New calculations shows there is just a 0.01% chance that recent run of global heat records could have happened due to natural climate variations*

By Damian Carrington



*Tourists ski on a thin layer of snow towards the resort of Leysin in the Swiss Alps in one of the warmest Decembers on record. Photograph: Fabrice Coffrini/AFP/Getty Images*

The world's run of record-breaking hottest years is extremely unlikely to have happened without the global warming caused by human activities, according to new calculations.

Thirteen of the 15 hottest years in the 150-year-long record occurred between 2000-14 and the researchers found there is a just a 0.01% chance that this happened due to natural variations in the planet's climate.

2015 was revealed to have smashed all earlier records on Wednesday, after the new study had been completed, meaning the odds that the record run of heat is a fluke are now even lower.

"Natural climate variations just can't explain the observed recent global heat records, but manmade global warming can," said Prof Stefan Rahmstorf, at the Potsdam Institute for Climate Impact Research in Germany and one of the research team.

He said the record heat brought substantial impacts: "It has led to unprecedented local heatwaves across the world, sadly resulting in loss of life and aggravating droughts and wildfires. The risk of heat extremes has been multiplied due to our interference with the Earth system, as our analysis shows."

The UN World Meteorological Organization (WMO) confirmed on Monday that the global average surface temperature in 2015 shattered all previous records and said 15 of the 16 hottest years on record have all occurred since 2000. "We have reached for the first time the threshold of 1C above pre-industrial temperatures. It is a sobering moment in the history of our planet," said WMO secretary-general Petteri Taalas.

The new research by Rahmstorf and colleagues, published in the journal Scientific Reports, is based on a statistical analysis that combines real-world measurements with comprehensive computer simulations of the climate system. This allowed natural climate variability to be better separated from human-caused climate change. The results did not vary significantly when UK Met Office temperature data was used instead of Nasa data.

The research was prompted by earlier claims that the run of record-breaking years was vanishing unlikely, a one in 650m shot, according to one report.

However, the average global surface temperature of the planet each year is influenced by the warmth of the previous year, meaning that a record broken one year is not independent of the year before. The UK Met Office expects 2016 to break the record set in 2015, partly because of the continuing El Niño weather phenomenon.

"Natural climate variability causes temperatures to wax and wane over a period of several years, rather than varying erratically from one year to the next," said Prof Michael Mann at Penn State university in the US, who led the new study. "That makes it more challenging to accurately assess the likelihood of temperature

records. Given the press interest, it seemed important to do this right, and address the interesting and worthwhile question of how unlikely it is that the recent run of record temperatures might have arisen by chance alone."

The study concludes: "While considerably greater than cited in some media reports, the odds are low enough to suggest that recent observed runs of record temperatures are extremely unlikely to have occurred in the absence of human-caused global warming."

In 2013, the UN's Intergovernmental Panel on Climate Change concluded with 95% certainty that humans are the main cause of global warming.

[<Source>](#)

## Rethinking the future of plastics

*A new report finds that applying circular-economy principles could dramatically reshape the economics of this workhorse of the global economy—and help the environment.*

Plastics are the workhorse material of the modern economy. Their popularity has kept the industry growing for 50 years, with global production surging from 15 million metric tons in 1964 to 311 million metric tons in 2014. If business proceeds as usual, this number is projected to double to more than 600 million metric tons in the next 20 years. Yet functional benefits come at a price. Plastic packaging, especially, is the quintessential single-use product: it represents a quarter of the total volume of plastics, and around 95 percent of the value of plastic-packaging material (worth some \$80 billion to \$210 billion annually) is lost to the economy. And while its intended useful life is typically less than a year, the material lives on for centuries.

A new report by McKinsey, the Ellen MacArthur Foundation, and the World Economic Forum, The new plastics economy: Rethinking the future of plastics, finds that applying circular-economy principles to global plastic-packaging flows could reshape the material's economy. In particular, it could drastically reduce negative externalities—valued conservatively by the United Nations Environment Programme at \$40 billion—such as "leakage" into oceans as plastics escape established waste-collection systems. Today, almost a third of all plastic packaging leaks, with about 8 million metric tons annually polluting oceans.

### Taking action

The new report explains that improvement efforts to date are highly fragmented and subscale. Urgent action is needed to move the industry into a positive spiral of value capture, stronger economics, and better environmental outcomes. The report explains how stakeholders evolve toward a "New Plastics Economy" with three main ambitions:

Create an effective after-use plastics economy by improving the economics and uptake of recycling, reuse, and controlled biodegradation for targeted applications.

Drastically reduce leakage of plastics into natural systems (in particular, the ocean) and other negative externalities.

Decouple plastics from fossil feedstocks by—in addition to reducing cycle losses and dematerializing—exploring and adopting renewably sourced feedstocks.

Even with today's designs, technologies, and systems, these ambitions can be at least partially realized. For example, one recent study found that 53 percent of plastic packaging in Europe could today be recycled "eco-efficiently." While the exact figure can be debated and depends on, among others, the oil price, the message is clear: there are pockets of opportunities to be captured already—and even where not entirely feasible today, the New Plastics Economy offers an attractive target state for the global value chain and governments to collaboratively innovate toward.

Redesigning materials, formats, and systems; developing new technologies; and evolving global value chains requires a new approach to achieve a systemic shift toward the New Plastics Economy. A coordinating vehicle is needed to drive this, with an initial focus on establishing a global plastics protocol and coordinating large-scale pilots and demonstration projects, mobilizing large-scale "moon shot" innovations (such as developing "bio-benign" materials and polymers with superior recyclability), developing insights and building an economic and scientific evidence base to better understand material flows and economics of various solutions, engaging policy makers and providing them with a tool kit to better assess policy options, and coordinating and driving communication across the various stakeholders acting along the global plastic-packaging value chain. We understand the work involved means this won't happen overnight. But the time to start is now.

Download the full report on which this article is based, [The new plastics economy: Rethinking the future of plastics](#) (PDF-2.94MB).

[<Source>](#)



## Check air pollution, WHO urges SE Asian region

**Source Name: The Economic Times**

Noting that outdoor air pollution increases the risk of cancer, World Health Organization (WHO) urged the governments of Southeast Asian region to tackle the issue with "urgency" as the area has 14 of the world's top 20 polluted cities.

WHO said that every year 8.2 million people die from the disease across the world and two-thirds of these deaths occur in low and middle income countries.

It also said tobacco use, both in smoke and smokeless forms accounts for 22 per cent of cancer deaths globally and is a "leading" cause of the disease in the region.

WHO's Southeast Asian region comprises Bangladesh, Bhutan, Democratic People's Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste.

"Outdoor air pollution, meanwhile, increases the risk of cancer for us all. The region has 14 of the world's top 20 polluted cities, making clear the need for governments to tackle the issue with a sense of urgency," said Poonam Khetrpal Singh, WHO regional director for Southeast Asia on the eve of World Cancer Day.

She said that in the region, occupational hazards and exposure to environmental substances continue to be a source of cancer and premature death.

Whether through labouring in fields without adequate sun protection or exposure to cancer-causing chemicals at a factory, workers throughout the region are exposed to risks, she said.

She said that alcohol use, unhealthy diet and physical inactivity similarly contribute to a burden that has profoundly negative social, economic and developmental implications.

"We need to improve access to cancer treatment and services across the care continuum, and build the capacity of the workforce staffing these services.

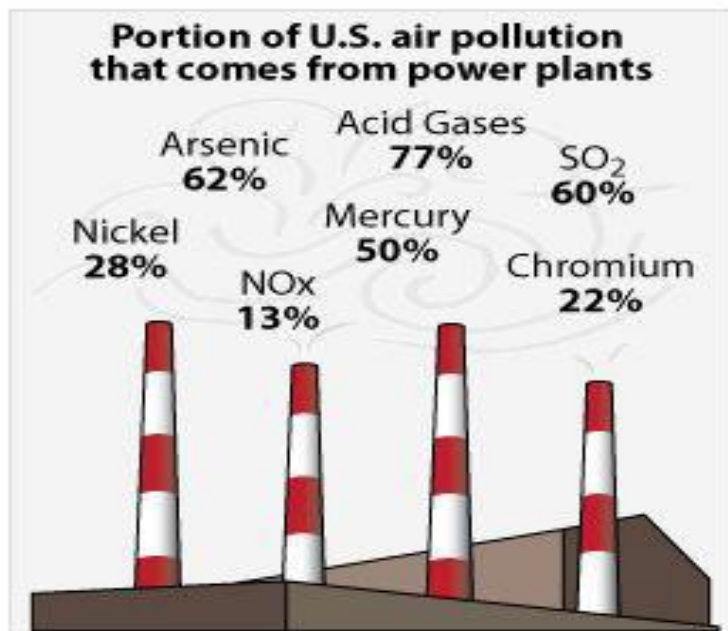
"We also need to work towards developing and enforcing strong policies to reduce tobacco and alcohol use and reducing exposure to environmental carcinogens," she said.

She said that to address these issues, both at a systemic and individual level, increased awareness is "critical" and the theme of World Cancer Day 2016-2018, 'We can I can', is both welcome and vital.

## More Nails in the Coal Coffin, As US Emissions Decline to 1995 Levels

**SustainableBusiness.com News**

As coal use has declined in North America and Europe, toxic air pollution has dropped too - mercury emissions, for example, are down 30% since 1990, according



to the US Geological Survey.

And that's bound to decrease further now that **China** - which consumes half the world's coal - is reining it in. About 9% of its coal capacity will be eliminated in the next few years with new mines banned and 4300 small, inefficient mines closing, announced the government.

The goal is to ease oversupply and reduce pollution, responsible for an incredible 4000 deaths a day. There's still enough production to kill the planet, but the slowdown is significant - the biggest coal mine approved in Australia isn't starting operations because there isn't enough demand.

For the past two years, China's coal consumption dropped for the first time - 2.9% in 2014, and 5-8% in 2015, according to the Institute for Energy Economics and Financial Analysis. Last year, China pledged to cut emissions from coal-fired power plants 60% by 2020.

In another nail in the coal coffin, members of the 34-nation Organization for Economic Cooperation and Development (OECD) agreed they will no longer finance new inefficient coal-fired power plants, cutting off public funding for 85% of coal plants in the pipeline.

That's great news because OECD is the biggest financier of coal, largely through export subsidies. From 2007-2014, over \$73 billion in public finance was approved for coal, led by Japan and South Korea, says a report by Oil Change International, Natural Resources Defense Council (NRDC), and World Wildlife Fund (WWF).

### How About the US?

As for the US, coal production declined 10% last year, bringing it to the lowest levels since 1986, according to the US Energy Information Agency. But even with dozens of coal companies declaring bankruptcy in the past few years, utilities have a surplus of 100 million tons.

"U.S. coal consumption is declining dramatically as coal-fired power plants are shutting down. Coal is being displaced by renewables and natural gas, and the Asian markets that all coal companies were looking to as their saviors are moving in the opposite direction," Ross Macfarlane, senior advisor with Climate Solutions, told *ThinkProgress*.

*With a third of US coal-fired power plants closed or about to close (200 so far), carbon emissions from the power sector are at a 20-year low - at 1995 levels!*, reports Sierra Club.

That is within 5% of what's required under EPA's Clean Power Plan by 2022. Coal was 36% of the power mix last year, down from 50% just 10 years ago, they say.

Another big let-down for coal companies is a new moratorium on leases on federal public lands.

### Bankruptcies

But coal companies aren't giving up - they are restructuring, shedding debt or merging. They continue operating, cutting production slightly or even raising it in some cases, even though the glut will suppress prices even more for years.

"Data from past restructurings show that steps taken in bankruptcy sometimes even boost production by attracting new owners or improving the returns from individual mines," says *Bloomberg Intelligence* in a report.

Arch Coal, the second largest coal miner in the US and the latest to file for bankruptcy, says it plans to cut production 7.7% this year, but return to higher levels next year. Its stock plunged from \$260 a share in 2011 to under \$1 when it made the bankruptcy announcement, but Arch will push on. It plans to give lenders equity in exchange for letting it off the hook for \$4.5 billion of debt and a \$275 million loan for operating funds.

What happens to the public lands these coal miners destroy when they go belly up? Taxpayers pay to restore it. Companies must pay "reclamation bonds" to get a mining permit, but once they are in financial trouble that reverts to mere promises.

Meanwhile, the Washington Coal Club gave Senator Mitch McConnell (R-KY) its "Annual Achievement Award" for his attempts to block EPA's Clean Power Plan.

And Republicans are up in arms over updated rules from the Interior Department that prevent coal miners from permanently polluting streams, destroying drinking water sources, increasing flood risk, and threatening forests. In other words, they can't just dump their mining waste into streams anymore. They will have to test streams before and after mining and restore them to their previous condition. The House just voted to block it.

[<Source>](#)

## This Solar Powered Marvel of Engineering Lets a Person with Disabilities Earn a Living Anywhere!

By Tanaya Singh

Sunny Splendor is a great piece of engineering – a solar vehicle that works as a mobile shop for people with disabilities to start up small businesses and earn a living. It was designed by Hari Vasudevan of Ostrich Mobility, and this is how it works.

"I earn more than Rs. 4,000 a day now and can even think of sending my children to a good school," says Umesh, a street vendor from Bangalore who lost both his legs in a road accident. Umesh used to work as a driver earlier but his life came to a standstill for about five years after the accident. He could not find any suitable source of income and things became increasingly difficult for his family. So he set up a small cart and started selling items like tea, coffee, bread, biscuits, and chocolates. But business was never very lucrative because he couldn't move around with his cart and had to remain stationary at the same spot all day long.

After struggling for a long time to make ends meet, Umesh received the most amazing gift a few months back. He was introduced to Sunny Splendor – a mobile shop meant for people with disabilities to run petty businesses from wherever they want.

Earning more than double of what he would make earlier, Umesh has now left hard times far behind and is extremely happy with his new shop on wheels.



Umesh at work

Sunny Splendor was developed by Hari Vasudevan, Founder and Managing Director of Ostrich Mobility, a company that excels in manufacturing personal mobility appliances for people with disabilities.



The team at Ostrich Mobility

"Umesh was able to increase his profits only because he got the chance to roam around with his shop. If one place is less crowded he moves on to the next, and keeps moving to the more crowded areas of the city," says Hari.

For Umesh, the best thing about Sunny Splendor is that it needs zero maintenance and customers are often attracted to his shop just to find out how it works. This adds to his business and he has some very loyal customers who are amazed by his story and keep coming back to his shop.

