

India needs a Renewable Energy Revolution to Command Global Leadership

With governments all over the world bending backward to resuscitate the economy and generate employment there was never a better time to invest in renewable energy. Amidst worldwide slowdown, both Barack Obama and Gordon Brown recognise the growing need to boost employment. Environment offers the greatest opportunity to do this, and revive the economy in the process. There is a huge potential for generating wealth and employment by greening the economy. The pursuit of green energy is going to unleash the biggest innovation in the history of business.

The future of humanity lies in harnessing solar energy; 1% of sunlight received by the earth can meet humanity's demand for power for another 20 years. Biofuels, such as agricultural waste, is another area of importance. 600 million tonnes of agricultural waste in India can produce cellulosic ethanol equivalent to 80,000 mega watts of power, which is 60% of India's installed capacity and create 30 million new jobs.

The impact of energy crisis is going to be far more pronounced than credit crisis. Can a portion of the hundreds of billion dollars of government bailout of banks be used to plough into clean and renewable energy? Recognition by markets and policymakers that the only way to achieve sustainability is to speed up innovations and investments in R&D for cleaner fuels and especially solar technology. This will fuel the capital markets and pay itself many times over by creating a world which is not only prosperous but much more equitable, greener, cleaner and sustainable.

Rather than giving huge bailouts to banks and platinum parachutes to those who wrecked the economy, let us spend tax payer's hard earned money on regenerating the planet and creating jobs for our people. The New Apollo Program is a comprehensive economic investment strategy developed by the Apollo Alliance to build America 's 21st century clean energy economy and dramatically cut energy bills for families and businesses. It estimates that the investment of \$500 billion over the next 3 years can create more than 5 million high quality green-collar jobs in US.

Let us scale that up for the world. A massive green economic stimulus package like this could even pay for itself in more ways than can be imagined. Human race would need huge amount of energy in decades to come. Oil is incapable of meeting that demand. It can cut down our dependence on fossil fuel. 1% of solar radiation can meet world's entire energy needs right upto 2020. As Thomas Friedman says, "We don't just need a bailout. We need a buildup."

A report released by the U.S. Conference of Mayors says that we can create over 4 million green jobs if we aggressively shift away from traditional fossil fuels toward alternative energy and a significant improvement in energy effort. Another report just released by the Political Economy Research Institute and the Center for American Progress shows that the U.S. can create two million jobs over two years by investing \$100 billion in a green economic recovery plan. The report also shows that this investment would create four times more jobs than spending the same amount of money within the oil industry.

Green For All, an environmental outfit in US together with its partners are proposing a Clean Energy Corps that includes a revolving loan fund to finance the ambitious retrofitting of the nation's building stock. An

investment of less than \$3 billion per year would provide financing and can be expected to create close to 120,000 green jobs a year and 600,000 over five years, while also lowering home heating and electricity bills for homeowners and small businesses.

According to a Greenpeace International Report published recently, India's 35 percent electricity demand can be met from renewable energy by 2030 and 50 percent of the projected energy requirements can be met simply from smart and efficient generation, distribution and use of energy. The report calls for political will to back solutions for India's energy that is secure, technically feasible and sustainable in a climate challenged world.

The report shows how ambitions of economic growth and development can be met while curbing India's carbon emissions.

"Unlike other energy scenarios that promote energy futures at the cost of the climate, our energy revolution scenario shows how to save money and maintain global economic development without fuelling catastrophic climate change. All we need to kick start this plan is bold energy policy from India's leaders" said Sven Teske, Greenpeace International's Renewable Energy Expert and lead-author of the report. "There is a huge opportunity in going green now given the fact that India is still developing its energy infrastructure and has the human and intellectual capital to be world leaders on this front," he added.

Providing a global perspective, Oliver Schafer, Policy Director-EREC (European Renewable Energy Council) said: "The global market for renewable energy can grow at double digit rates until 2050, and overtake the size of today's fossil fuel industry. Currently, the renewable energy market is worth 70 billion dollars and doubling in size every three years. Because of economy of scales, renewable energies such as wind power at good sites are already competitive with conventional power. From around 2015 onwards, Schafer said that renewable energies across all sectors will be the most cost effective energy capacities.

"The renewable industry is ready and able to deliver the needed capacity to make the energy revolution a reality. There is no technical impediment but a political barrier to rebuild the global energy sector" he added.

Srinivas Krishnaswamy, Political and Business Advisor, Greenpeace India said: "In the context of today's economic instability, investing in renewable energy technologies is a 'win-win' scenario: A win for energy security, a win for the economy and a win for the climate."

Renewable energy sources have the potential to produce electricity without any further fuel costs beyond 2030, creating an enormous number of jobs and helping lift the whole world out of recession, he said. It can also provide immediate and reliable energy for the 600 million plus Indians who have no access to electricity today, he added.

U.S. Sen. Bernie Sanders (I-VT), Greenpeace, the European Renewable Energy Council (EREC), and Dr. Joseph Romm of the Center for American Progress today released a report commissioned from the German Aerospace Center (the German equivalent of NASA) that shows how the United States can meet the energy needs of a growing economy and achieve science-based cuts in global warming pollution – without nuclear power or coal. The report, entitled "Energy [R]evolution," is co-authored by Greenpeace and EREC and includes a foreword by Dr. R.K. Pachauri, chairman of the Nobel Prize-winning Intergovernmental Panel on Climate Change (IPCC).

