



# Drumbeat: August 26, 2009

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#### The Future of Transportation by Shai Agassi

Projecting the future of energy, transportation, and environment. The time is now, and the change is already in motion. In the words of Lee Iacoca "It's time to lead, follow or get out of the way."

In 2005 the world entered the "post peak-oil" era, as predicted by many oil experts years before reaching this situation. The price of oil is dominated by two factors, new discoveries of oil fields and global demand for oil, falsely called production. As the R/P ratio (Reserves to Production) slides we begin to witness sharp price hikes in the futures market for oil immediately affecting the price of fuel at the pump. During the last 10 years, the price of oil shot up from \$10 a barrel to well above \$80 a barrel, with current predictions more certain of the price crossing \$100 a barrel than ever coming back to \$50.

The oil market is tightly intertwined with the car market, as both products complement one another to produce the "complete product" consumers desire - the freedom of personal commute. With this document we try to project the most probable set of changes in the energy markets and the transformational technologies that exist today and how they will come together to address this emerging oil shortage.

### Is there a peak oil problem?

I SUGGESTED yesterday that recent changes in oil prices may indicate that supply is increasingly tight, and that oil prices will therefore act as a check on economic growth for the near future. This isn't exactly an embrace of the "peak oil" world view, but it's similar in nature; I believe limits on supply growth will lead to rationing by price.

### Labor Day weekend could signal travel recovery

(CNN) -- The struggling travel industry may be seeing some light at the end of the tunnel.

More than 39 million Americans will be traveling on vacation -- at least 50 miles from home -- this Labor Day weekend, slightly more than the 37.1 million who traveled on

the Fourth of July weekend, according to AAA. July Fourth is typically the busiest automobile travel holiday of the year.

"That is good news for the travel industry," said AAA spokesman Geoff Sundstrom. "It means that the number of people traveling is gaining momentum as we close out the summer driving season."

### Exxon Loses Second Phase of New York Water-Well Trial

(Bloomberg) -- Exxon Mobil Corp. lost the second phase of a trial in which New York accused the company of poisoning the city's groundwater, with a jury ruling that a gas additive will be in water wells in 2033.

## Argentine Farmers to Halt Grain Sales After Tax Veto

(Bloomberg) -- Argentine farmers will halt some grain and beef sales starting this week after the government vetoed a law that would have provided tax breaks to Buenos Aires growers suffering through the worst drought in a century.

## The New Threat to Oil Supplies: Hackers

Earlier this year, a sullen, 28-year-old contractor in California was charged in federal court with sabotaging the computerized controls on oil-rig sitting off the coast, allegedly out of spite for not being hired full time. Prosecutors say the contractor hacked into a shore-to-rig communications network that, among other functions, detected oil leaks. He caused thousands of dollars worth of damage, they charge, though, fortunately, no leaks.

...The usual threat of a takeover of the massive oil platforms is in the form of seaborne raiders; Britain's Royal Marines commandos still regularly train for hostage rescue on rigs that dot the North Sea. But now, according to SINTEF scientist Martin Gilje Jaatun, with the advent of robot-controlled platforms, a cyberattacker with a PC anywhere in the world can attempt to seize control of a rig, or a cluster of rigs, by hacking into the "integrated operations" that link onshore computer networks to offshore ones. "The worst-case scenario, of course, is that a hacker will break in and take over control of the whole platform," Jaatun said. That hasn't happened yet, but computer viruses have caused personnel injuries and production losses on North Sea platforms, he noted.

### After 150 Years, Whither Oil?

Governments are concerned about the need for energy security and reliable supplies. The threat of climate change requires shifting away from fossil fuels that currently dominate the world's energy mix. And fears of "peak oil" — the notion that half the

world's reserves have been pumped and that global production is now on a slow path of decline — have gained followers as prices have soared.

How much longer will the "Oil Age" last?

### Valero Sees Aruba Refinery Staying Shut as Fuel Demand Slumps

(Bloomberg) -- Valero Energy Corp., the largest U.S. refiner, said its Aruba plant will probably remain idled as fuel demand slumps.

As the San Antonio-based company approaches the end of a three-month waiting period it planned to allow before deciding what to do next with the refinery, there's little incentive to reopen the plant, Chief Executive Officer Bill Klesse said yesterday in an interview.