Hari says he was inspired to design this vehicle in 2013 when K.S. Rajanna, a differently-abled man, was appointed the State Commissioner for Persons with Disabilities in Karnataka.



"When Rajanna sir became the commissioner, he visited my office to see the kind of things we manufacture. He asked me a simple question: 'Why don't you hire people with physical disabilities?' I told him that we deal with heavy objects and it would be difficult to find a person with disability who would want to do this kind of work. Moreover, we are not some big corporate firm and it won't be easy for us to change the complete infrastructure of the office building to make it suitable for differently abled people."

But the question remained with Hari. He found himself thinking about developing a way to help people with disabilities find a source of income. "And the idea suddenly struck me – I decided to design an electric wheelchair in a way that it would work as a mobile shop to help people run small businesses," he says.

The mobile shop is called Sunny Splendor because there is a solar panel attached to its roof, which helps charge the batteries it operates on.



Sunny Splendor is basically an electric wheelchair designed like a three-wheeler, with a lot of space to display the items for selling. The wheelchair's batteries can be charged with the help of electricity as well as solar energy. Eight

hours of sunlight are enough to get the vehicle fully charged, and it can run for about 45km at a speed of 15km/hr after one charge. Even those who don't have access to electricity can use it with the help of solar charging only.

There is a joystick to control the direction in which it moves and disabled people can use the vehicle to sell all kinds of things like magazines, food, toys, vegetables, and more.

[<ReadMore>](#)



## Particulate matter exposure: India ahead of China

IANIS



*According to the World Health Organization (WHO), India is home to 13 out of 20 most polluted cities in the world with deteriorating air pollution levels during past decade, particularly in north India. (Photo:AFP)*

NEW DELHI: For the first time this century, the average particulate matter exposure is higher in India than China, a Greenpeace analysis of Nasa satellite data on particulate matter has said.

"China's strong measures to curb pollution have contributed to the biggest year-on-year air quality improvement on record; while in contrast, India's pollution levels continued a decade-long increase to reach the highest level on record," a statement from Greenpeace on Monday said.

According to the World Health Organization (WHO), India is home to 13 out of 20 most polluted cities in the world with deteriorating air pollution levels during past decade, particularly in north India, the statement said.

Greenpeace, in its National Air Quality Index ranking report, revealed that as many as 15 of the 17 Indian cities with NAQI stations showed levels of air pollution that far exceeded the prescribed Indian standards.

The report also revealed that 23 of the 32 stations across India are showing more than 70 per cent more than the national standards of air pollution, putting public health at risk.

The statement said a robust system to curb air pollution in public domain is needed in India.

[<Source>](#)

## Rent your rooftop and get solar power at a cheaper rate

**Source Name: The Economic Times**

Give us your rooftop and we will give you cheap solar power - this is the model being used by many solar power companies to rake up their rooftop solar installation capacities.

Industrial establishments, commercial buildings, malls and large gated communities are the target for these operators who would set up solar rooftops for free and sell you power at rates that are cheaper than the local utilities.

"Around 240 sq mt of rooftop space is good enough for setting up a rooftop solar power plant that can viably sell power to the building and earn some decent profits," said Sunil Jain, chief executive of Hero Future Energies.

"In fact, some five-six companies including Hero Future Energy have already entered the fray and are on the lookout for large rooftop space in industrial complexes, commercial buildings, malls and gated communities," he said.

According to officials, about 8sq mt of rooftop is required to set up panels to generate 1 kilo watt and a minimum capacity of 30 kW makes an installation viable. The power generated can help building owners cut down on power costs and gainfully use the roof which would otherwise remain unused.

However, there are no model lease agreements and there is no way of making these agreements between the solar company and the roof owner a binding agreement. This has been one of the factors holding back the success of the large scale rooftop solar installations.

"Nevertheless, with the cost of solar photo voltaic cells on the de-cline at a rapid rate, the cost of power generated from solar installations has been on the decline," an official said.

Cost of generating power differs in different places due to difference in the intensity of sun's rays. For example, the sun is the strongest in Rajasthan and the intensity reduces as it moves towards east.

"In Delhi, solar power can be made available between Rs 6.25 and Rs 7 per unit from rooftop installations. This is cheaper for the companies that consume large volumes of power," said Jain.

Additionally, it offers a shield against frequent power cuts and hedge against rising power costs as rooftop owners enter into long terms, mostly 25-year, agreements for buying the power at a fixed cost.

In contrast, power tariffs of utilities are expected to rise at regular intervals. The model, popularly referred to as the OPEX - operational expense model - however, has its limitations when it comes to gated communities.

"There is a feeling that the rooftop belongs to the families staying on the top floor, hence they feel that they are entitled to the power being generated from rooftop. But legally, the roof belongs to all flat owners and the power generated should be used for common purposes," a senior executive from a solar power company said.

"A standard format for legal documents and agreements for rooftop solar plants will go a long way is increasing rooftop installations even on residential apartments," he said.

[<Source>](#)

## Government bans energy guzzling one-star air-conditioners in the Indian market

**By Writankar Mukherjee, ET Bureau**

KOLKATA: The government has banned the sale of entry-level one-star air-conditioners in the Indian market and introduced improved energy efficiency guidelines for frost-free refrigerators. It also made it compulsory for companies to adhere to energy rating rules for hi-end inverter ACs from 2018.

Manufacturers said the move will increase the price of entry-level ACs since the starting range will be a two-star unit that are priced around Rs 3,000 more than the one-star model and cost upwards of Rs 20,000. It will also push up the prices of four- and five-star refrigerators significantly, and make the most energy efficient five-star inverter ACs dearer by around Rs 5,000, three senior industry executives said.

The rules have been notified by the Bureau of Energy Efficiency (BEE), the nodal body under the power ministry for energy efficiency rating of consumer electronics.

BEE has just started voluntary energy labelling for inverter ACs with several manufacturers going to launch such products this summer. Inverter AC controls the speed of the compressor motor as per the ambient temperature as compared to the other models which run on a fixed speed. "The initiative will ultimately reduce the price difference between inverter and non-inverter models," said Daikin Airconditioning India managing director Kanwal Jeet Jawa.

While most of the sales of ACs were for three-star and five-star models, just around 10% sales were generated from one-star variants. "The adoption of energy rating for inverter air-conditioners will increase their awareness and help grow the market significantly this year," said Carrier Midea India managing director Krishan Sachdev.

However, manufacturers said the number of frost-free refrigerator models with high energy labels will reduce significantly this year. As per the new label, last year's four-star refrigerator will now become three star and new energy ratings has been specified for four- and five-star models.

[<ReadMore>](#)



*The rules have been notified by the Bureau of Energy Efficiency, the nodal body under the power ministry for energy efficiency rating of consumer electronics.*

## India submits first biennial GHG emission update to UNFCCC, emission increase by 40% in 2010

India on Friday submitted its first Biennial Update Report (BUR), to the United Nations Framework Convention on Climate Change (UNFCCC), towards fulfillment of the reporting obligation.

By FE Bureau

India on Friday submitted its first Biennial Update Report (BUR), to the United Nations Framework Convention on Climate Change (UNFCCC), towards fulfillment of the reporting obligation.



India is the third largest emitter of greenhouse gases after China and the United States. (Reuters)

As per reported submitted to UNFCCC, India emitted 2136.84 million tonnes of CO2 equivalent greenhouse gases (GHG) in 2010, which is an increase of 40% from the 2000 levels. Energy sector – including electricity production, fuel combustion in industries, transport sector etc contributed 71% of total emissions, a statement by environment ministry said. Sectors such as industrial processes and product use contributed 8%, agriculture and waste sectors contributed 18% and 3% respectively to the national GHG inventory.

However the environment ministry statement noted that about 12% of emissions were offset by carbon sink action of forests and croplands, considering which the national GHG emissions are arrived at a total of 1,884.31 million tonnes of CO2 equivalent.

The report submitted to UNFCCC also noted a range of climate-friendly measures initiated by India through eight National Missions under National Action Plan on Climate Change and other initiatives such as Integrated Power Development Scheme, Renewable Purchase Obligations, enhancement of cess on coal, Perform Achieve and Trade Scheme and National Program for LED based lighting.

India is the third largest emitter of greenhouse gases after China and the United States. It becomes the fourth when the European Union is considered as one block. But it has a much lower per capita emission as compared to the other countries. In 2010, India's per capita emissions, an important consideration in the equity debate in climate change debate, was 1.56 tonnes of CO2 equivalent, less than one third of the global average.

As per the provisions of the Convention, countries need to periodically provide information in the form of their National Communication. BUR contains national GHG inventory of India for the year 2010, prepared in accordance with the guidelines of Intergovernmental Panel on Climate Change (IPCC).

Till now, 23 countries other than India, including Brazil, South Africa, South Korea have submitted their BURs. China, world's largest emitter of greenhouse gases is yet to submit its report.

Brazil has submitted its BUR, but has given only provisional inventory. Developed countries are required to submit a report known as the Biennial Report (BR), which is to be submitted every alternate year and is subjected to International Analysis and Review.

As per the agreement arrived in recently concluded UN conference on parties on climate change in Paris, developing countries were to submit their first biennial update as soon as possible.

Ahead of the Paris meet last year, India has submitted its Intended Nationally Determined Contribution (INDC) to the UNFCCC. India has pledged to improve the

emissions intensity of its GDP by 33-35% by 2030, along with increasing the share of non-fossil fuels-based electricity to 40%. India has also agreed to enhance its forest cover to absorb 2.5 to 3 billion tonnes of carbon dioxide.

[<Source>](#)

## New Delhi station turns to 'waste power'

The Hindu, Staff Reporter



Waste generated at the New Delhi railway station will be segregated into biodegradable and recyclable waste. Biodegradable waste will be converted into electrical energy and manure. Electrical energy will be utilised by the Railways, most likely at the New Delhi railway station itself.— File Photo

**The Delhi Division of Northern Railway is in the process of setting up a waste-to-energy plant**

Very soon, the waste generated at New Delhi railway station will not only be recycled but also be used to produce electricity to light up the station.

The Delhi Division of Northern Railway is going to set up a waste-to-energy plant, that will turn the garbage and other waste collected at the station into electricity and manure.

Waste generated at the New Delhi railway station will be segregated into biodegradable and recyclable waste. Biodegradable waste will be converted into electrical energy and manure. Electrical energy will be utilised by the Railways, most likely at the New Delhi railway station itself.

"It is yet another green initiative by the Northern Railway's Delhi Division and the bio methanation plant at the New Delhi Railway station will be ready by June 2016," said Delhi Divisional Railway Manager Arun Arora.

"The municipal solid waste (MSW) handling capacity of the plant at New Delhi will be 15 tonnes per day," he added. The Railway Board has nominated RITES as the nodal agency for tendering for the waste-to-energy plant. It has floated an open tender on "two packet system", which will open on February 22.

"The Railways will bear the capital cost of the plant. After commissioning of the municipal solid waste pilot plant, the contractor will operate and maintain it for the next five years. The expected life of the plant shall be a minimum of 12 years," Mr. Arora said.

Approximately 2,000 units of electricity produced (three phase, 415V) in the waste-to-energy plant per day will be purchased by the Railways from the contractor at the rate at which electricity is supplied to local municipal domestic users. Additionally, the Railway may also procure manure from the contractor.

Mr. Arora said nearly 15,000 sq. metre of land will be required for this project, as well as 50 KW of electric power supply and 12 kilo litres water per day at chargeable basis for operation of the plant.

"It will be also mandatory on part of the contractor to provide facility of water recycling so that water requirement remains minimum," he said.

[<Source>](#)



## 90% polluting units are under 24X7 watch

By PTI

NEW DELHI: About 2,800 or nearly 90 per cent of critically polluting industrial units have installed 24X7 monitoring devices to check pollution after the government took a firm stand that factories can only function if they adhere to green norms, environment minister Prakash Javadekar said on Wednesday.



Out of 700 industries on the banks of the Ganga, around 500 have already installed monitoring devices.

"There are 17 critically polluting industries. We asked them to install 24X7 monitoring devices at points where their waste water comes out. Out of the 3,200 big units across the country 2,800 have already put up those devices. We are monitoring pollution sitting here in the environment ministry and the Central Pollution Control Board.

"...The Narendra Modi-

led government has made industries understand that they can only run by undertaking environment-friendly policies, which will be monitored 24X7. This was a big victory," Javadekar said at a gathering of Paryavaran Suraksha Manch of RSS-affiliated trade union Bharatiya Mazdoor Sangh.

He said out of nearly 700 industries on the banks of the Ganga, around 500 have already installed monitoring devices.

Hitting out at the erstwhile UPA government, Javadekar said environment clearance for new factories was seldom granted during its tenure and alleged there was a "policy of give and take".

"The speciality of the UPA government was that permission was never granted. A sort of toll gate had been created. First give something, then take away permission. We (NDA) said we will give permission very easily, but afterward there would be 24X7 monitoring," Javadekar said, adding the government is slowly making the standards stricter.

On climate change, Javadekar blamed the developed countries for the increase in global temperatures and said it was because of their carbon emissions for the last 150 years that climate change events like untimely rains and floods are taking place now.

"Developed countries have polluted through their industries during the entire 19th and 20th century. Nobody thought of environment, they only thought about profit. If today one degree temperature rise has happened, that is because of the pollution done by the developed countries in the last 150 years," he said.

[\[Source\]](#)

## Gurgaon homes will soon have solar plants in backyard, says Captain Abhimanyu Singh

Haryana Finance Minister Captain Abhimanyu Singh said residents of Gurgaon will soon be able to install solar plants in their houses.



Finance Minister Captain Abhimanyu Singh

Using the Mail Today Build India Conclave as a platform to announce a first-of-its-kind initiative, Haryana Finance Minister Captain Abhimanyu Singh said residents of Gurgaon will soon be able to install solar plants in their houses.

"Houses which occupy more than 500 sq yards will be able to establish solar plants in their houses. Haryana has become the first international alliance with solar power renewable energy,"

he said while adding that the state has surplus power and it will become a power cut-free zone in the upcoming future.

Talking about the Delhi-Chandigarh Highway, Singh assured that all bottlenecks on the highway had been dealt with. "We have removed every bottleneck from the highway. In fact, the government is planning to make it an expressway soon with a 14 lanes," the Haryana finance minister said.

Singh said the government has been investing a lot in Metro and will soon be coming up with services in Sonapat.

