

# One Hundred Million Solar Homes

## By Damian Miller

President Obama is sewing the seeds of an energy revolution in America. He has declared renewable energy a strategic priority, at once helping to tackle climate change, energy security, wealth creation and jobs. That he sticks to his guns despite economic turmoil is a testament to his resolution and the power of the vision.

In the economic stimulus package recently passed by Congress, roughly \$80 million was allocated for renewable energy and energy efficiency, and supportive tax provisions were written into law. By taking this step, and more meaningfully tapping into solar, wind, hydro, geothermal, and biomass technologies, the US can start to walk away from fossil fuels. For too long, coal, oil and gas interests said it couldn't be done. But with a President who dares to dream ('yes we can'), it is not inconceivable that America could displace fossil fuels within a generation.

Beyond being good for America, there is an international dimension to this story. Europe and Japan already lead on renewables. Coupled with US leadership, this sends a strong message to the world - especially to the emerging market economies - that renewable energy is the technology of the future, and fossil fuels the stuff of old.

There is no solution to climate change without emerging markets. For example, India must grow its installed electricity base nearly six-fold in 20 years to meet the future needs and aspirations of 1.4 billion people. Without a credible, alternative energy road map to high growth it is hard for emerging markets like India to sign on to a meaningful climate deal. Key to the Montreal Protocol, the global agreement on the ozone layer, was knowing that technological alternatives existed to CFCs. The same applies in spades when it comes to abandoning a fossil-fuelled future.

But leadership by President Obama 'at home' will not be enough without new international institutional mechanisms, and new funds. Emerging market conditions are different—characterized by lower purchasing power, weaker finance channels, weaker infrastructure, and more opaque regulation and bureaucracy. Ironically, these conditions often enable renewable energy to gain a foothold as a replacement for failing infrastructure. But to displace fossil fuels in this context in just two to three decades is an unprecedented energy challenge that needs a commensurate response.

Take the case of solar photovoltaic technology for electricity. It's a sexy technology that already powers about 1% of Germany's electricity needs, and is increasingly popular in the US. But years before suburban homes in industrialized countries were integrating it into their architectural plans, much smaller, less affluent homes and enterprises in rural areas of emerging markets were relying on solar as their only source of real electricity.

Today an estimated 1.6 billion people live without electricity from a national grid. Most of these in South and South East Asia, and Africa. Without the grid, they don't just give up and live in darkness. They seek out alternatives. Typically, people use kerosene for lighting and charge a battery at the nearest grid point for radio or TV. The wealthier have their own diesel generator set.

But fossil-fuel alternatives are sub-optimal. It is so easy for a young child to accidentally knock-over a kerosene lantern, and burn down an already poor home. Not to mention the day to day frustration of living with dull, dark, and smelly light. By contrast, a 50 watt solar panel on the roof typically provides for 4-5 energy efficient lights, and a modicum of entertainment through a radio or small television. It provides electricity at the flip of a switch, and saves money on the recurring costs of fuel.

And here, the story segues back to President Obama. Kenya was one of the first countries to show that rural unelectrified homes would buy solar on a commercial basis. By the end of the 90s, between 15-25,000 solar systems were being sold each year. Today there are more than 200,000 solar homes.

And Kenya is not alone. Over the last 10 years, solar has boomed in countries like Sri Lanka, where roughly 150,000 solar homes now serve the needs of close to 10% of the unelectrified population. Similarly, over the same time frame 250,000 solar homes were connected in Bangladesh, and more than 500,000 in China.

How this happens is simple. One home buys a solar system, neighbours see bright lights at night, hear the muffled sound of the radio, television, and laughter, and decide to buy. Soon enough, you find villages where every home has become a solar home. The trick is igniting this process.

To do this, you need enterprises on the customer's doorstep, offering a solar product with after-sales service, and you need solar loans. Buying solar means buying 20 years of power on day one, so a loan helps to spread the costs and make it affordable. In turn, the keys to incentivising solar sales and solar loans are relatively small grants to suppliers, and lines of credit to micro-finance and rural banks.

This has been shown to work. The challenge now is how replicate at a much, much larger scale. Nearly a decade ago, in 2001, the G8's final communiqué in Genoa called for 300 million unserved people in emerging markets to be connected to renewables by 2010. This target will be missed by a long way. Why? Mainly because international institutions, like the World Bank, did not sufficiently embrace and organize around the vision of its largest block of shareholders.

The World Bank is an institution with incredible potential to help emerging markets accelerate a renewable energy future. Indeed, the Bank was quietly behind the solar success stories in Sri Lanka, China, and Bangladesh, and is on its way to connecting roughly 1 million homes by 2010. It has trained, talented staff extending into virtually all emerging markets. It has the funds – both loans and grants – to drive renewable energy projects, programs, and technologies. And it has the clout and the convening power to get things done. But fundamentally, it is an institution paralyzed by economic conservatism, without a defining mission relevant to the challenges of climate change (and the environment), and without the organizational clarity to deliver on it.

Again, the case of solar is instructive. Knowing what works, the World Bank should now set a goal of 100 million solar homes by 2025, and establish a dedicated fund to reach it. This would be in line with the G8 targets, albeit 15 years behind schedule. Such a fund would have a line of credit for solar loans, grants to incentivise solar supply in remote corners of the world, a specialist team for retained learning, and a clear governing framework to assess results against targets and adapt to changing circumstance. One can imagine similar dedicated business units and funds set up to help emerging markets reach 100,000 MW of installed wind power by 2025 or 100 million clean-burning biomass stoves and digesters for cooking within a similar time frame.

But today the World Bank does not work like this. It does not set challenging targets for the deployment of renewable energy and energy efficiency technologies, nor does it organise itself around meeting such targets. It is not a mission-driven organisation, sufficiently focussed on selling the benefits of renewable energy innovation, and bringing a package of technical, policy and financial support to close the deal.

Moreover, it does not set clear boundaries in line with our times. The World Bank announces proudly that 25% of its energy lending is for renewables and energy efficiency. But this is not enough. The time has come for 100% of the Bank's energy lending to shift to these technologies. Projects like the 4,000 MW coal-fired power station in India, recently financed by the IFC (the Bank's private arm), should be off the table. As should the carbon credits that this project (remarkably) generates. Emerging markets are of course free to build coal-fired power plants, but the World Bank adds little value in helping replicate convention.

Climate change cannot be solved without emerging markets. And key to their active participation in a global climate regime is helping them step into a new energy paradigm. Here, the World Bank, can play a transformational role. But only if it develops a new mission, a new approach, and a new resolve. Naturally, emerging market governments will not agree with all aspects of a new proactive stance on energy and climate change. But a process of change needs an instigator of debate and a catalyst for action. The World Bank is well positioned to serve these critical functions.

A fund for 100 million solar homes will not of itself solve climate change. But it would be one of the clearest signs to many in emerging markets that hope for them is also on the way - building a burgeoning solar infrastructure, providing light and basic electricity to up to half a billion people, and creating millions of trained, skilled jobs in parts of the world where it is needed most. Moreover, it would serve as an example of the direction international institutions, like the World Bank, need to take in the 21st century to effectively integrate and tackle environmental challenges on which our collective well-being depends.

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