The plant was shut down July 16 after operating at a loss during the second quarter. Valero put it in a so-called hot mothball state, meaning power was kept on so it could be restarted as soon as economic conditions allowed. Klesse said fuel markets have changed little since then.

### N.American natgas drill costs to rise-Schlumberger

HOUSTON (Reuters) - North American natural gas prices will remain low due to oversupply, but extraction costs will start to rise soon, Schlumberger Ltd's (SLB.N) president of oil field services for the region said on Wednesday.

"Gas prices are going to remain low," Bill Coates told the summer NAPE exploration and production forum in Houston. "The bad news is that costs are not going to remain low."

### As Farmland Grows, the Trees Fight Back

Farms vs. forests — that's the usual dynamic in tropical countries, where the growth of agriculture often comes at the expense of trees. In nations like Brazil and Indonesia — where deforestation is behind the vast majority of carbon emissions — rain forests are not just cut down for logging but also burned to make room for new farms and pastureland. As more people need more food — and biofuels as well — there's a risk that we could see many of our remaining virgin rain forests wiped out completely.

But a major new study indicates that farms and forests may not be as incompatible as we often assume. Using detailed satellite imagery, scientists from the World Agroforestry Centre (WAC) found that on almost half of all farmed landscapes around the world, landowners are either sparing some existing trees or planting new ones, leading to what the study calls "significant" tree cover. In fact, on more than 1 billion hectares (2.5 billion acres) of farmland, which is twice the size of the Amazon, tree cover exceeds 10%. That's a huge increase from previous estimates, which were as low as 50,000 hectares.

#### Is Yemen Chewing Itself to Death?

But the worst thing about khat may be that it is sucking Yemen dry.

The plant thrives in the high hill country outside Sana'a, where nearly every patch of irrigated land is covered in khat. Unlike coffee, which Yemenis claim was first cultivated here, khat is easy to grow and harvest. And though cultivating and dealing the leaf doesn't generate the kind of instant wealth associated with growing poppies in Afghanistan or coca in Colombia, it certainly provides a steadier income than growing vegetables does — that's why nearly all of the country's arable land is devoted to khat. And khat needs a lot of water, which is scarce in Yemen.

#### Averting a perfect storm of shortages

As the world's population grows, competition for food, water and energy will increase. Food prices will rise, more people will go hungry, and migrants will flee the worstaffected regions.

That's the simple idea at the heart of the warning from John Beddington, the UK government's chief scientific adviser, of a possible crisis in 2030.

Specifically, he points to research indicating that by 2030 "a whole series of events come together":

- The world's population will rise from 6bn to 8bn (33%)
- Demand for food will increase by 50%
- Demand for water will increase by 30%
- Demand for energy will increase by 50%

He foresees each problem combining to create a "perfect storm" in which the whole is bigger, and more serious, than the sum of its parts.

#### Distress cattle sale rampant in Jhabua

Extensive use of herbicides in this region has resulted in a steep decline in fodder cultivation alongside the main crop. This, coupled with a shift to non-fodder cash crops such as tomato and chilli, means there is nothing to feed the cattle with.

The only option is to sell them. And since most of them are largely malnourished, they

fetch less than encouraging prices in the market.

Also, the current crop trends in the region require the farmers to hire tractors and threshers, often forcing them to sell off their bulls and other cattle. This means they lose out on a crucial livestock product  $-\cos dung - which is used both as cooking fuel and organic manure.$ 

As a result, farmers have to grow cotton (especially MCH-1) in the lean January-February season as cotton stems serve as cooking fuel to make up for the shortage of cow dung. This has further resulted in an increased BT cotton cultivation in the area.

Also, a shift to chemical fertilizers becomes inevitable since there is no organic manure.

## Our Unfolding Destiny: Possibilities and Probabilities

In our last column (June 1-30, 2009) we stated that what is required for the achievement of a sustainable society is the replacement of the present exponential growth system with an economic and political order based upon both ecological imperatives and the requirements for intergenerational well being. In short, and as stated by Aurelio Peccei and the Executive of the Club of Rome in 1972 (1), we are compelled to seek a "state of equilibrium" with Nature on our planet. This goal will require nothing less than the construction of an entirely new paradigm, effectively a steady state economic and political system, for the continuance of the human enterprise.