According to Singh, the Haryana government has grand plans to improve Gurgaon's healthcare, hospitality, IT and entertainment sectors to make the city the "lifestyle destination" of the country. "Gurgaon can be developed as the lifestyle destination of India. This is what all stakeholders, including industry leaders and the public, should yearn for. We, as the government, are working towards it," he added.

To provide all kind of facilities related to investment at a single place in the state, Singh said the government implemented "One Roof System", where all facilities related to registration of industrial units would be available at district headquarters and officers of departments concerned would complete all formalities for registration.

The minister said after Mumbai, Gurgaon is gaining popularity among people.

[\[Source\]](#)

## Electric Bus Unveiled at Auto Expo 2016 Could Be the Answer to Air Pollution in Indian Cities

By Tanaya Singh

JBM Auto released Ecolife – a bus that runs 100% on electric power. The bus was unveiled at the Auto Expo 2016, in New Delhi. Ecolife will run on power derived from lithium batteries and is meant for transportation within the city.

JBM Auto claims that this is India's first such bus and it will run for 10 to 15 hours after one charge of six hours, covering 150-200 km.



Source: Facebook

The bus has multiple charging options – it can be plugged in or connected to an electric unit at the top of a bus station. It is a Zero Emission Vehicle (ZEV) and will support fast charging. The company is considering selling the buses in two lengths – 9 metres and 12 metres. They will be made in India and the production will begin later this year.

"Pollution being an increasingly serious health concern in metropolises, it has become imperative to shift our mass public transport system from fossil fuel to non-fossil fuel. As a socially responsible organisation, we believe that electric bus would be an apt solution we could offer," said Executive Director of JBM Group, Nishant Arya.

He added that the company will keep participating in government initiatives like the Make in India programme, and Smart Cities.

The bus has been developed as a joint venture with Poland based Solaris Bus and Coach SA. According to the company, Ecolife has features like the passenger information system (PIS), and vehicle health monitoring system. It will also adapt to geographic conditions or the available public transport infrastructure.

[\[Source\]](#)

## Here's a Machine That Saved Time, Saved Fuel and Changed the Lives of Rural Women in Jharkhand

By Saadia Azim

*A small innovation has made the lives of rural women in Jharkhand so much simpler. They no longer have to spend hours on parboiling rice.*

Simple, innovative technology can truly transform the lives of people living in the hinterlands. That's what an ingenious rice parboiler unit has done for the rural women of Deoghar district in Jharkhand. Parvati Devi, 45, of Madanpur village in Deoghar, is all smiles these days because she has acquired a rice parboiler unit, which enables her to save more than 50 per cent of her yield that used to get destroyed earlier when she'd heat the paddy to make parboiled rice – popularly known as 'usna' in the region.

For this mother of eight, growing paddy on their two-acre farm was not difficult. She had been tilling land ever since she was a young girl and the nightmare began when, at the end of every Rabi season, she had to prepare the parboiled rice for storage.

Across eastern India, 'usna' is a staple with rice eaters. After harvest, the grain is steamed in an iron tray for one-and-a-half hours and then dried under shade. Thereafter, it is taken to the rice hulling machine for final processing. The steaming process is labour intensive as the paddy requires constant monitoring and turning over by hand to prevent it from burning.

"Every year, I used to end up losing a sizeable amount of the yield as I used the age-old technique of boiling paddy to prepare the parboiled rice that we consume as part of our daily meal. While this rice is better to taste, healthy and lasts for a longer period of time, the boiling process is tiring and the losses incurred can be huge," she remarks.

Like Parvati, other farmers in the area, too, had resigned themselves to losing a sizeable portion of their produce during processing. However, the introduction of the rice parboiler unit has slowly improved the situation not just for the local women, but also assures families of a steady supply of their favourite food. This technology has been brought to people's doorsteps through a local farmers' clubs constituted by the Centre for World Solidarity (CWS), a non-government organisation in the area.

According to Rajesh Kumar Jha of CWS, which has worked with farmers to develop the unit, "The idea behind creating this device was to save rice that forms the basis of all food in these parts. The procedure of boiling the paddy consumed enormous amounts of fuel and needed dedicated manpower, but ultimately the loss was still colossal."

The unit called Devipur Usna has been designed by Abhivyakti Foundation, a non-government organisation working with CWS, and it uses convection heating to treat the rice.

A 200-litre drum that doubles up as storage is divided into two vertical chambers with the help of a net sieve fixed one foot from the bottom. The lower chamber is used to store water that is boiled to create steam that rises to cook the paddy uniformly. Just above the sieve there is an opening from where the steamed rice can be removed.



*Many women in Deoghar district of Jharkhand have benefited from the innovative rice boiler unit, which allows them to save more than 50 per cent of their yield when they heat the paddy to make parboiled rice – popularly known as 'usna'. (Credit: Saadia Azim/WFS)*

*Around four years back, a trial run of the first unit was conducted in Madanpur village with the help of two farmers.*

Their feedback enabled some vital design modifications – an additional sheet was put at the bottom to safeguard the grain from high heat.

Lokeshwar of Abhivyakti Foundation says, "The minor changes we made to the paddy boiler unit have had a significant impact. It is economical at every level. Just one person is needed to operate the boiler, it is less time consuming and needs minimal fuel. Moreover, the paddy that used to get burnt earlier due to high heat is unaffected."

The Devipur Usna has four-fold benefits. A farmer can steam 1800 kilos of paddy in a single batch, only one person is required to keep an eye, and there is no need to turn it over. Within an-hour-and-a-half the entire process is complete.

*The fuel consumption is down by 50 per cent as is the probability of losing the produce.*



*After harvest, the grain is steamed in an iron tray for one-and-a-half hours and then dried under shade. Thereafter, it is sent for final processing. (Credit: Saadia Azim/WFS)*

"A little innovation can make a huge difference to the lives of people who are anyway impoverished. The rice parboiler unit ensures that the women get some time off to either be with their children or simply rest," observes Rajesh Kumar.

As per the 61st round of National Sample Survey (NSS), 46.3 per cent of people in Jharkhand are living below poverty line while the per capita income is only Rs. 7,200. In fact, between the 1983 and 2000 there was a 20 per cent increase in poverty in the state in comparison to the national average.

Where the state of hunger is concerned, a qualitative baseline survey conducted by the CWS has declared it as one of the most food insecure states in the country, with

more than 12.5 per cent of the population out of the food safety net, with no guarantee of regular meals throughout the year. The India State

Hunger Index (2008) also reveals a grim picture documenting the presence of severe undernourishment, child malnutrition, and infant mortality.

"Thanks to this rice parboiler unit, at least farmers like me do not have a reason to complain and fret that the food we grew was lost," says Rina Devi, who had lived with severe loss of grain year after year in her small village of Devipur, until she discovered the goodness of the steaming unit.

[<Readmore>](#)

## Andhra Pradesh saves 421 million unit power using LED bulbs: Survey

Source Name: The Economic Times

Andhra Pradesh saved about 421 mn unit of power last year thanks to a major push given by the state government to use of LED bulbs in four of the 13 districts, an independent survey has revealed.

The state government distributed 57.03 lakh LED bulbs (two nine Watt bulbs per house) in Anantapuram, Guntur, West Godavari and Srikakulam districts, while overall 1.75 crore bulbs were distributed so far in all the 13 districts as against the target of 1.87 crore.

A study conducted by Andhra University and Engineering Staff College of India - covering 57,667 households in the four districts - reveal that 421 million unit of power could be saved in one year because of the use of LED bulbs.

The actual energy saving per bulb has been 73.7 unit on an average, as against the projected 55.65 units.

Union Power Minister Piyush Goyal would formally release the study at a function in Nellore on February 27 in the presence of Union Urban Development Minister M Venkaiah Naidu and AP Chief Minister N Chandrababu Naidu.

A release from the AP State Energy Conservation Mission (SECM) quoted Energy Secretary Aiyav Iain as saying the state government has now decided to cover 100 per cent households in the state under the LED bulb distribution programme.

Under the scheme two bulbs (of nine Watts) would be given at a subsidised price of Rs 10 each.

The two power distribution companies have submitted proposals to the government for additional 57 lakh LED bulbs to cover 100 per cent households. With this, the total number of LED bulbs goes up to 2.44 crore, SECM chief executive officer A Chandrasekhar Reddy said.

Once the distribution is complete the state would save a whopping 1,806 million unit annually.

"We hope to complete the distribution by March 2016," Chandrasekhar Reddy added.

He said the Chief Minister directed the SECM to set up LED bulb replacement and service centres in all 175 Assembly constituencies to sustain the energy conservation measures.

The Chief Minister also wanted the energy department to facilitate use of five-star rated home appliances that would enable further saving of electricity by upto 40 per cent.

[<Source>](#)



## Waste to Valuable: Used Flowers in Religious Shrines Are given a New Life by These 2 Friends

By Tanaya Singh

Two friends in Kanpur were shocked by the amount of flowers that are dumped into the Ganges every single day, choking the river with pesticides and chemical fertilisers. They started collecting the flowers from temples and mosques in the city, and turned them into some brilliant eco-friendly products.

Enter a temple, mosque, gurudwara or church in India and the first thing you'll probably notice is the abundance of flowers at the place of worship. There are flower sellers at the entrance, flowers strewn all over the shrine's floor, devotees receiving flowers in the form of blessings – there seems to be no limit. Ever wonder what happens to those sacred flowers once we are done with our prayers?

According to many religious beliefs, flowers that are offered during prayers are sacrosanct and cannot be dumped into the garbage once they've wilted. This is one of the reasons why people prefer to discard them in rivers, lakes and other water bodies. But not many of us think about the fertilizers and pesticides that might have been used to grow these flowers, which then mix with the water and pollute it.

Ankit Agrawal and Karan Rastogi, two friends from Kanpur, had often thought of



this issue. While growing up, the river Ganges had been an important part of their lives and it pained them to see it become increasingly polluted as the years went by. Karan and Ankit

*"Karan and I have been friends since childhood and some of our friends live abroad as well. Whenever all of us meet in Kanpur, there isn't much to show them in the city. And when our friends see the river, their first reaction always has to do with how polluted it is. That was the starting point for our idea. Karan used to go to the temple every day and he would see the waste flowers being collected to be dumped in the river. So we thought of doing something to treat these flowers," says 27-year-old Ankit.*

According to him, every year, approximately 80, 00,000 tons of waste flowers are dumped into the river.

So, Ankit and Karan started thinking of a way to convert these flowers into an eco-friendly business venture. They started research in 2012 and a brilliant idea had taken shape by 2014 after several experiments. In May 2015, they founded Helpusgreen with the aim of utilizing the disposed flowers and turning them into bio-fertilisers and lifestyle products.

The duo picks up flowers from different places of worship every day – approximately 500 kg of them. Since they don't have a factory, they divide the amount equally between themselves and take the flowers to their respective homes.

The flowers are then mixed with organic cow dung and treated with about 17 natural components like coffee residue, corn cobs, etc. These help increase the nitrogen content in the end-product. After a few days, earthworms are added to the mix. These worms consume the mixture and lead to the formation of vermicompost after 60 days. In this process, earthworms ingest the organic waste and then excrete it in a digested form. The excreta, called worm cast, is a dark, odourless and nutrient rich material that works as a great soil conditioner. Worm casts or vermicompost is a ready-to-use fertilizer.

Karan and Ankit have named this product *Mitti* and it helps improve soil texture for the better growth of plants.



Helpusgreen product range



Women from self-help groups

While 80% of the flowers are used to make vermicompost, the rest are crushed and made into incense sticks and *andyajna/havan* items.

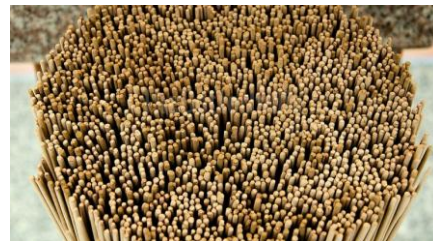
For manufacturing these items, the duo has employed 85 women from different self-help groups in villages around Kanpur, thus providing them with a source of income.



*"The women take the flower dough home and work for about four hours a day. We don't use any chemical fragrances to make these products. Everything is natural," says Ankit.*

Most temples and mosques in Kanpur have management committees that collect the flowers inside the shrines and put them in bins. From here they are sent to be thrown into the river. Helpusgreen collects the flowers directly from the places of worship. According to Ankit, 2400 kg flowers are discarded in Kanpur on a daily basis. But Helpusgreen is only in a position to treat about 500 kg flowers a day, collected from 13 temples and three mosques.

Another great feature of Helpusgreen products is that they use recycled packaging, made from discarded cartons from a liquor factory in Kanpur.



Additionally, because they know people usually don't throw away packets that have pictures of gods and goddesses on them, Ankit and Karan pack the *havan/Yajna* items in seed paper that is embedded with *tulsi* seeds.

The discarded packets will grow into beautiful plants when they come into contact with soil.



Currently, they are exporting most of their products to Switzerland and Germany. And they are also making them available on e-commerce websites like Amazon, Flipkart, etc.

*"We have produced 1.5 lakh kg flower compost till now. My mom was the target customer for us in the beginning. We had decided to keep working on the products till she approved of them. And the best feedback came from her. She loves it," says Ankit laughing.*

While most of us leave it to the gods to take care of the flowers we offer up in places of worship, kudos to Ankit and Karan for turning at least a part of the offerings into such amazing and environment-friendly products.

[<Source>](#)

## Khadi is no more a uniform of political power

By Nilima Pathak, *Correspondent*

New Delhi: The charkha (spinning wheel) is undergoing a churning process.

With the central government working towards making khadi a 'zero-effect, zero-defect' global product, the charkha will soon run on solar power across the country. This course of action will enable handspun khadi to become the zero carbon footprint green fabric of India.

The project and the field trial of the solar charkhas have already begun on a pilot basis in some states, including Rajasthan and Bihar.

Khadi is being feted also because for many designers, handloom textiles are no longer dowdy. They are rediscovering homespun fabrics and propelling them into the prêt-à-porter league. Even though khadi may have taken time to grow beyond its rural image and add an upmarket clientele to its resume, what matters is that it has arrived.

While minister of State for Micro, Small and Medium Enterprises (MSME) Giriraj Singh said he had received Prime Minister Narendra Modi's go-ahead for the project, he was gung-ho about the fact that since harnessing solar power for spinning would not involve the use of electricity, it would drastically reduce water consumption.

"For making a metre of khadi fabric, three litres of water is required. And for making a metre of mill fabric, 55 litres of water is needed," he informed.

Singh claimed that technology was being added to spinning by charkhas as per the vision of Mahatma Gandhi who wanted such applications, but not at the cost of replacing humans. Once the plan is implemented, it would require solar power units to be installed on the roofs of village homes to power the charkhas.