The report finds that off-the-shelf clean energy technology can cut U.S. carbon dioxide emissions from fossil fuels by at least 23 percent from current levels by 2020 and 85 percent by 2050 (equal to a 12 percent cut by 2020 and an 83 percent cut by 2050 from 1990 levels) – at half the cost and double the job-creation of what it would take to meet U.S. energy needs with dirty energy sources.

Throughout, the study makes conservative assumptions to ensure the real-world viability of the scenario. The report assumes that only currently available technologies will be used and no appliances or power

plants will be retired prematurely, and adopts the same projections for population and economic growth included in the International Energy Agency's World Energy Outlook.

"Every day that we don't deal with the crisis of global warming, it's only going to get worse, it's only going to get more costly, there's only going to be more damage to our environment," Sanders said. "This report shows that we can address climate change while improving our economy. The time is now to move forward aggressively on energy efficiency and creating new sustainable energy and millions of good-paying jobs in the process."

Based on the IPCC's findings, developed countries as a group must reduce emissions by at least 25-40 percent below 1990 levels by 2020 to minimize the risk of the worst impacts of global warming. In addition to the domestic emissions reductions in the energy sector, the Energy [R]evolution provides guidance on how the United States can achieve the IPCC's targets by financing clean technology in the developing world.

The domestic reduction goals set by the United States will have profound impacts on the commitments other countries are willing to undertake and on the prospects for a strong agreement at the Copenhagen Climate Summit in December. President Obama's goals for near-term emission reductions fall short of what the science shows is needed and what the Energy [R]evolution scenario demonstrates is achievable, putting U.S. promises of international leadership on climate at risk.

"What this report shows is that doing what science says is necessary won't just provide the planet a living future, it actually will create far more jobs and save far more money than business as usual," said Greenpeace Global Warming Campaign Director Steven Biel. "And it will do it without exposing us to the unnecessary risks and pointless boondoggles that would come with any further investments in nuclear or coal."

The blueprint details the specific technologies and timetables necessary to achieve these goals, such as:

- By using the most energy efficient technologies, total primary energy demand will decline by 24 percent by 2050, while under the reference scenario demand will increase by 40 percent.
- Renewable energy will grow from just 8.9 percent of U.S. electricity generation in 2005 to 95.2 percent in 2050.
- Electricity from nuclear, coal, and oil will be completely phased out by 2050.
- The savings in fuel costs under the clean energy scenario is nearly double the additional up-front investment needed to end our reliance on fossil fuels.

The blueprint also details a mechanism for achieving the deep emission reductions called for by the IPCC by supporting rapid renewable energy uptake in developing countries.

"Not only is the Energy [R]evolution blueprint essential, it's also realistic," said Romm, the Editor-in-Chief of the Climate Progress blog and a former Assistant Secretary of Energy in the Clinton administration.

"In the best of worlds, we could go even further, but this report provides an invaluable baseline."

To implement the Energy [R]evolution scenario, Greenpeace supports a strong cap on global warming pollution, an end to all fossil fuel and nuclear subsidies, mandatory efficiency standards for vehicles, buildings and appliances, binding targets for renewable energy generation and strong financial support for clean energy in developing countries.

"Unlike other energy scenarios that sacrifice the climate, our Energy [R]evolution scenario shows how to save money and maintain global economic development without fueling catastrophic climate change," said Sven Teske, Greenpeace International's senior energy expert and co-author of the report. "All we need to kick start this plan is bold energy policy from world leaders."

Because renewable energy has no fuel costs, the total fuel cost savings in the Energy [R]evolution Scenario reach a total of \$18.7 trillion, or \$ 750 billion per year. A comparison between the extra fuel costs associated

with the Reference Scenario and the extra investment costs of the Energy [R]evolution version shows that the average annual additional fuel costs are about five times higher than the additional investment requirements of the alternative scenario. In fact, the additional costs for coal fuel from today until the year 2030 are as high as \$ 15.9 trillion: this would cover the entire investment in renewable and cogeneration capacity required to implement the Energy [R]evolution Scenario. These renewable energy sources will produce electricity without any further fuel costs beyond 2030, while the costs for coal and gas will continue to be a burden on national economies.

Greenpeace's 'Energy Revolution' scenarios show how making additional investments in renewable energy would pay back handsomely. A global annual investment of US \$22 billion in clean power plants could produce fuel cost savings of up to \$202 billion per year, paying back the investment 10 times over. The value of the renewables industry - worth \$50 billion in 2006 - could increase to \$288 billion annually by 2030. Meanwhile, converting the massive subsidies of \$250 billion a year that coal and gas receive to clean, safe renewable energy would more than cover the costs of achieving the energy revolution.

Energy scenario for India shows that large-scale investments in energy efficiency measures could limit the increase in energy demand to just one-third above the current level by 2050, rather than see it triple, according to conventional wisdom. By mid-century, 60 per cent of India's electricity could be produced from renewable sources keeping India's CO2 emissions at the level of 2010 levels, instead of trebling as they do under the IEA projections.

Instead of simply countering the protectionist lobbies in the west, India should adopt an aggressive posture and adopt a leadership role in demanding technology and finance from developed world to fully harness its green energy capacity and reduce its carbon emissions well below the requirement of Kyoto protocol . India should use Doha round to seek commitments for financial and technological assistance because that will not only help in fighting climate change but help in alleviating rural poverty, creating an inclusive society and bridge regional disparities. Effective governance of climate security not only will make India achieve its social, economic and environment goals it also holds the key to India's leadership of the world polity.

***Dr Madhav Mehra is founder President of World Council for Corporate Governance, UK**