### Erratic power supply hits petrol production

Kenya faces a looming shortage of petrol after severe power supply interruption hit production by the Mombasa-based refinery.

Oil firms on Tuesday said consumers will from Wednesday start feeling the impact of reduced output when many dispensing sites begin running out of petrol due to demand exceeding quantities marketers receive.

### Japan Close To Second Iraqi Oil Contract

HONG KONG -- A consortium led by Nippon Oil is very close to signing a deal with Iraqi authorities in what could be Japan's biggest oil project, providing about 10% of Japan's daily oil demand.

### The Better Bet in the Oil Patch

Two state-controlled petroleum giants confront very different challenges. One faces political pressure that could kill its cash flow; the other grapples with aging oil fields.

So which would you rather own, Petrobras or StatoilHydro?

#### CNOOC First-Half Profit Down 55% on Lower Prices

SHANGHAI (AP) -- CNOOC Ltd., China's third-largest oil and gas producer, said Wednesday its first-half profit sank 55 percent on sharply lower oil prices but it forecast better results as the economy recovers.

Profit fell to 12.4 billion yuan (\$1.8 billion), or 0.28 yuan per share, compared with 27.5 billion yuan in the first half of 2008, the Beijing-based company said. Revenue fell 42 percent from a year earlier to 40.65 billion yuan (\$6.95 billion).

CNOOC, the country's main offshore oil and gas producer, lacks major refining operations and so was directly hurt by the sharp drop in oil prices from a year earlier.

#### Enbridge faces U.S. challenge to pipeline permit

Calgary-based Enbridge Inc. faces new legal hurdles for its \$3.3-billion Alberta Clipper oil sands pipeline as U.S. environmental groups prepare to launch a legal challenge to the State Department's permit to proceed.

The groups, led by Oakland, Calif.-based Earthjustice and the Sierra Club, plan to launch a suit next week in federal court in California that will argue that the State Department failed to conduct a proper environmental review before issuing the permit last week.

#### Valero Shelves Acquisition Search After Losing Netherlands Deal

(Bloomberg) -- Valero Energy Corp., the largest U.S. refiner, said it's shelving a search for overseas plant acquisitions after its deal for a stake in a Netherlands refinery fell through.

#### NHC says tropical storm may form later Wednesday

NEW YORK (Reuters) - The U.S. National Hurricane Center said an area of disturbed weather centered about 470 miles east of Nassau in the Bahamas could become the season's latest tropical depression, or more likely, tropical storm, later Wednesday.

But forecast tracks so far show the system remaining to the east of the United States and away from Gulf Coast oil and gas production. WASHINGTON (Reuters) - The U.S. Energy Department will award \$300 million to a clean cities program to allow communities to buy alternative fuel vehicles, Vice President Joe Biden and Energy Secretary Steven Chu said on Wednesday.

#### Ten clunkers in the making

Though clunker sales are done — and there's no word yet on how many of those \$3,500 and \$4,500 rebates have been processed — the program has given an undeniable boost to some automakers. Toyota, General Motors and Ford Motor have benefited the most, receiving 18.9 percent, 17.6 percent and 15.4 percent, respectively, of total sales made under the program.

But owners of new, foreign cars might want to take a closer look; many of these cars carry the highest out-of-pocket costs of any models this year.

#### Crazy green-energy ideas that just might work

Fields of windmills spinning in the breeze and deserts covered with solar panels are familiar options for renewable energy. But they are far from the only technologies under consideration.

#### Taking a Dim View of Solar Energy

Not long ago, most homeowners saw their roofs as simply something to keep the rain out. Now they see them as a source of electricity. Despite the bad economy, or maybe because of it, the rooftop-solar industry is booming, as Americans become increasingly intrigued by the idea of turning their roofs into mini power plants and cutting their electric bills. In 2008, 33,500 rooftop solar systems were installed in the United States, a 63 percent increase over the amount of capacity installed in 2007. In California, the solar capital of country, the increase was 95 percent.