The minister stressed that the need of the hour was 'nano' charkhas that will decentralise the khadi production to create more jobs and be competitive by reducing the cost of yarn. The scheme would be extended to all villages covered under the Adarsh Gram Yojna, a rural development programme. It broadly focuses on development in the villages, which includes social and cultural growth and motivates people on social mobilisation of the village community.

The MSME ministry has found that even at the experimental stage the solar technology has yielded Rs6,000 (Dh325) to Rs9000 a month to each household involved in the exercise. The studies conducted by the ministry claimed that production had increased 20 times by using solar charkhas, leading to more than four-fold appreciation in income of the artisans.

Recently, on 'Mann ki Baat' radio programme, the Prime Minister reiterated, "The experiment with the solar energy based charkha has been successful. The (physical) labour has gone down, production has increased and there has been a qualitative change."

He claimed several women using solar powered charkhas had sent him letters saying their lives had changed drastically and income doubled.

With the combination of technology and innovation, a revolution has begun and The Khadi and Village Industries Commission (KVIC) through its various khadi-promoting centres is all set to introduce solar charkhas.

Neeti Ravindran, a fashion stylist, shopping at the khadi store in New Delhi remarked, "Khadi does not anymore mean the uninspired stuff sold at Khadi Bhandars. Earlier, I used to be quite put-off by drowsy salespersons at dull emporiums, having limited colour options and products. But now the fabric comes in a variety of colours and it looks great in both formal and informal attire."

Naresh Kumar, a bureaucrat remarks, "Ten years back if I suggested a khadi saree to my wife, she would retort, 'I am not that old to wear khadi! But now she and our 20-year-old daughter buy these sarees.'"

From a fabric that traces its history to Gandhiji's charkha, khadi has crossed all geographical boundaries to make the world its stage.

[<Source>](#)

## BARC to help in disposal of solid waste

Source Name: *The Hindu*

Bhaba Atomic Research Centre (BARC) will hold preliminary discussions with officials from the Department of Science, Technology and Environment for effective disposal of solid waste. Daniel Chellappa, senior scientist of BARC has said.

Talking to reporters at the Petit Mega Science Fair here on Monday, Mr. Chellappa said BARC had developed technologies to ensure clean environment.

Solid waste disposal is one of the major challenges being faced by major cities of the country and the biodegradable waste should be processed using proper scientific methods to maintain natural balance in the environment, he said.

Bio-methanation plant

Mr. Chellappa said that a bio-methanation plant had been set up in Puliyanthope in Chennai using BARC technology. The energy produced from the plant is used to power up street lights while the natural manure produced is used for the plants cultivated on the roadside.

Similar plants are being set up at Anna Nagar, Ambattur in Chennai, and Kuruvampalayam in Coimbatore and Thoothukodi. Each plant is set up at a cost of Rs.25 lakh. He said that BARC has taken up several projects with a view to protect the environment.

[<Source>](#)

## BHEL goes green to cut Energy Bills

Source Name: *The Times of India*

Public sector undertaking (PSU) giant Bharat Heavy Electricals (BHEL) which is grappling with depleting order book and increasing overheads, have decided to embark on green project to reduce energy dependence and cut energy bills. Company has chosen BHEL's Bhopal and Haridwar units to take up the project forward and promote use of non-conventional source of energy.

"BHEL, Bhopal has been working in the direction of energy conservation since September 2015. From rooftop solar panels on most of buildings to motion sensors and from timer control for switching off lights in office as soon as the last person moves out to holding awareness programmes; every possible step is being taken to bring down the energy consumption," said TG Chouragade, general manager, HR at BHEL, Bhopal.

"Haridwar and Bhopal are the first two centres, that have started applying innovative methods to check the rising energy expenses. Instructions in this regard had come from head office," he said.

"We will also be establishing a 10 mega watt solar plant at Jambooree maidan and 100 kilowatt rooftop solar panel on all four schools in the township, besides a 650 kw rooftop solar power system inside factory on suitable building roof," added Rajeev Sarna, additional general manager, excellence enhancement centre.

For successful implementation of the project, BHEL will also be using both natural and LED lights to lighten up the office, township buildings and street lights in BHEL township.

Apart from installation of solar panels, which will play a major role in pulling down energy cost, three annexe buildings have already been installed with time controllers, which will automatically switch off the light of buildings at 8pm, except that of GMs' cabin. Parks, in future, will only use solar or LED lights and companies selling LED lights will be setting up stalls of products which will be sold at 30% rebate. This is planned to promote the use of LED lights among township residents. Kiosks will be provided for free to them in Govindpura, Piplani, Berkhera and Habibganj areas for selling products.

PK Mishra, additional general manager, accounts department, said, "Besides technical innovations, we are also holding awareness programmes at schools, clubs, employees union meets and different cultural programmes. An 'urja geet' (energy song) has also been written and sung by BHEL employee Chandra Mohan Sharma, which includes the message of judicious use of natural energy sources and renewable energy sources."

### Consumption:

BHEL factory area consumes about 50 lakh units of power. It accounts for bill of about 60 crore.

BHEL township area consumes about 30 lakh units of power. It accounts for bill of about 24 crore.

**Target:** To save 5% of the total energy being used at present

### SAVING ENERGY THE SMART WAY

1. Smart grid system will help in control and recording of electrical energy distribution. One can keep tab on energy he is using.
2. Motion sensors in all offices (All the lights will be automatically switched off when the last person moves out of office).
3. Mancoolers will stop working automatically to save energy between 12 and 1 pm, which is the lunch hour
4. 10 megawatt solar plant at Jamboori maidan
5. Rooftop solar panels in all its schools
6. Old system has been renovated in Mess for hot water supply by using energy conservation method.
7. 650 kW rooftop solar power system inside factory on suitable building roofs

Bhiwadi—the emerging industrial town

Ashiana Tarang

ICICI Lombard: Pay once & be worry free for 3 years!

ICICI Lombard

[<Source>](#)





**2<sup>nd</sup> May – 4<sup>th</sup> May 2016**

**Istanbul, TURKEY**

Third edition of EurAsia Waste Management Symposium 2016, will be held in YTU 2010 European Capital of Culture Congress & Cultural Center between 2 and 4 May 2016.

EurAsia Waste Management Symposium will provide a comprehensive overview of effective waste management strategies across the Asian and the European regions. Also, the symposium will provide the opportunity to discuss and evaluate the current and future regional waste management strategies and recycling projects. All parties of waste management such as universities, industrial organizations, public institutions and organizations, local governments and legislators are expected to attend to the symposium in order to share their experiences and to bring a common body of knowledge for the solution of the waste management problems in the region.

The symposium will be organized by Yildiz Technical University (YTU) and Istac Inc. and supported by the Ministry of Environment and Urbanization, Ministry of Water Affairs and Forestry, International Waste Working Group (IWWG), Istanbul Metropolitan Municipality, and Istanbul Water and Sewerage Administration (ISKI). The topics of the symposium will include almost all areas of waste management including legislation, collection, transport, treatment, recycle and reuse options for municipal, hazardous, medical, and other waste types. The Symposium will include oral presentations, poster sessions, and specialized sessions.

It is expected that EurAsia Waste Management Symposium will be the largest event for colleagues to promote exchanges to contribute the development of solid waste management in the heart of the Asia and Europe.

[<ReadMore>](#)

## ICERE 2016

### International Conference on Environment and Renewable Energy

**25-27 May 2016**

**Munich, Germany**

This International Conference on Environment and Renewable Energy is the third ICERE conference after Paris and Vienna this conference will be held on 25-27 May in Munich, Germany at the Sheraton München Westpark Hotel. ICERE 2016, is aimed at bringing together innovative academics and industrial experts in the field of Environment and Renewable Energy to a common forum.

The objective of this conference is to promote environmentally safe and economically sustainable renewable energy, to create theoretical base of the utilization and implementation of renewable energy sources. Another goal is to promote research in the field of Environmental science and development of renewable energy and to facilitate exchange of new ideas in these fields and to create a dialogue between scientists and practitioners.

Keynote speaker at the conference will be Dr. Pierre Dechamps, Policy Officer, Climate Action and Earth Observation EUROPEAN COMMISSION. Like earlier conferences of the series this conference is expected to be attended by delegates representing different parts of the world.

Topics of the conference will include, but will not be limited to: Climate change, Global warming, New perspectives of renewable energy, Wind energy technologies, Solar energy technologies, Biomass industries, Waste to energy, Heating and cooling applications, Low energy architecture, Energy saving in buildings, Hydro power and Renewable energy economics.

[<ReadMore>](#)

*The Times of India, Delhi dated  
January 26, 2016*



**LINE OF CONTROL:** Tighter checks at Old Delhi railway station led to long queues on Monday

## Green energy pledge sealed with Metro ride

TIMES NEWS NETWORK

**New Delhi/Gurgaon:** Not by air, not in a cavalcade, Narendra Modi and Francois Hollande opted for a ride in the most fitting symbol of the commitment to renewable energy they had set out to make: the Delhi Metro.

The PM and French President took the Yellow line to Gurgaon on Monday afternoon to lay the foundation stone of the interim secretariat of the International Solar Alliance, a bloc of 120 nations conceived by India and France to jointly develop cheap renewable energy. The secretariat will come up on the campus of the National Institute of Solar Energy (NISE) in Gurgaon's Gwalpahari.

"A special train was arranged to facilitate the movement of the PM and French President in close coordination with security agencies," a Delhi Metro Rail Corporation (DMRC) spokesman said. "They boarded the train from Race Course station for Arjanagarh at 3.16pm." The return journey was by the special train as well. "They boarded the Metro train back from Guru Dronacharya station to Jor Bagh station at 5.20pm."

Indian officials and the French delegation, including the country's foreign minister Laurent Fabius, accompanied them as did DMRC MD Mangu Singh. "An eco friendly ride!



**WALKING THE TALK:** Modi and Hollande took the Metro to Gurgaon

### Train services to be suspended

A few trains to and from the capital will be suspended for a short while on Tuesday during the Republic Day parade, the Northern Railway has said. "Due to Republic Day parade on January 26, the rail traffic on Tilak Bridge will remain suspended for 1 hour 30 minutes from 10.30am to 12.00 noon," a statement from Northern Railway said. IANS

PM@narendramodi and Prez @thollande travel on Delhi metro on way to Gurgaon, "ministry of external affairs spokesperson Vikas Swarup tweeted. Official twitter handles of the state heads, @Elysee and @PMOIndia, posted pictures of the journey.

In Gurgaon, over 300 cops, NSG commandos and special forces personnel were deployed at Metro stations. Snipers were also deployed on rooftops of commercial buildings and residential societies around Guru Dronacharya and Arjanagarh Metro stations.

The DMRC spokesman said train operations "were normal throughout this movement", but several passengers who were taking the Metro around the same time contradicted that. "I took the Metro from Hauz Khas station for Guru Dronacharya. The train took a long time to arrive at Hauz Khas station. No one knew why," said Sunita Yadav, a passenger, who was unaware of the PM's visit. Passengers at Arjanagarh and Guru Dronacharya stations also said they faced problems.

## Green panel orders inspection of petrol pumps across NCR

**New Delhi:** Adulteration of petrol and diesel at fuel stations has caught the attention of the National Green Tribunal, which on Monday directed inspection of petrol pumps across NCR.

A bench headed by NGT chairperson Justice Swatanter Kumar constituted a committee comprising officials from Central Pollution Control Board (CPCB), petroleum ministry and state pollution control boards to conduct joint inspection at any 10 petrol pumps.

The green panel also directed authorities to carry out surprise inspection of 50

two and four-wheelers in NCR to ascertain their emission levels.

"Let the committee comply with our order sensu stricto (strict sense). They would take fuel samples and analyse the same in the laboratory of the

### 'BAD' FUEL

state concerned and Central Pollution Control Board. Samples should also be taken from NCR," the bench said while posting the matter for next hearing on February 16.

The directions came while hearing a plea filed by Delhi resident Cherub Singla seeking

directions to inspect the fuel quality at petrol pumps across the country, especially in cities facing acute air pollution.

Singla has contended that fuel adulteration increases the emission of total hydrocarbons, carbon monoxide, nitrogen oxides and particulate matter and thus adds to air pollution.

Alleging that weak regulatory regime has allowed the "adulteration racket" to flourish, the petition has also sought immediate closure of petrol pumps and other intermediate agencies found dealing with adulterated fuels and imposition of severe penalty on them. PTI

*The Times of India, Delhi dated  
January 29, 2016*

## Sustainability issues find new 'friends'

TIMES NEWS NETWORK

**New Delhi:** Several academics, activists and local government representatives on Thursday launched 'Friends of Sustainability', a community that will help address various sustainability challenges for cities. To begin with they will organise an e-group and an annual convention.

The circle will be similar to the Medico Friend Circle of the 1970s or the People's Science Movement of the 1980s which were academic-activist-practitioner alliances. But the idea of sustainable cities for this circle will be very different from the smart cities scheme of the Centre.

Some members who address

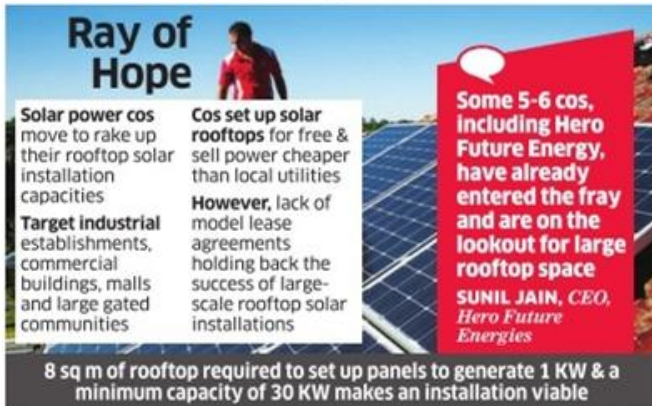
ed a gathering on Thursday were Miloon Kothari, former special rapporteur on adequate housing for the UN human rights council; Tikender Singh Panwar, deputy mayor of Shimla; Dipak Gyawali, former minister of water of Nepal.

Panwar said he expects the circle to address practical city governance issues like privatisation of water supply. He said the concept of smart city is a sheer contradiction because it's all about "corporatisation" instead of making the system deliver to people's needs.

Miloon urged members to send their views to the universal periodic review where human rights records of each country is monitored.



