Leadership through Breakthrough Sustainable Energy Initiatives

Energy is the lifeblood of emerging economies like India, much more so than developed economies. If India manages to find a way to massively scale Sustainable Energy Initiatives (SEI) that harnesses its rich resources to transition to clean, economical & self – reliant energy, India will emerge as one of the global leaders for this century. On the other hand, energy can also become an addictive drug that not only pose exponentially escalating energy security risks but also lead to devastating environmental impacts that may become irreversible. History has shown us time and time again that breakthrough transitions occur only if we dare to shed our conventional thinking. Conventional thinking points out that India's lack of energy infrastructure poses a gigantic problem, and to many, it may almost seem insurmountable. However, the very lack of traditional energy infrastructure may give India an unfair advantage over other major economies to break away from the mold and create a new path to clean, economical & self – reliant energy. After all, India did just that with the cell phone revolution. The stakes are exponentially higher & urgent for energy transition; our very next generation's future depends on it.

All major institutions such as EIA, IEA, TERI agree on one thing energy growth in the future will be coming from emerging economies. While OECD countries are projected to grow from 241 Qbtu (254EJ) in 2005 to 279 Qbtu (294EJ) by 2030, non OECD countries, led by China, will grow from 221 Qbtu to 400 Qbtu during the same period. China's energy growth exploded in the last ten years (1999 – 2008). China grew by 127% as they became the Mecca for manufacturing operations when China adopted a controlled capitalist model and introduced its people to consumerism. In 2007 alone, China installed an unprecedented 104GW of power plants, almost all of them coal fired. India's energy consumption growth by comparison has been relatively flat until now. India will install about 35 – 40GW of new power plants compared to about 400GW for China during the 11th plan time frame.

While EIA, IEA and TERI have modeled several scenarios, all projections essentially show the world will continue to depend primarily on fossil fuels for the next twenty years. This scenario cannot be sustained and will lead to a "burnout scenario" in the best case and an unprecedented "collapse" in the worst case, brought on by either exponentially escalating confrontations to try and secure dwindling fossil fuels like oil and / or astronomical costs of adapting to environmental impacts caused by GHG (Green House Gases). Procrastinating on mitigation that needs significant funds upfront will lead to even costlier & futile adaptation exercise. Viewing the unfolding energy saga in a time – warp makes it unnervingly vivid.

For a world that is obsessed with instant gratification and making a quick buck, it is hard to look beyond a few years ahead, but the fact is civilization existed long before 0 AD, the start of time – warp. There is absolutely no question that without the fossil energy provided by oil, coal and natural gas, the world would not have experienced the phenomenal economic progress it has made in the last 150 years or so. However, the exponential consumption of fossil based energy has created two major issues.

First of all most scientists and world leaders believe that man made emissions in the form of green house gases will lead to irreversible climate change and life changing global impact. While many believe that we may have already crossed the threshold when CO2 levels crossed 350ppm a few years ago, there is still considerable debate what the threshold levels are and how soon the climate will deteriorate enough to cause grave turmoil globally.

Secondly, the BAU models and even the alternative scenario models that consider traditional framework and boundaries will exhaust our fossil fuel reserves within the next few generations. Unless energy usage is curbed dramatically or we transition to new energy sources, conventional oil will get exhausted in less than 40 – 60 years and even relatively more abundant gas and coal will get

exhausted in about 200 years. If we view these phenomena under the 4,000 year time – warp map as shown, the fossil fuel era looks life a blip. Given that the most disruptive transition to new energy sources will take at least 50 – 60 years, if we do not start the massive transition proves now, our very next generation will face a chasm that may make the great economic depression of the early 1900 look like a walk in the park. In fact, there are a growing number of people similar to Rob Hopkin's transition group who believe that the world will not be able to transition to a new source of energy and they are preparing their communities to live in an energy deprived environment. We believe that nations that promote and accelerate disruptive Sustainable Energy Initiatives (SEI) will be able to avoid the "Chasm". Reversing climate change will require key economies of the world to join forces to transition rapidly to SEI.

The point being made here is even if climate change were not to happen and we figure out ways to extract significantly more fossil based energy by tapping all the nonconventional reserve like Tar – Sands and Shale – Gas, we will have to have completed a significant transition to a sustainable source of energy by 2050 – 2070 time frame. The ability to extract more than twice the amount of energy without serious environmental ramifications has less than a 5% confidence level. Renowned Scientists like James Lovelock are projecting that the world can only sustain 500 million people in the future under these scenarios, a serious reduction from the 10 billion people the world will have by 2050. The bottom line is if we fail to massively scale SEI, life as we know now will completely change for our future generations.

There are ongoing raging debates, bordering on being futilistic, among developed and developing countries, The Copenhagen Climate Change Conference being the most recent, on how to agree on a equitable framework and share the burden of this energy transition saga because the perception is clean SEI (Sustainable Energy Initiatives) is added cost to business and countries. But what if clean sustainable energy becomes the more economical energy source through break through innovations and massive scaling? History has shown repetitively that high costs of early implementations are dramatically reduced through relentless innovation and massive scaling. Breakthrough technologies and massive scaling invariably reach a tipping point for large scale adoption.

The next fundamental question we need to ask ourselves is if we transition to clean sustainable energy, do we need to reduce our energy consumption, or can we find infinite ways to make use of cleans sustainable energy that may be abundantly available in the future? While it is imperative that we find more efficient & effective ways to use energy to bring down the cost, we are asking energy companies to produce and sell less energy and energy related products & services, which is counterintuitive to the current private investor owned economic model. There are two key lessons we should have learned from the information technology & telecommunications based business model: 1) convergence of disparate industries exemplified by the landline based telecommunications companies not only faced competition from cell phones that needed relatively minimal infrastructure, but also from the internet, cable and satellite TV based companies & now social networking 2) With the advent of emerging technologies, the cost for communications on per minute basis dramatically reduced and yet the total expenses for communications increased significantly for organizations as well as for families. Similarly, convergence of clean SEI (Sustainable Energy Initiatives) will open doors for new opportunities to use energy in ways we have not even begun to imagine.

(excerpted from article by:- (probir ghosh) probir.ghosh@invVEST.org.)