Meanwhile, the outlook for the other side of the solar industry—the large, centralized power plants—isn't so sunny. These megaprojects—think acres of desert landscape covered in thousands of solar panels sending electricity through transmission lines —controlled mostly by utility companies that have had a monopoly over the country's electricity grid since the turn of the last century, were supposed to be the key to the future of the solar industry. So far, they're getting vastly outpaced by the decentralized rooftop approach. According to the Interstate Renewable Energy Council's 2006-08 count, consumers added 522 megawatts to the grid; whereas utility generated sites added just 96 megawatts.

FRANKFURT (Reuters) - A pioneering German wind power plant's new high-tech equipment, to capture higher winds further offshore and for longer periods, is exciting the industry.

The Alpha Ventus wind park started this month and operates 45 km off the German-Dutch coast. Existing European wind parks operate only 20 km offshore at the most.

## Interview with Tom Whipple

I think I noted early on in The Oil Drum or another site when someone posed the question "what can we do about peak oil?" And someone wrote back, "*tell* people about it." Then I thought, "oh I know how to do *that*," so I immediately designed my own little peak oil newsletter. Soon afterwards I checked with 50 or 60 leading newspaper reporters and editors who were reading my Virginia News. I wrote that I was starting a new newsletter about peak oil and asked if any of them would be interested in reading this new publication that was free, just like the Virginia News. The response to that query was exactly zero. Not a single reporter or editor seemed to care about peak oil. Yet when I missed my first mail-out of the Virginia News a couple of weeks ago-for technical reasons-the reporters went absolutely berserk.

### Russia eyes \$2 trillion for energy sector by 2030

MOSCOW (Reuters) - Russia plans to invest up to 60 trillion roubles (\$1.9 trillion) in its energy sector by 2030 in a drive to boost stagnanting oil and gas output, two sources in the government said on Wednesday.

They said Asian markets would increase their share of Russia's energy export volumes to 25 percent by 2030 from only 6 percent today.

"Europe's share is set to decrease, although volumes will be rising," one of the sources said on condition of anonymity.

## Gasoline Demand Dips for First Time in 4 Weeks, MasterCard Says

(Bloomberg) -- Gasoline use slipped last week for the first time in four weeks as an unemployment rate above 9 percent and a hurricane that closed East Coast beaches reduced demand before the Sept. 7 Labor Day holiday, according to a MasterCard Inc. report.

Motorists bought an average 9.373 million barrels of gasoline a day in the week ended Aug. 21, MasterCard, the second-biggest credit-card company, said in its SpendingPulse report today. That's 2.2 percent less than a year earlier and 1 percent less than the

#### Read This If You Believe in Peak Oil ...

... and there's a chance you no longer will. In a trenchant Times Op-Ed, Michael Lynch explains, point-by-point, why the "peak oil" concept is so wrong.

Raymond J. Learsy - Peak Oil Agonistes: The *New York Times* Finally Comes Around to Where HuffPost Never Feared to Tread

This is a day of deep gloom for the McPeaksters, those preaching the gospel of "Peak Oil". The *New York Times*, otherwise deeply empathetic to oil patch pseudo science, this day burst one of the most entrenched of the oil patches' nuggets of disinformation, the theory of "Peak Oil".

Natural Gas Investment Outlook: Better than Oil

There is, however, one energy sector which is looking much better than oil at the moment. A sector growing much faster than wind and solar power. A sector which doesn't require any government legislation (ref: Cap-and-Trade) to make it economically viable. And one that has China, ExxonMobil, and other deep-pocketed energy heavyweights cutting multi-billion dollar checks every few months.

Natural gas may hit \$1 in Canada: report

Natural gas in Canada, already scraping along at prices below \$2, a low not seen since 2002, may fall below \$1 in the coming weeks, according to a report from FirstEnergy Capital. "The market is trying to rationalize all of the gas that is piling up and there are fewer and fewer places to put it. We expect that a \$1 handle on prices will start becoming more common in the next few weeks," said analyst Martin King.

#### Chevron A\$50 Billion Project Wins Australia Approval

(Bloomberg) -- Australia approved Chevron Corp.'s A\$50 billion (\$42 billion) liquefied natural gas venture on a remote island, adding stricter conditions to quell environmental concerns about the nation's biggest resources project.