# Rent Your Rooftop & Get Solar Power at a Cheaper Rate



Debjoy.Sengupta  
@timesgroup.com

**Kolkata:** Give us your rooftop and we will give you cheap solar power – this is the model being used by many solar power companies to rake up their rooftop solar installation capacities.

Industrial establishments, commercial buildings, malls and large gated communities are the target for these operators who would set up solar rooftops for free and sell you power at rates that are cheaper than the local utilities.

"Around 240 sq mt of rooftop space is good enough for setting up a rooftop solar power plant that can viably sell power to the building and earn some decent profits," said Sunil Jain, chief executive of Hero Future Energies.

"In fact, some five-six companies including Hero Future Energy have already entered the fray and are on the lookout for large rooftop space in industrial complexes, commercial buildings, malls and gated communities," he said.

According to officials, about 8sq mt of rooftop is required to set up panels to generate 1 kilo watt and a minimum capacity of 30 kW makes an installation viable. The power generated can help building owners cut down on power costs and gainfully use the roof which would otherwise remain unused.

However, there are no model lease agreements and there is no way of making these agreements between the solar company and the roof owner a binding agreement. This has been one of the factors holding back the success of the large scale rooftop solar installations.

"Nevertheless, with the cost of solar photo voltaic cells on the de-

cline at a rapid rate, the cost of power generated from solar installations has been on the decline," an official said.

Cost of generating power differs in different places due to difference in the intensity of sun's rays. For example, the sun is the strongest in Rajasthan and the intensity reduces as it moves towards east. "In Delhi, solar power can be made available between ₹6.25 and ₹7 per unit from rooftop installations. This is cheaper for the companies that consume large volumes of power," said Jain.

Additionally, it offers a shield against frequent power cuts and hedge against rising power costs as rooftop owners enter into long-terms, mostly 25-year, agreements for buying the power at a fixed cost. In contrast, power tariffs of utilities are expected to rise at regular intervals.

The model, popularly referred to as the OPEX – operational expense model – however, has its limitations when it comes to gated communities. "There is a feeling that the rooftop belongs to the families staying on the top floor; hence they feel that they are entitled to the power being generated from rooftop. But legally, the roof belongs to all flat owners and the power generated should be used for common purposes," a senior executive from a solar power company said.

"A standard format for legal documents and agreements for rooftop solar plants will go a long way in increasing rooftop installations even on residential apartments," he said.

*The Economic Times, Delhi  
dated February 01, 2016*

*The Times of India, Delhi dated  
February 02, 2016*

## Mumbai's air quality worse than Delhi's

To Improve Only After 2-3 Days

Vinamrata.Borwankar  
@timesgroup.com

**Mumbai:** Pollution levels in Mumbai fell on Monday but the city's Air Quality Index (AQI) was still in the 'very poor' category and, worse than that of Delhi.

The AQI for Mumbai in the morning was 308; it reduced only marginally by evening, to 304, according to the System for Air Quality Weather Forecasting and Research (SAFAR).

The AQI for Delhi, on the other hand, was pegged at 208 in the morning, and it improved to 169 in the evening. Experts at SAFAR said the national capital's improved air quality could be temporary due to a change in wind patterns.

Most suburbs continued to record 'very poor' AQI. Among the most polluted were Chembur (363), which is close to Deonar, Andheri (355).

Weathermen said it would be another two or three days before normal conditions were restored. If Mumbai had any sense of relief, it was because the AQI was better compared to Sunday's 333, Saturday's 318 and Friday's 341—the day it had matched pollution levels in Delhi. "Conditions seem to be improving as the fire has been controlled, but weather



The Air Quality Index (AQI) for Mumbai on Monday morning was 308, whereas Delhi's AQI was pegged at 208

conditions like winter temperatures and high moisture levels have still kept the pollution in the very poor category. The winds are now picking speed, which will help reduce pollution levels in the coming days," said Gufran Beig, project director, SAFAR.

"The winds are not very calm now, but the humidity levels are very high. Due to this, the pollutant particles are still in the air and the particulate matter concentration in areas like Chembur, Mazgaon and BKC is still very high. The sea breeze helps the city to clean up naturally, but it will take a couple of days before things are back to normal," said K S Hosalkar, deputy director general of the Regional Meteorological Center in Mumbai. SAFAR has forecast an AQI of 295 for Tuesday.



*The Times of India, Delhi  
dated February 03, 2016*

# 5 days on, Mumbai chokes on toxic air

Vinamrata.Borwankar@timesgroup.com

**Mumbai:** For the fifth day in a row, air quality index (AQI) in the city remained in the 'very poor' category as it again beat the national capital in pollution levels. According to real time data monitored by System for Air Quality Weather Forecasting and Research (SAFAR), the recorded AQI on Tuesday morning was 307 which improved marginally to 306 during the day.

On Monday morning, the AQI was 308 which dipped to 304 by the evening. On the other hand, high wind speeds and temperatures which dispersed pollutants kept New Delhi's AQI at 215 and 219 on Tuesday morning and evening respectively.

AQI uses the 24-hour averages of pollutants, including sulphur dioxide, nitrogen oxide, carbon monoxide, ozone (O3) and particulate matter. An AQI between 301 and 400 is considered very poor and people with heart or lung diseases, older adults and children should avoid prolonged or heavy exertion while everyone else should reduce the same.

The city's AQI has taken a hit since the fire started at the Deonar dumping ground due to an increase in the PM10 (particulate matter which measures less than 10 microns) emissions which are a direct effect of open fires

and burning of bio-mass. The AQI of 341 on January 29 was the worst since June 2015 when SAFAR started monitoring the city's air quality.

According to SAFAR's predicted AQI of 305 for Mumbai on Wednesday, the pollution is expected to remain in the 'very poor' category. "Since the fire is almost doused, the air quality will inch towards getting better but the pollutants are getting dispersed very slowly as the wind speed is only moderate. The low temperatures and high humidity

are also keeping the particulate matter close to the Earth's surface," said Gufran Beig, project director, SAFAR.

Among the 10 locations where SAFAR monitors AQI, it was in the very poor category in most of the suburbs. Chembur, which is very close to the site of the fire, recorded an AQI of 369, followed by Mazgaon at 329 and Andheri at

322. Navi Mumbai too recorded an AQI of 332. The AQI was in the moderate (below 200) category in Worli, Colaba and Malad.

As per SAFAR's forecast, researchers said that the air quality is likely to improve only by the end of the week. "Around Friday, AQI levels are likely to go from the 'very poor' to the 'poor' levels. Since temperatures are also expected to increase next week," said Beig.

For the full report, log on to [www.timesofindia.com](http://www.timesofindia.com)



Air quality has taken a hit since a fire started at Deonar

*The Times of India, Delhi dated  
February 05, 2016*

## Hero comes out with 'climate bonds'

TIMES NEWS NETWORK

**New Delhi:** The Indian corporate debt market saw a new opening for clean energy funding with Hero Future Energies coming out with the country's first certified 'climate bonds' to secure Rs 300 crore for funding expansion of its wind power portfolio.

According to company MD **Rahul Munjal**, the certification is an assurance on green "use of proceeds" and would help attract global institutional investors to fund the Narendra Modi government's thrust on creating 175GW (gigawatt) of renewable energy capacity by 2022.

Climate bonds have to conform to stringent standards under the Climate Bonds Initiative, an international, investor-focused, not-for-profit organization. These papers are certified through a rigorous third-party evaluation, monitoring and reporting procedure to ascertain that the funds would actu-

ally go towards reducing carbon emissions.

This is what differentiates green bonds, which have been around for some time, issued by players in the clean energy sector. Last year, for example, Japan's SoftBank announced plans to sell a 450-billion-yen (\$3.8 billion) unsecured subordinated bonds, mainly to retail investors, for investment and to repay lo-



ans. Similarly, India's ReNew Power Ventures raised \$140 million from three investors, including a private equity fund managed by Goldman Sachs, in 2014 for its wind power portfolio.

Hero Future Energies has secured the funding through rated and secured non-convertible debentures. According to company CEO Sunil Jain, the proceeds would be invested in achieving the company's goal of 2.5GW capacity over the next few years.

Market watchdog Sebi earlier this month approved norms for listing of green bonds.



*The Times of India, Delhi dated  
February 05, 2016*

# Buses and trucks drive onto the environment bandwagon

Subhro.Niyogi@timesgroup.com

**New Delhi:** Bus and truck makers in India have stolen a march over passenger car manufacturers in rolling out environment friendly products at the Auto Expo 2016.

Scania Commercial Vehicles India Pvt Ltd, for instance, launched a biofuel powered Citywide bus on Thursday. Scania MD Mikael Benje said the Citywide bus was the first of several vehicles his company would to launch with sustainability at the core. "The Citywide bus can run on diesel, biofuel, CNG, bio GAS and ethanol. We also plan to set up a biogas project where waste will be converted to generate fuel for buses," he said.

Scania recently hosted a multi stakeholder conference on sustainability in Delhi and unveiled an industry whitepaper on increasing the adoption of biofuel for vehicles in India. It highlighted measures to help create a sustainable transport system, secure energy independence, curb emissions dramatically and create new jobs.

"We will increase manufacturing of vehicles that can run on alternative fuel engines, drive awareness and collaborate with stakeholders to highlight the benefits of local waste for local fuel



**GREEN SIGNAL:** New models of trucks and buses on display at the Expo

for local transport across India starting with the introduction of ethanol-based green buses across India," he said. Indian firm JBM with Polish bus maker Polaris went a step ahead and unveiled the country's first 100% electric bus Ecolife. The zero-emission vehicle is powered by lithium batteries capable of doing 150km-200 km in 10-15 hours of city operation on a single charge. The vehicle can also run on plug-in charge.

JBM Group executive director Nishant Arya said production of the bus would begin later this year. "With pollution being a serious health concern in metros, it has become imperative to shift our mass transport from fossil fuel to non-fossil fuel. We believe electric bus will be an apt solution," he said.

Mahindra & Mahindra too has launched electric commercial van Supra. The company showcased a demo hydrogen bus it has co-developed with IIT and ministry of new and renewable energy. "We have also introduced electric scooter and electric sedan to promote the cause of environment friendliness," a company spokesperson said.

However, very few auto companies have attempted to launch electric, hydrogen, hybrid or bio-fuel-powered vehicles other than CNG, LPG or micro hybrids. While Toyota was one of the first to introduce hybrid tech in its Prius sedan, it has now brought it in Camry. Maruti too has a hybrid offer in Ciaz. But no real effort has been made by any carmaker to popularise green technology.



The Times of India, Delhi dated February 06, 2016

# Delhi not the country's pollution capital: CPCB

## But CSE Says Board's Stations In Cleaner Areas

Jayashree.Nandi  
@timesgroup.com

**New Delhi:** The capital lost a dubious crown on Friday with the country's pollution watchdog saying it is not India's most polluted city, perhaps not even the second worst. But Central Pollution Control Board's (CPCB) data for the September 2015-January 2016 period clearly shows that Delhi's air is far from healthy.

CPCB has published air quality indices (AQI) for 24 cities that help in comparing pollution levels at a glance with a colour code and a numerical value. In India, AQIs are determined based on the concentrations of seven pollutants, including PM<sub>2.5</sub> (fine, respirable particles), sulphur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>) and carbon monoxide (CO).

**Although the AQIs will draw attention to the problem of air pollution in smaller cities, experts say the indices are at best indicative because in most cities CPCB has very few monitoring stations, and sometimes these are out of order**

In January, when Varanasi in UP and Muzaffarpur in Bihar had "severe" AQI values of 409, Delhi scored a "very poor" with 362. Even neighbouring Faridabad was worse with an AQI of 399. Only three cities—Bengaluru, Haldia and Panchkula—had moderate air quality during the period.

Although the AQIs will draw attention to the problem of air pollution in smaller cities, experts say the indices are at best indicative because in most cities CPCB has very few monitoring stations, and sometimes these are out of order. For instance, Muzaffarpur, Gaya, Faridabad and Varanasi have only one station each.

Centre for Science and Environment's analysis of Del-

### POLLUTION MAP OF INDIA

CPCB's AQI for 22 cities between September 2015 and January 2016 shows a large number of cities in the Indo-Gangetic plains region to have very high air pollution levels. Delhi is one of them

Cities	Sept '15	Oct	Nov	Dec	Jan '16
Panchkula	—	—	—	92	125
Rohtak	—	—	—	—	191
Delhi	194	264	360	293	362
Faridabad	100	222	350	345	399
Agra	91	208	327	342	372
Jaipur	—	—	—	290	294
Lucknow	124	216	374	353	339
Kanpur	115	238	316	347	359
Jodhpur	—	—	—	294	284
Muzaffarpur	166	157	345	400	409
Patna	139	223	366	373	388
Varanasi	138	220	318	366	409
Gaya	—	—	—	289	278
Haldia	—	—	—	97	90
Chandrapur	111	150	143	139	141
Mumbai	72	134	119	134	—
Navi Mumbai	82	104	106	109	103
Pune	107	154	212	209	195
Solapur	—	—	—	—	133
Hyderabad	146	174	115	101	142
Bengaluru	70	98	61	89	122
Chennai	80	92	—	139	140

Good (0-50)	Satisfactory (51-100)	Moderate (101-200)	Poor (201-300)	Very Poor (301-400)	Severe (>401)
-------------	-----------------------	--------------------	----------------	---------------------	---------------

hi Pollution Control Committee's (DPCC) real-time monitoring data for December shows the capital had 23 severe air quality days although CPCB says there were none. "We have to factor in that many CPCB stations are in background areas or less polluted locations," CSE said.

TOI looks at the four key takeaways in the CPCB data:

#### Delhi is not India's pollution capital

In the past five months, Delhi had 13 "severe" air quality days while Muzaffarpur had 37, Varanasi 24, Agra and Faridabad 22 each, and Lucknow 18. In a "severe" AQI episode, most governments declare an air quality emergency as even young and healthy people can develop a variety of symptoms. People are advised to stay indoors. Delhi, however, had more "very poor" air quality days—AQI of 301-400—than any other city. It had 69 to Kanpur's 65 and Varanasi's 43. Of the remain-

**The Central Pollution Control Board has published air quality indices (AQI) for 24 cities that help in comparing pollution levels at a glance with a colour code and a numerical value. In India, AQIs are determined based on the concentrations of 7 pollutants, including PM<sub>2.5</sub> (fine, respirable particles), sulphur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>) and carbon monoxide (CO)**

ning 71 days, 43 recorded "poor" air quality in Delhi. The city also had as many as 43 days in the poor category. Delhi's pollution problem seems worrying because while it swings between bad and very bad, the other cities also have moderate air pollution at times.

#### Jekyll-and-Hyde cities

Some cities manage to have very bad and very good air days in the rainy months, so their average does not reflect the severity of pollution. In September, Chandrapur in Maharashtra recorded a peak of 420, which is severe,



Air quality in north Indian cities is 2-3 times worse than south

Bengaluru has the cleanest air among the cities studied

Figures are Average Air Quality index (AQI) for the month

**Some cities manage to have very bad and very good air days in the rainy months, so their average doesn't reflect the severity of pollution. Cities with worst AQIs are mostly in the Indo-Gangetic plains, indicating that weather and location affect air quality as much as emissions**

lity and Weather Forecasting and Research (SAFAR) under the ministry of earth sciences. Winds from the north and south of the plains converge in the zone, increasing the pollution, he explained. "The area is also the second largest alluvial plain, it is very fertile land and so naturally it is the most polluted. It also has more emission sources like industries, vehicles and brick kilns," he added. The zone also has a concentration of thermal power plants. Dipankar Saha, additional director, air lab at CPCB, said reducing emissions is the only way to counter the zone's meteorological disadvantage.

#### Differing fuel standards

Trucks and other heavy vehicles sold in many small cities of north India have BS-III engines although BS IV diesel is available. CSE has called for immediate implementation of BS IV norms across the country. CSE researchers say while places like Chandrapur are highly industrialised, motorisation rates are very high in cities like Kanpur and Lucknow due to rapid urbanisation. "This shows air pollution is a national public health crisis," said Anumita Roy Chowdhury, head of CSE's 'Clean Air' campaign. "Stronger public opinion has provoked action in Delhi but other cities, especially the second rung cities, are victims of policy neglect. We urgently need a national air quality strategy. National air quality standards should be legally binding."



The Times of India, Delhi dated February 07, 2016

## COMING SOON: MORE PLASTIC THAN FISH IN THE OCEAN

21 TIMES RISE IN  
PLASTIC PRODUCTION  
Global, yearly

31.5 cr  
tonnes  
2014

1.5 cr  
tonnes  
1964

6x FRANCE

Size of debris of discarded  
plastic bottles and bags  
on the northeast of the  
Pacific Ocean

80 lakh

tonnes of plastic a year  
end up in the ocean

15 crore

tonnes of plastic estimated  
to be currently in the ocean

25 crore

tonnes of plastic  
expected to be in the sea in 10 years

Plastic in the  
ocean expected  
to outweigh all  
fish by 2050

## SEABIRDS AT RISK

Most have eaten fragments  
of plastic floating in the  
ocean, a 2015 study found

Researchers found as many as 200  
pieces of plastic in a single bird

Plastic fibres  
Bag fragments  
Cigarette lighters  
Bottle caps  
Plastic bottles  
Synthetic textiles

## SEABIRDS EATING PLASTIC

5%

30%

50%

Deccan Chronicle, Hyderabad dated  
February 07, 2016

## Arctic Ocean warming faster than expected

New York, Feb.6: A team of biologist travelled to Alaska where from the windows of their truck looked out across the undulating foothills toward the Arctic Ocean. Instead of seeing snow as like we had in years past, they were greeted by a landscape already green with spring.

According to *The New York Times*, sharing their experiences, "we flew by helicopter to a remote camp and shed our heavy parkas. The fish we came to study had already disappeared downstream to spawn. We now realise that

what we saw last May was historic — the hottest May for Alaska's North Slope during what scientists recently concluded was the hottest year on record for the earth. We also saw the future."

Last year, the earth's temperature passed the mark of 1 degree Celsius above preindustrial levels. Civilisation took 165 years to reach that mark, and now the increase could reach 2 degrees Celsius in just 30 more years, a point at which the risks from sea-level rise, drought and other effects could increase significantly.

— Agencies

The Times of India, Delhi dated  
February 10, 2016

# Global warming likely to extend for next 10,000 years, says study

## Coastal Areas Home To 1.3bn Face Submersion

**Boston:** The damaging climate consequences of carbon emissions will grow and persist for millennia without a dramatic new global energy strategy, a new study has warned. Rising global temperatures, ice field and glacial melting and rising sea levels are among the climatic changes that could ultimately lead to the submersion of coastal areas home to 1.3 billion people today, researchers said.

"What our analysis shows is that this era of global warming will be as big as the end of the Ice Age. And what we are seeing is a massive departure from the environmental stability civilisation has enjoyed during the last 10,000 years of its development," said Jeremy Shakun from Boston College in the US.

For the study, an international team of researchers generated new scenarios for temperature rise, glacial melting, sea-level rise and coastal flooding based on state-of-the-art climate and ice sheet models. They used a projected global output of 1,280 billion tonnes of carbon across the next few centuries, far below estimated reserves of at least 9,500 billion tonnes.

The projected consequences at this level of carbon emissions include an increase in the global average temperature which will exceed the recognised 'guardrail' of 2 degrees Celsius, and melting of glaciers and the massive ice sheets of Greenland and Antarctica which



Scientists said this era of global warming will be as big as the end of the Ice Age

will combine for a rise in sea levels of 25 metres, researchers said.

The study also found that coastal submersion could displace as many as 1.3 billion people worldwide, a number that now accounts for approximately 19% of the world's population.

As many as 25 'megacities' around the world could see rising oceans force at least 50% of their populations from their homes and businesses, researchers said.

The perspective on the future-looking projections comes from looking back at the last Ice Age, which ended approximately 10,000 years ago. Researchers developed a clearer portrait of that era of glacial melting and how the climate responded to and recovered from than era of significant climatic changes.

They reconstructed a record of

natural carbon emission, temperature rise, glacial melting and sea-level rise stretching back 20,000 years to the peak of the Ice Age. That paleo-climatological portrait shows, for example, that the sea-level rise of 130 meters required roughly 10,000 years to retreat as a stabilised climate emerged in which human civilisation has flourished.

"This gives us the opportunity to provide the long view on global temperature and sea level rise, from the end of the Ice Age to today and then onward another 10,000 years into the future," said Shakun. The findings hold implications for policy makers because the projections reveal the intractability of a climate change across millennia, researchers said. The findings were published in the journal *Nature Climate Change*. PTI

## Subject aircraft to emission norms: UN panel

**Washington:** A UN panel has proposed long-sought greenhouse gas emissions standards for airliners and cargo planes, drawing praise from the White House and criticism from environmentalists who said they would be too weak to actually slow global warming.

The International Civil Aviation Organisation said the agreement reached by the agency's environmental panel requires that new aircraft designs meet the standards beginning in 2020, and that designs already in production comply by 2023. There is also a cutoff date of 2028 for the manufacture of planes that don't comply with the standards. The standard must still be adopted by the agency's 36-nation governing council, but substantive changes aren't expected.

The standards would be the first ever to impose binding energy efficiency and carbon dioxide reduction targets for the aviation sector. When fully implemented, the standards are expected to reduce carbon emissions by more than 650 million tons between 2020 and 2040, equivalent to removing over 140 million cars from the road for a year, according to the White House.

The standards would require an average reduction of 4% in fuel consumption during the cruise phase of flight starting in 2028 when compared with planes delivered in 2015. AP



*The Times of India,  
Delhi dated  
February 11, 2016*

## 'Climate change will make transatlantic flights longer'

**Oslo:** Flights from Europe to North America will take slightly longer and nudge up airline fuel costs if climate change strengthens high altitude winds as widely expected, a study said on Wednesday.

The headwind into a stronger jet stream should lengthen westbound flights by about five minutes, slightly more than the time saved in the other direction to Europe with a tailwind, it said.

"We have good reason to think the jet stream is speeding up," author Paul Williams of Reading University said of the study in the journal Environmental Research Letters.

If net return flight times get longer, the effect could add 2,000 hours to annual flight times every year and an extra 7.2 million gallons (33 million litres) of fuel, assuming flights over the North Atlantic stay at about 600 a day, it said.

On Monday, global aviation experts agreed in Montreal to the first standards for cutting carbon dioxide emissions by aircraft in a deal that will take effect with new models in four years. REUTERS

*The Times of India, Delhi dated February 12, 2016*

# Plan reduced emissions by only 3-4%: CPCB

TIMES NEWS NETWORK

**New Delhi:** Though the Delhi government claims the odd-even scheme to be a success, the experiment's actual impact, even in a best case scenario, did not reduce PM2.5 emissions by more than 3-4%, according to a Central Pollution Control Board (CPCB) analysis.

"The emission reduction is assessed to be about 3-4% (including indirect impacts) as other factors may play a major role," says the study by CPCB, concluding that the odd-even policy is unlikely to result in any substantial air quality improvement.

The maximum estimated reduction in total PM10, PM2.5 and NoX emissions would be

around 0.28%, 0.62% and 1.86% respectively. While the reductions are very modest, factors like weather conditions make impact difficult to assess.

Sources point out that of around 8.5 million registered vehicles, around 40 lakh vehicles ply on any given day. The odd-even scheme, taking into account exemptions, essentially targets diesel and petrol passenger cars only.

Gains in terms of reduced congestion on roads—welcomed by many commuters—may be limited with plans to add 6,000 buses while an average increase of 10% in vehicle speeds did not make any significant impact on air quality.

Keeping in view exemptions, the study calculates that

## Times View

The Delhi government appears intent on causing inconvenience to the people of NCR with another shot of odd-even. Once it became apparent that its impact on air quality was at best marginal, what began as an experiment to bring down pollution has now morphed into a sharp instrument to decongest the capital's roads. Certainly, every one of us would love a quicker commute—but how does a diktat forcing half the city's cars off the roads help in finding a sustainable, long-term solution? This paper has consistently argued, and for years, that the only way to tackle congestion and vehicular pollution is by dramatically expanding public transport and improving connectivity, and not just in Delhi. Instead of doing the right thing, the government is doing the easy thing. Worse, there is a certain randomness to all of this—for instance, what good does it do to decongest the roads for just a fortnight? Not everyone lives and works near a Metro station or has easy access to other forms of public transport. They will be forced to pay through their nose for cabs. Already, we hear there are people planning to buy another car, possibly second-hand, to work around this diktat. It doesn't serve the cause of either pollution or decongestion.

around 30% of cars (around 3-4 lakh), both diesel and petrol, were off the road and traffic volumes dropped by around 8.5% and vehicle density by 11%.

Lack of detailed emission inventories and absence of data on actual number of vehicles makes quantification difficult but the study compares business as usual with scenarios of 30%, 20% and 10% emission reduction.

A large number of exemptions—CNG, public transport, two-wheelers, women driven vehicles and trucks—reduce the impact of the experiment even as other pollution factors like re-suspension of dust remained largely unchanged.

The agitation of road dust due to vehicle passage did not

change much and lack of any change in NO2 concentrations meant secondary particulate formation was not reduced either.

Given the IIT Kanpur study on emissions in Delhi puts the contribution of cars in PM2.5 pollution at 10%, even a 40% reduction will deliver no more than a 4% fall in overall emission loads. The study made some assumptions like calculating that the scale of change in traffic activities is uniform as percentage reduction of number of vehicles is constant in all grids.

The small impact of odd-even meant that on certain days during the January 1-15 scheme, pollution levels in some stations were higher than before or after the experiment.

*The Times of India, Delhi dated  
February 14, 2016*

## Go green, get 1% rebate on property tax

TIMES NEWS NETWORK

**New Delhi:** Those residing in south Delhi may get a 1% rebate on property tax if they maintain greenery around their houses. Ashish Sood, leader of the House of South Corporation, made this announcement while presenting the final budget estimates for 2016-17.

The same is applicable for people involved in commercial activity. "People have to maintain greenery around their areas either by planting a few saplings or maintaining a garden. They can earn a rebate of 1% in property tax, which will also help in keeping the area green. The horticulture department of corporation will monitor the areas and based on its survey, we will select the people who qualify for the rebate," said Sood.

South Corporation has also agreed to implement the third Municipal Valuation Committee (MVC) report, which will bring a lot of commercial properties under A-category helping the corporation to generate more revenue from tax.

Corporation officials said the MVC report will impact commercial properties more. "MVC report depends on three factors—base area value, use factor and occupancy factor. For residential properties, there is no change in base area value and use factor, as a result owners have nothing to worry about. It will affect malls, airport, five-star hotels in remote areas. These will be brought under A category which will increase their tax by at least six times," said Ram Mohan Singh, additional commissioner (assessment & collection).

*The Times of India, Delhi dated  
February 13, 2016*

# Green min to cut clearance red tape

Vishwa.Mohan  
@timesgroup.com

**New Delhi:** In its effort to sync environmental goals with the Centre's agenda of improving 'ease of doing business', the environment ministry will come out with a fresh classification of industries by early next week.

Under the new classification, 241 industries will be classified under four categories — Red, Orange, Green and White (a new class) — based on their air, water and soil-polluting potential (see graphic). It is expected that the move will help deal with red tape. Though the first three categories have been in existence for long, the categorisations were made mainly on the basis of the size of an industry and consumption of resources. The pollution due to emis-

## CAUSE FOR CONCERN

INDUSTRIES ARE CLASSIFIED UNDER FOUR CATEGORIES BASED ON POLLUTION INDEX CRITERIA

### Red

- 59 types of industries fall in this category (coal-based power plants, fertiliser, oil refinery, nuclear power plant, pharma etc)
- Environment clearance valid for 5 years as opposed to 3 years earlier

### Orange

- 93 types of industries fall in this category (Synthetic detergent, dry coal processing, marble cutting/polishing etc)

- Environment clearance valid for 10 years as opposed to 5 years earlier

### Green

- 53 types of industries fall in this category (bakery, cotton spinning/weaving, flour mills, poultry etc)
- Environment clearance will be valid for lifetime as opposed to 10 years earlier

### White

- 36 types of industries fall in this category (biofertiliser, biopesticide, organic manure,



wind power and mini hydel of less than 25MW etc)

- Not necessary to take any consent for environment clearance

sion and effluents, and its impact on health, was not considered a primary criteria. The fresh 'uniform' classification is, however, done by Central Pollution Control

Board on the basis of pollution index criteria and environmental issues such as generation of emission, effluent and hazardous waste.

"Idea of this rationalisa-

tion is also to make it sync with the Centre's 'Make in India' agenda where the manufacturing sector gets a boost while taking care of environmental concerns.