The additional terms for the Gorgon project will enable it to proceed within a nature reserve "without unacceptable impacts," Environment Minister Peter Garrett said in Canberra today. Chevron has said the venture off the northwest shelf may produce its first LNG in 2014.

#### China secures gas from Burmese waters in \$5.6bn deal

China is to boost its economic ties to the Burmese military Government with a 5.6 billion (£3.4 billion) gas project in the Bay of Bengal, to be built by a South Korean and Indian consortium.

### Arrow Energy to Spend A\$300 Million Seeking Gas for LNG Plants

(Bloomberg) -- Arrow Energy Ltd., Royal Dutch Shell Plc's Australian partner in coalseam gas production, will spend A\$300 million (\$251 million) drilling wells to supply gas to two planned liquefied natural gas plants in Queensland.

The work is scheduled for the next 18 months, Chief Executive Nick Davies said. "With multiple LNG trains planned, reserve certification is key to success for us," he said on an earnings conference call today. Full-year net income jumped more almost 10-fold to A\$366.9 million after the sale of stakes in fields to Shell, Arrow said.

#### Govt not looking at hiking fuel prices - oil secy

NEW DELHI (Reuters) – The government is not considering raising retail fuel prices despite an uptrend in global crude oil prices, the oil secretary said on Wednesday.

"Global prices are not comfortable. But there is no proposal to revise the price," R.S. Pandey told reporters.

#### N.B. plan for self-sufficient energy hits snag

Cracks are starting to appear in New Brunswick's ambitious plan to escape Canada's have-not club as the province grapples with setbacks to a number of key energy projects - the most devastating blow coming with Irving Oil's recent decision to cancel a major refinery slated for Saint John.

The \$8-billion facility, an expansion on Irving's existing refinery in the region, would have formed the heart of an energy hub serving Canada and the northeastern United States. While some of the projects associated with that hub have come to fruition, others, such as the refinery itself, have languished.

The \$1.4-billion refurbishment of New Brunswick's Point Lepreau nuclear generating station, home to the first Candu 6 reactor in the world, was undertaken with the mantra "on time and on budget" as its driving force. But unforeseen delays and cost overruns have since plagued to the project - already half a year behind schedule - with ratepayers on the hook for replacement power costs.

#### Meeting regulations costly for gas stations

Charlie Thomas is worried that he may be forced to shut down his Satellite Beach, Fla., gas station in part because a state law requires all stations to install tanks to pump gas with at least 10% ethanol by year's end.

A combination of environmental rules, mandatory equipment replacement, the down economy, increased competition from big-box stores and rising credit-card fees is putting the squeeze on independent gas station owners such as Thomas. "I don't know what the future is going to bring me," says Thomas, who has owned and operated his gas station and repair shop for 20 years.

For about a month, Thomas had no gas to sell. His pumps sat idle, draped in yellow "crime scene" tape to keep customers away as he searched for a supplier who could sell him the non-ethanol gas his current tanks hold.

### Highway stimulus: Just a 'down payment'

NEW YORK (CNNMoney.com) -- The government promised \$27.5 billion in stimulus funds to help fix the nation's crumbling roads and bridges as part of a broader effort to save jobs. The effort is working...sort of.

Nearly three-quarters of the funding has gone to short-term, road paving projects rather than longer-term work like repairing bridges and building new highways. Furthermore, jobs that paving projects create or save last for a shorter duration than other types of road construction.

#### Power is shut off as bills pile up

More Americans are having their power shut off as the weak economy makes it harder to pay bills.

"We see record numbers of households becoming disconnected or in danger of disconnection," says Mark Bixby, energy director of Rockford, Ill. Five years ago, his office distributed federal funds annually to about 300 households that had their power cut off. Last year, it was 1,834 households, and the number is likely to go up this year, he says: "It's families that can't find work."

### Appliances get their own recycled clunkers programs

Cash for clunkers ended this week - for cars.

But old energy-hogging refrigerators and freezers qualify for recycling and cash from more than 60 utilities across the nation. And the federal government is making money available to states so consumers could get rebates of \$50 to \$200 for new, more energyefficient appliances later this year in a so-called "cash for appliances" program.

Combined, the appliance initiatives have a goal similar to the cash-for-clunker program for autos: They get less-efficient appliances off the nation's energy grid in favor of newer efficient ones.

## Officials: Energy companies want closed Ford plant

LANSING, Mich. – Two alternative energy companies want to buy a shuttered Ford Motor Co. factory in southeast Michigan and convert it into a renewable energy park that could employ at least 2,800 workers within five years, officials told The Associated Press.

## Islay to be entirely powered by tides

ScottishPower is planning a tidal energy project that will supply all the electricity for one of Scotland's most famous islands, the Guardian can reveal.

The company is close to signing a supply contract with Diageo, the drinks group, to provide electricity from the project to eight distilleries and maltings on Islay – including the makers of the renowned Laphroaig and Lagavulin whiskies.

The 10MW tidal project, one of the world's largest, will provide enough electricity for Islay's 3,500 inhabitants for 23 hours a day.

### China moves to address overcapacity in emerging sectors like wind power

BEIJING (Xinhua) -- China's State Council, or the Cabinet, warned Wednesday of overcapacity in emerging sectors such as wind power, and said the country would move to "guide" the development of sectors troubled by overcapacity and redundant projects.

Overcapacity has persisted in sectors of steel and cement, while redundant projects have also surfaced in emerging sectors of wind power and poly silicon, according to a statement issued afteran executive meeting of the State Council, which is presided by Premier Wen Jiabao.

### Prairie Chicken Mating Dance Threatens Texas Projects

(Bloomberg) -- Iberdrola SA and E.ON AG's turbine dreams for the windswept Texas

Panhandle may be stymied by the mating rituals of the lesser prairie chicken.

Wind-power developers such as E.ON are scouring sagebrush and grasslands for the presence of ground-dwelling chickens that could impede turbine construction plans. Once plentiful in the southern high plains, the bird has a high priority for listing under the Endangered Species Act, which would put at risk where as much as \$11 billion in turbines that are part of the U.S.'s renewable-energy push can be built.

## China Plastic Bag Ban Cuts 3 Million Tons of Oil Consumption

(Bloomberg) -- China, the world's second-biggest energy consumer, may save as much as 3 million metric tons of oil a year by banning retailers from providing free plastic bags to shoppers, said the nation's top economic planning agency.

The ban, which was instituted in June last year, has reduced plastic bag consumption at supermarkets by two-thirds, the National Development and Reform Commission said on its Web site today. China's annual carbon emissions may be cut by as much as 9.6 million tons as a result, the agency said.

## Lead scares highlight China's environmental dilemma

BEIJING (AFP) – A pair of lead poisoning scandals affecting at least 2,000 children in China are just the latest in a seemingly endless string of pollution scares exposing the dark side of the nation's economic boom.

China's growth rates have long been envied around the globe, but its three-decade industrial expansion also has turned it into one of the world's most toxic countries.

### Kenya's rural drought hurts city dwellers

NAIROBI, Kenya – Crops have shriveled, hundreds of cattle are dead and the World Food Program said Tuesday that 3.8 million Kenyans need emergency food aid because of a prolonged drought, which is even causing electrical blackouts in the capital because there's not enough water for hydroelectric plants.

With rivers thinning to a trickle and mountaintop glaciers shrinking, authorities this month began rationing power in the capital, darkening homes and businesses at least three days a week. In Nairobi's posh, leafy neighborhoods, light bulbs flicker as generators rumble to life. Gym treadmills in luxury hotels jolt to a halt.

The slums, where roughly half the capital's 4 million residents live, are being hit the worst. Taps have run dry and residents often wait for days for trucks to deliver expensive potable water.

#### An Energy Plan We Can Start Now

A progressive, pragmatic energy plan would focus on taking the first steps toward national energy sustainability. It would start with technologies that are ready for large-scale deployment but are concentrated on regions where they can be demonstrated and deployed at scale to their best advantage. Consider what could happen if we focused on these five goals:

Udall, McCain: Nuclear power must be part of solution to global warming

ESTES PARK — Bipartisan political leaders strolled through Rocky Mountain National Park this morning studying beetle-kill trees and changing vegetation patterns — and agreed that nuclear power must be part of any comprehensive climate-change legislation.