The Times of India, Delhi dated  
February 15, 2016

The Economic Times, Delhi dated  
February 15, 2016

# Iceberg grounding in Antarctica kills 150,000 penguins



Between 2011 and 2013, nearly 150,000 penguins died after a 100 sq km iceberg grounded near their colony in Antarctica. They were forced to trek more than 60 km to find food, impeding their breeding attempts

**Sydney:** Some 150,000 penguins died after a massive iceberg grounded near their colony in Antarctica, forcing them to make a lengthy trek to find food, scientists say in a newly-published study.

The B99B iceberg, measuring some 100 square kilometres, grounded in Commonwealth Bay in East Antarctica in December 2010, the researchers from Australia and New Zealand wrote in the Antarctic Science journal.

The Adelie penguin population at the bay's Cape Denison was about 160,000 in February 2011 but by December 2013 it had plunged to an estimated 10,000, they said.

The iceberg's grounding

meant the penguins had to walk more than 60 km to find food, impeding their breeding attempts, said the researchers from the University of New South Wales' (UNSW) climate change research centre and New Zealand's West Coast Penguin Trust.

"The Cape Denison population could be extirpated within 20 years unless B99B relocates or the now perennial fast ice within the bay breaks out," they wrote in the research published in February.

The researchers said the study had "important implications" for the wider East Antarctic if the current trend of increasing sea ice continued. AFP

# All Sites for Solar Parks Finalised

Kaavya.Chandrasekaran  
@timesgroup.com

**New Delhi:** The Ministry of New and Renewable Energy (MNRE) has completed the first stage of its ambitious solar parks project, which envisages setting up solar clusters across the country with an overall installed capacity of 20,000 MW by the end of 2018-19. With two new areas selected this year, the process of identifying the land on which these parks will be located is complete.

The new sites are in the Anantapur district of Andhra Pradesh and across the districts of Bhiwani, Hisar and Mahendragarh in Haryana, both having an installation capacity of 500 MW.

In all, 34 solar parks across 21 states and one union territory are in various stages of being built. There are five in Rajasthan (total capacity 3,251 MW), four in Andhra Pradesh (4,000 MW), four in Madhya Pradesh (2,750 MW), three in Maharashtra (1,500 MW), and one each in Karnataka (2,000 MW), Himachal Pradesh (1,000 MW), Odisha (1,000 MW), Gujarat (700 MW), Uttar Pradesh (600 MW), Tamil Nadu (500 MW), Haryana (500 MW), Chhattisgarh (500 MW), Telangana (500 MW) and West Bengal (500 MW).



GETTY IMAGES

The original plan, formulated in 2014-15, aimed at creating 25 solar parks over a five-year period, each with a capacity of 500 MW or more, to reach a total capacity of 20,000 MW.

However, to make the projects more inclusive, small and hilly states that find it difficult to provide the vast expanses needed for solar parks of the size suggested — an area of 5-6 acres is needed to set up 1 MW capacity — have been allowed to build smaller ones.

These include one solar park each in Arunachal Pradesh (100 MW), Assam (69 MW), Jammu and Kashmir (100 MW), Kerala (200 MW), Uttarakhand (50 MW), Nagaland (60 MW), Meghalaya (20 MW) as well as Andaman and Nicobar (100 MW). Some of the large projects have been

broken up as well. The original 2,000 MW Rewa Solar Park in Madhya Pradesh has been broken up into three — one 1,000 MW park and two of 500 MW each. Similarly, the 1,000 MW Jaisalmer Solar Park in Rajasthan has been slightly expanded and broken up into two parts of 750 MW and 321 MW. "It was done to make transmission easier," said a senior MNRE official.

Apart from these, there are also solar parks being built entirely at the initiative of some state governments. The Charanka Solar Park in Gujarat's Patan district, with an installation capacity of 590 MW of which over 200 MW has already been commissioned, is the pioneer among solar parks and the model on which the MNRE scheme is formulated.

Rajasthan set up the Bhadla Phase I Solar Park in the Jodhpur district on its own and has also signed a memorandum of understanding with Anil Ambani's Reliance Group to develop a 6,000 MW park — to be called the Dhirubhai Ambani Solar Park — at Pokhran in Jaisalmer district. "Small capacity, individual solar projects incur significant expenses in site development, drawing separate transmission lines to the nearest substation, procuring water and creating other necessary infrastructure," said the MNRE official.

The Economic Times, Delhi dated February 16, 2016

# Green Bonds Boost Green Causes: Buchta

Saikat.Das1@timesgroup.com

**Mumbai:** Suzanne Buchta, managing director, green bonds, Bank of America Merrill Lynch, says green bonds are a means to promote environmental causes by way of investing, and some investors have already started allocating dedicated funds for such bonds.

Global green bond sales are expected to rise to \$150 billion this year from \$90 billion last year, a jump of about 70%, with more Asian countries tapping the market, she told ET.

Back home in India, the market for green bonds is still at its nascent stage and only three banks have sold such bonds last year. Of which, Bank of America was the arranger to the \$500 million green bond by Exim Bank, the first ever dollar denominated green bond from the country. "We expect to double what we did in 2015, though it might look too aggressive," she said.

NO SOPS ON RATES OR YIELDS

Green bonds give investors the extra incentive of investing in green projects but do not give them the entire incentive (on rates or yields)

SUZANNE BUCHTA  
MD, Green Bonds, Bank of America Merrill Lynch

The government of India has set targets which will take the total renewable capacity to almost 175 GW by the end of 2022. This includes 60 GW from wind power, 100 GW from solar power, 10 GW from biomass power and 5 GW from small hydro power. This requires a massive \$200 bil-

lion in funding by 2022. But green bonds are no source of cheap and easy money for those who are refused funds via normal routes.

"Green bonds do not create a magic solution for somebody looking to borrow money," said Buchta.

"If you are not investment graded or you are unable to find money from regular investors, then you are unlikely to find it from green investors," she said.

"Green bonds give investors the extra incentive of investing in green projects but do not give them the entire incentive (on rates or yields)."

Green bond issuers have the exact credit quality that a regular bond issuer has and also the same coupon rate. For example, Exim Bank of India issued green bonds. Had they issued a regular (dollar denominated) bond, it would have been with the same coupon, and credit quality.

In the US, the green bond growth have come from municipal markets.



*The Economic Times, Delhi dated  
February 16, 2016*

# Municipal By-laws Will Have Simplified Green Building Code

## Environmental Conditions

### CATEGORY A- 5000 to 20000 sq m

- Natural drainage
- Rain water harvesting system
- Unpaved area more than or equal to 20% of recreational open spaces
- Solid waste management
- LED/Solar lighting in common areas
- Screens, barricading and plastic sheets to prevent dust and smoke in construction area
- Exhaust pipe of DG set installed must be minimum 10 m away from building or 3 m above it
- 1 tree every 80 sq m of land and planting three trees for every 1 tree cut

### CATEGORY B- 20000 to 50000 sq m

- Cat A conditions
- Organic waste composters
- At least 1% connected applied energy load generated from renewable energy sources
- Solar water heaters with minimum capacity 100 litres/4 persons
- Use of fly ash bricks



### CATEGORY C- 50000 to 150000 sq m

- Category A and B conditions
- No ground water withdrawal without permissions
- Non-biodegradable waste to be handed over to authorised recyclers
- Passive solar design
- Optimised energy systems
- Sewage treatment plant to treat 100% waste water

After incorporating a trimmed-down green building code into municipal by-laws, the construction cos will not need Centre's nod for environmental clearance

**Anubhuti Vishnoi**  
@timesgroup.com

**New Delhi:** Construction projects spread over 20,000 sq metres will no longer need Centre's clearance, with all stakeholder ministries and government departments agreeing to incorporate a trimmed-down green building code into municipal by-laws. At a meeting held last week between the secretaries of key stakeholder ministries, it was decided that the green code will ensure ecological compliance for all construction projects of over 5,000 sq metres, and it should be integrated with municipal by-laws.

This means that construction projects do not have to come to the Centre for environmental clearance, but can be approved at the municipal level, provided they meet the specified conditions.

Every project starting over 5,000 sq metres — under the new stipulation — will have to ensure that a minimum of one tree is planted every 80 sq metres in the complex, earmark an unpaved area which is more than or at least 20% of the recreational open

spaces, install solar/LED lighting in common areas, ensure exhaust pipes of DG sets do not emit right into the complex, and segregate waste.

Projects above 20,000 sq metres will even have to bring in energy optimisation systems and sewage treatment plants besides ensuring that at least 1% of energy needs are met through renewable sources.

The ministries of urban development, defence, civil aviation, housing & urban poverty alleviation have agreed to the new formulation proposed by the environment ministry.

The urban development ministry will soon bring out model by-laws incorporating the green norms and is expected to be notified within a month. Environment minister Prakash Javadekar and Urban Development minister Venkaiah Naidu recently met to take the issue forward.

While the urban development ministry and real estate industry were initially opposed to the green code as too many ecological conditions were being proposed by the environment ministry, the latter has now trimmed it down significantly.

While the first draft had suggested over 100 ecological compliance conditions, the final formulation agreed upon nine conditions for projects of 5000-20,000 sq metres, 14 conditions for project size of 20,000-50,000 sq metres, and 23 environmental conditions for projects measuring 50,000 to 1,50,000 sq metres.

Buildings account for around 20% of total energy consumption in India. Building construction and resultant debris and dust are also identified as key factors leading to high air pollution levels.

## Delhi Secretariat to run on renewable energy

Delhi Government is committed to making the national capital a Solar City. To achieve the goal of making the national capital a Solar City, the Delhi government has decided to start the work from Delhi Secretariat itself. Accordingly, Delhi Government in association with Ministry of New & Renewable Energy (MNRE), Government of India, is setting up a 3 MW ground based Solar Power Plant at the vacant land of Indraprastha Power Station.



This Solar power plant will be a showcase power plant that will supply power directly to Delhi Secretariat for the next 25 years. This will make Delhi Secretariat, the first State Secretariat of the country running completely on the renewable and green energy making it an environment

friendly green building. The work at site has already started.

The plant will utilize latest technology including the tracker mechanism which will track the movement of sun for the maximum output. Delhi Government is also taking up steps to convert Delhi Secretariat into the most energy efficient building by adopting various energy efficiency measures.

Besides making the Secretariat a green building, it will also bring down the electricity bills

of Delhi Secretariat considerably.

Delhi Government has also prepared a draft Solar Policy, which has been released recently for public consultation. The policy will be finalized after consultation with all stakeholders.

*Deccan Chronicle, Hyderabad  
dated February 18, 2016*

## Ab Bus Karen campaign

Transport Minister Gopal Rai announced the launch of Delhi government's intensive campaign for traffic decongestion and reduction in air pollution. The campaign has been named - Ab Bus Karen Jan Parkahan - Swasthya Jeevan.

The campaign started on October 22, with the stretch from India Gate to Red Fort declared car-free. The government proposes to convert this campaign into a sustained effort and its salient features will be:

Create awareness about the benefits of using public trans-

port

- >> Promotion of car-pooling
- >> Encouragement for using bicycles
- >> Adherence to lane driving
- >> Pollution checks of vehicles on time
- >> Awareness drive to convince people for one car per family
- >> Benefits of walking in daily life.

The Facebook page of the campaign is : [www.facebook.com/abbuskaren](http://www.facebook.com/abbuskaren)



The Economic Times, Delhi dated February 18, 2016

The Times of India, Delhi dated  
February 18, 2016

**POLICING TRAFFIC** BMC options include ban on new car & bike registrations, ceiling on new registrations per year and congestion tax in certain zones

## Mumbai's Pollution Fight may Leave it with Number Plate 0

Krishna Kumar  
& Anirban Chowdhury

**Mumbai:** The Brihanmumbai Municipal Corporation (BMC), India's biggest civic body, has proposed a radical overhaul of Mumbai's vehicle usage to combat rising pollution in the Maximum City.

A plan submitted last month suggests that the government could consider three options to cut pollution which has risen to alarming levels: a complete ban on new car and bike registrations in the city after a cutoff date, a ceiling on new registrations each year and approving registrations only

after proof of parking space in a housing society or complex is submitted by a buyer. These measures would cut the rapid growth of new vehicles on city roads and help avoid parking congestion.

The Comprehensive Mobility Plan (CMP), as the BMC proposal is called, also calls for a 'congestion tax' in some zones.

65 Cars Per 1,000 People >> 15

### Not Unique to India

The traffic-restraint scheme being proposed by BMC may seem radical, but similar initiatives have been tried out in many countries. ET takes a look...

#### Road-Space Rationing

<b>Athens</b> (1982)	<b>Mexico City</b> (1989)	<b>Bogota,</b> Colombia (1998)
<b>La Paz,</b> Bolivia (2003)	<b>San Jose,</b> Costa Rica (2005)	<b>Honduras</b> (countrywide) (2008)
<b>Quito,</b> Ecuador (2010)	<b>Sao Paulo:</b> Implemented in 1996, made permanent in 1997	<b>Paris:</b> Temporary curbs during severe pollution in Mar '14 & '15
<b>Beijing:</b> Has had curbs on & off since the 2008 Olympics	<b>London:</b> Implemented curbs during 2012 Olympics	<b>Italy:</b> Restrictions in Dec 2015 in Rome, Milan and 11 other cities



#### Car-Free Day

The world's largest car-free day has been observed in Bogota, Colombia for 15 years

#### Congestion Pricing

Scheme levies charges for use of own vehicles in a central business district or for faster access. Has been in force in London, Stockholm, Singapore and Milan

#### Low-Emission Zones

Areas where access is only provided to vehicles with lower emissions. In Europe, 200 cities already have the scheme or are preparing to launch it

(Source: Miovision Technologies, Automobile Association Developments)

## No waste plan, 'unviable' landfills slow-poison city

TIMES NEWS NETWORK

**New Delhi:** Smoke clouds similar to the recent one at the Deonar landfill that choked Mumbai for days have been slow-poisoning Delhiites for years.

Small fires are ablaze nearly all the time in the Delhi landfills and may put the city at the risk of a major fire disaster, said waste workers and landfill operators. But that hasn't prompted Delhi to implement a simple rule of solid waste management—segregate and recycle.

The environment department of the Delhi government has now decided to take action against operators if smoke is seen at landfills. But that may not solve the problem as, according to IIT Kanpur's recent source apportionment study, about 3% of particulate matter (PM) come from municipal solid waste burning. It also quotes a study by Nagpure et al. (2015) that puts municipal solid waste (MSW) burning in the city at 190 to 246 tonnes per day—2% to 3% of the total MSW generated.

The combined effect of waste burning in open areas

### SCRAPING BY



REST GOES TO OKHLA WASTE-TO-ENERGY AND OKHLA COMPOSTING PLANTS

Waste volume at various landfill sites so far

Ghazipur landfill, set up in 1984, has about 12.5 mn MT of waste

Other landfills have collected about 7-8 million MT

TOTAL MIXED WASTE DUMPED PER DAY (in MT)	
Ghazipur	Bhalswa
2,000	1,500
Okhla	Narela
700-800	1,500

Total waste generated per day in the city | 8,500 MT

**Spontaneous landfill fires are mainly a result of the decomposing organic material that releases a lot of methane, a greenhouse gas**

and fire in landfills is a dangerous threat to public health, pointed out Ravi Agarwal of Toxics Link. "During a fire in a landfill, the organic waste and other things like plastics also burn. Along with PM, there are chemical and heavy metal releases. These are very toxic." Carcinogenic

chemicals like dioxin and furans are also released. Spontaneous landfill fires are mainly a result of the decomposing organic material that releases a lot of methane, a greenhouse gas. "About 70% of the waste dumped in the landfills are not to be dumped. Organic waste is obviously to be composted and the inerts recycled," said Agarwal.

There can be an explosion in any of the three landfills, said Shashi Bhushan Pandit of All India Khabadi Mazdoor Mahasangh. "A few years ago, two waste pickers

were charred at the Bhalswa landfill. Waste-pickers are aware of the dangers and have been saying all along that involving us in door-to-door waste collection and recycling would reduce the burden on landfills. But the government is not even considering us," he said.

The municipal corporations are running a pilot methane trapping project by Gas Authority of India Limited from the Ghazipur landfill. The plant, according to officials, is generating 25-30 kWh of power. "Both incidents of fire and greenhouse gas emissions have come down in Ghazipur now," said a corporation official.

The landfills at Okhla, Bhalswa and Ghazipur have long been declared "saturated" or "unviable" as they are not scientifically built, and should be closed, said experts. "We have approached National Highways Authority of India to help reclaim the Ghazipur landfill. We can use the inerts for road development. The rest can be sent to a waste-to-energy plant," the official said. But the cost of reclaiming is very high—for Ghazipur it may be around Rs 800 per MT.

The Times of  
India, Delhi dated  
February 18, 2016

## Environment panel wants Centre to ban diesel vehicles

Dipak Dash @timesgroup.com

**New Delhi:** The Environment Pollution Control Authority (EPCA) has canvassed for government to support complete ban on passenger diesel vehicles in Delhi. EPCA member Sunita Narain met road transport ministry officials to convince them, barely two days before the Supreme Court is scheduled to hear Delhi's air pollution case - on Thursday.

Narain's organisation Centre for Science and Environment has been advocating for ban on plying of diesel vehicles on Delhi roads. "This may sound ideal, but Centre supporting such stand will be difficult. How can you insulate only Delhi when we allow diesel vehicles in all other cities? What will happen to a diesel car coming from Ludhiana or Jaipur to Delhi?" asked a government official.

Sources said there is a view in the transport ministry that they should not give any opinion in the court, in case it asks the ministry to give its view on this matter.

Meanwhile, it is likely to submit details of the steps taken so far and promoting use of alternative fuel in vehicles.

The Times of  
India, Delhi dated  
February 22, 2016

## Exposure to air pollution may up obesity, diabetes risk

**Washington:** Exposure to polluted air may increase the risk of obesity and lead to high cholesterol and more insulin resistance, a precursor of Type 2 diabetes, a new study has warned.

Researchers from Duke University found that laboratory rats who breathed Beijing's highly polluted air gained weight and experienced cardio-respiratory and metabolic dysfunctions. The pollution-breathing pregnant rats had heavier lungs and livers and increased tissue inflammation, scientists said.

For the study, they placed pregnant rats and their off-



HEALTH HAZARD

spring in two chambers, one exposed to outdoor Beijing air and the other containing an air filter that removed most of the air pollution particles. After only 19 days, the lungs and livers of pregnant

rats exposed to the polluted air were heavier and showed increased tissue inflammation. These rats had 50% higher low-density lipoprotein (LDL) cholesterol; 46% higher triglycerides; and 97% higher total cholesterol.

Their insulin resistance level, a precursor of Type 2 diabetes, was higher than their clean air-breathing counterparts. The results show that air pollution exposure results in metabolic dysfunction, a precursor to obesity. Similar results were shown in the rat offspring, which were kept in the same chambers as their mothers. ■



*The Times of India, Delhi dated  
February 23, 2016*

# China's air quality improving while India's is deteriorating

## Average PM Exposure For Indians Was Higher In 2015

TIMES NEWS NETWORK

**New Delhi:** In 2015, probably for the first time this century, the average particulate matter (PM) exposure was higher for Indian citizens compared to the exposure of Chinese people, an analysis of Nasa satellite data has shown.

Air quality in several parts of China started improving 2011 onwards while deteriorating severely in parts of India particularly in the north with 2015 being the most polluted year on record, the analysis by Greenpeace India released on Monday claims.

Air pollution levels were rising both in India and China until 2011 when there was no focussed policy in either countries to deal with the crisis and fossil fuel use was on

polluting industrial regions and many others.

The analysis is based on aerosol optical depth (AOD) measurements from Nasa MODIS Aqua satellite. AOD is the degree to which aerosols (airborne solid and liquid particles) prevent transmission of light in an area — is also considered an indirect proxy for air quality.

Lauri Myllyvirta, air pollution specialist with Greenpeace East Asia said, "China is an example of how determined policies and tougher enforcement can turn the tide on air pollution. The Indian government needs to have plans to avoid the same disastrous health impact air pollution has had in China. Given that the pollution travels hundreds of kilometers, there should be national, regional and city level action plans with measurable targets to lower pollution levels."

The analysis also highlights how compared to 1,500 air pollution monitoring stations covering a quarter of the population in China, India has only 39 "operational" monitoring stations in India. Durgapur, Gorakhpur, Asansol, Siliguri, Bareilly and Ludhiana are among the most polluted cities in India which still don't have continuous air quality monitoring stations.

The changes in air quality captured by the satellites since 2005 shows significant reductions were seen in eastern and central China where actions were taken while worsening air pollution levels were seen across north India, West Bengal, Bihar, Uttar Pradesh and Andhra Pradesh according to the analysis. In Patna, Kolkata, Gorakhpur, Kanpur and Varanasi there is a clear trend of air pollution levels rising only in Delhi pollution levels fell compared to 2012 which had the highest levels in the last ten years.

China has a deadline of 2030 for meeting air quality standards and an interim target of 2017. United States had a target of 2012 and areas that violated are currently implementing new plans. European Union has a target of 2020 while India continues to have no target.

**China has a deadline of 2030 for meeting air quality standards and an interim target of 2017. United States had a target of 2012 and areas that violated are now implementing new plans. European Union has a target of 2020 while India continues to have no target**

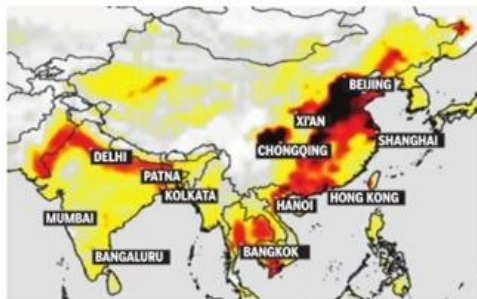
a rise but China's "national air pollution action plan" of 2013 that sets time bound targets to meet air quality standards in all provinces could have led to this marked improvement in air quality, said Greenpeace in its statement adding that China in 2015 witnessed a 15% fall in pollution compared to 2014.

"In China, the particulate pollution levels rose an estimated 20% between 2005 and 2011. After adopting a comprehensive National Action Plan with strong policies and stricter enforcement, the trend started bending," it said.

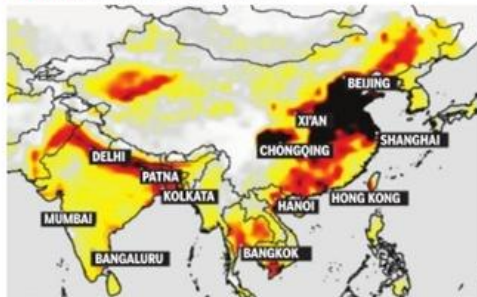
The action plan has time bound targets for increasing the share of clean energy, improving air quality in key cities and provinces, reduction in coal consumption by

### A TALE OF TWO NATIONS

#### 2005: India less polluted than China



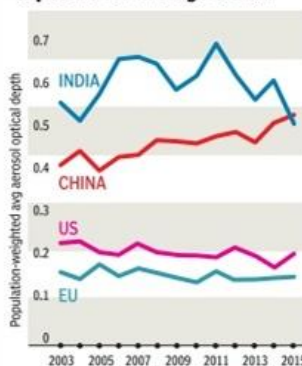
#### 2011: India trailing China



#### 2011-15: China improves, India deteriorates



#### Satellite-based pollution exposure for average citizen



#### Change in PM 2.5 levels (2010 to 2015)

China	-17%
India	13%
US	-15%
EU	-20%

#### Deaths per day due to air pollution in 2013

China	2,700
India	1,800
US	250
EU	640

Source: Greenpeace



*The Times of India, Delhi dated  
February 24, 2016*

# Sea level rising at fastest rate in last 28 centuries

## If Trend Continues, Coastal Cities Face Eviction By 22nd Century

**Justin Gillis**

**T**he worsening of tidal flooding in American coastal communities is largely due to greenhouse gases from human activity, and the problem will grow far worse in coming decades, scientists have reported.

Those emissions, primarily from the burning of fossil fuels,

even on sunny days. Though these types of floods often produce only a foot or two of standing saltwater, they are straining life in many towns by killing lawns and trees, blocking neighbourhood streets and clogging storm drains, polluting supplies of freshwater and sometimes stranding entire island communities for hours by overtopping the roads that tie them to

reconstructed the level of the sea over time and confirmed that it is most likely rising faster than at any point in 28 centuries, with rate of increase growing sharply over the past century. They also confirmed that if emissions were to continue at the rate over next few decades, the ocean could rise as much as three or four feet by 2100.

Experts say the situation would then grow far worse in the 22nd century and beyond, likely requiring the abandonment of many coastal cities.

"I think we can be confident that sea-level rise is going to continue to accelerate if there's further warming, which inevitably there will be," said Stefan Rahmstorf, co-author of one of the papers.

The rise in the sea level contributes only in a limited degree to the huge, disastrous storm surges accompanying hurricanes like Katrina and Sandy. Proportionally, it has a bigger effect on the nuisance floods that can accompany what are known as king tides. The change in frequency of those tides is striking. For instance, in the decade from 1955 to 1964 at Annapolis, Md., an instrument called a tide gauge measured 32 days of flooding; in the decade from 2005 to 2014, that jumped to 394 days. **NYT NEWS SERVICE**



Researchers say that if greenhouse emissions continue at this rate over the next few decades, oceans could rise as much as 3 or 4 feet by 2100

are causing the ocean to rise at the fastest rate since, at least, the founding of ancient Rome, the scientists said. The increasingly routine tidal flooding is making life miserable in places like Miami Beach, Charleston, SC, and Norfolk

the mainland, said Benjamin H Strauss, the primary author of one of two related studies released on Monday. Such events are just an early harbinger of the coming damage, the new research suggests.

In the second study, scientists

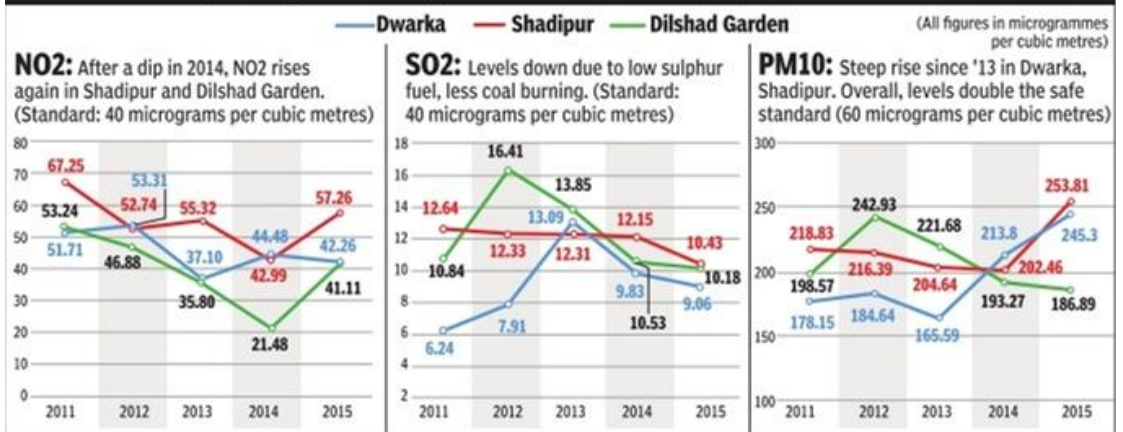
*The Times of India, Delhi dated  
February 25, 2016*

# Silver lining to pollution story

While particulate matter, perhaps the most hazardous, has risen, other pollutants have fallen in the last five years



CPCB has released comparative figures of different pollutants at three locations in the city



Central Pollution Control Board (CPCB) on Wednesday released air quality trends over five years for three locations in the capital. The report titled, Continuous Ambient Air Quality Monitoring (2011-15), suggests that levels of pollutants, such as nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), carbon monoxide (CO) and benzene, are coming down while particulate matter (PM<sub>10</sub>) is on the rise.

But the report projected a skewed picture as it did not release data for five

other stations that CPCB monitors. Experts said CPCB had only considered stations on the outskirts, which did not provide a true picture.

"The report shows that air quality is improving. Delhi is dusty, that's the problem," said a CPCB scientist.

According to Delhi Pollution Control Committee data, the PM<sub>10</sub> average for 2015 (six stations) was 228 microgrammes per cubic metres. Their data showed air quality had improved in 2015 compared to 2014. Overall, PM<sub>10</sub> levels are above

the national safe standard at all locations. Ozone, a hazardous pollutant, is on the rise in Shadipur and Dwarka.

"I am not sure why they have only selected locations on periphery of the city, but even these reflect the emerging concerns. They should be aggregating data and giving an integrated view," said Anumita Roychowdhury, head of Centre for Science and Environment's clean air campaign. She added that NO<sub>2</sub> levels in Dilshad Garden had doubled in 2015 from 2014, reflecting an increase in emissions.

*Edited by: Prof. Sushil Kumar  
Centre for Business Sustainability,  
IIM Lucknow*