### Yulong Snow Mountain's glaciers melting at unprecedented rate

The Yulong Snow Mountain is a famous scenic spot in China. The snow-capped mountain had 13 peaks along the range, 35 kilometres in width, including 19 glaciers. The looming crisis has been highlighted by the dramatic shrinkage of the Yulong Snow Mountain glacier. Over the past two decades, its main component, the Baishui No. 1 Glacier, has receded 250 meters.

#### <u>Computing climate change</u>: *How much carbon dioxide do computers emit?*

AVIATION has long been blamed for its share of anthropogenic global warming. Indeed, some travellers now ask themselves whether their flight is strictly necessary and, if they decide it is, salve their consciences by paying for the planting of trees. These, so they hope, will absorb the equivalent of their sinful emissions. But you, dear reader, are indulging right now in activity that is equally as polluting as air travel: using a computer.

According to a report published by the Climate Group, a think-tank based in London, computers, printers, mobile phones and the widgets that accompany them account for the emission of 830m tonnes of carbon dioxide around the world in 2007. That is about 2% of the estimated total of emissions from human activity. And that is the same as the aviation industry's contribution. According to the report, about a quarter of the emissions in question are generated by the manufacture of computers and so forth. The rest come from their use.

India Urges Rich Countries to Call Its Climate Change 'Bluff'

(Bloomberg) -- India's environment minister urged the world's developed countries to call his nation's 'bluff' and sign on to steeper cuts in greenhouse-gas emissions.

India and China would have to "respond very positively" if rich nations such as the U.S. agreed to a goal of cutting emissions 40 percent from 1990 levels by 2020, Jairam Ramesh said in an interview yesterday in Beijing, where he met with Xie Zhenhua, China's top climate-change negotiator.

## India crusader plans Green party

One of India's leading environmental crusaders is planning to launch the country's first Green party.

After his success in forcing old and polluting vehicles off the streets of the eastern city of Calcutta, Subhas Dutta says the time has come to set up a political party to protect the country's environment.

## Chamber Threatens Lawsuit if EPA Rejects Climate Science 'Trial'

The nation's largest business group is asking U.S. EPA to hold a public debate on climate change science -- or face litigation -- as the agency prepares to regulate greenhouse gas emissions under the Clean Air Act.

### Steamy heat more common in California: study

LOS ANGELES (Reuters) – Bouts of extreme muggy heat lasting for days, once rare in California, are becoming more frequent and intense due to ocean patterns altered by climate change, scientists said in a study released on Tuesday.

Research meteorologists at the University of California's Scripps Institution of Oceanography reached the conclusion after examining a severe 2006 summer heat wave that was blamed for the deaths of 600 people and 25,000 cattle in California.

That heat wave, like others before it, combined high humidity and heat, keeping temperatures elevated at night, rather than allowing for nighttime cooling that normally occurs in the dry conditions more typical for California.

### World nears 'tipping point' on climate change, minister warns

Forest fires, flooding and the mountain pine beetle epidemic are clear examples in B.C. that climate change is real and needs to be addressed by governments around the world, B.C. Forests Minister Pat Bell told an International Energy Agency conference on

bioenergy on Monday.

"I am not a doomsayer, I am not one who wants to say we are beyond the tipping point. But I am afraid that we are getting close to that," Bell told 200 of the world's leading experts on bioenergy attending the conference at the University of B.C. Delegates are addressing the latest advances in biofuels.

#### History can no longer guide farmers, investors: U.N.

GENEVA (Reuters) - Climate change has made history an inaccurate guide for farmers as well as energy investors who must rely on probabilities and scenarios to make decisions, the head of a United Nations agency said on Wednesday.

Michel Jarraud, director-general of the World Meteorological Organization, said that water and temperature projections have become more valuable than the historical weather data that long governed strategy in agriculture, hydro-electric power, solar technology and other fields.

"The past is no longer a good indicator of the future," the WMO chief told a press briefing, describing climate modeling and prediction as key to fisheries, forestry, transport and tourism, as well as efforts to fight diseases such as malaria.

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