

A renewable future for Mankind

Challenges and Prospects

Dr. Farooq Abdullah
Minister
New and Renewable Energy,
INDIA

Speech delivered at the 5th *Asia Clean Energy Forum* of the
Asian Development Bank

23rd June 2010

Ladies and Gentlemen,

It is a matter of immense pleasure and great privilege to have been invited to speak at this seminar on Clean Energy in Asia on the occasion of the 5th Asia Clean Energy Forum. The timing of the conference is most appropriate. The clean energy sector is coming into increasing focus in the context of climate change and energy security concerns. I congratulate the Asian Development Bank and the supporting sponsors for their appreciable effort. I would like to thank the organizers for inviting me to this important event.

I come from a country that is perceived as developing but developing at a pace that is not matched by many others. There is significant appreciation of our economic growth. But the fact remains that the growth is constrained by energy supply and availability. When the growth rate was lower in the early decades of independence, the energy problem was seen as benign with only short term inefficiency and supply constraints. But the increasing appetite for energy that has developed in the recent past has been further complicated by rapidly diminishing conventional sources like oil and coal. There are questions about pursuing a hydrocarbon based growth especially in the context of serious environmental concerns. While striving to bridge our energy deficit, we want to increase the share of clean, sustainable, new and renewable energy sources.

Whether or not renewable energy completely replaces fossil fuel, we are determined to develop renewable energy.

India today stands among the top five countries of the world in terms of renewable energy capacity. We have an installed base of over 15 GW, which is around 9 per cent of India's total power generation capacity and contributes over 3 per cent in the electricity mix. In the Indian context, while renewable energy is important from the twin perspectives of energy security and environmental sustainability, its greatest plus lies in its decentralized character. In its distributed, decentralized form, it is the most appropriate, scalable and optimal solution for providing power to thousands of remote and hilly villages and hamlets. Even today, millions of decentralized energy systems, solar lighting systems, irrigation pumps, aero-generators, biogas plants, solar cookers, biomass gasifiers, improved cook stoves are being used in the remotest, inaccessible corners of the country. By providing energy access to the most disadvantaged and remote communities, it is the biggest driver of inclusive growth.

In my travels across the vast expanse of India, I have seen for myself how small standalone off-grid or distributed systems can make a vast difference to millions of poor people. In the remote villages of Gurez in my own state of Jammu and Kashmir, right on the border, I have seen for myself, have seen how a basic home-lighting system can change the life of people. On a recent visit to Uttarakhand, I was told by the Chief Minister, how a solar lantern in the hilly and border villages provides the basic energy access to the otherwise energy-deprived people. Merely by distributing solar lanterns in remote areas and to nomadic populations, we can light up over a million homes. Similarly 1 million street lights can illuminate streets in over one lakh villages. Further, all these efforts will throw up thousands of possibilities of job creation and self-employment right at the local and village levels.

We are experimenting with numerous new applications of decentralized energy through renewable sources. My Ministry has recently sanctioned a project

to Rajasthan to provide solar power to every single local self body in the State by installing 1.12 kW capacity solar systems at each of 9,168 *panchayat* centres. These systems will help provide reliable power to run computers, televisions and provide connectivity to otherwise far-flung and poor areas. In another project in the state of Madhya Pradesh, we are using solar power to light up remote hamlets in thickly forested areas. We are trying to bring about a convergence in conservation, education and rural development efforts. In rural Bihar, we have a project for generation of electricity by use of locally available rice-husk. In Nammakal in Tamil Nadu, electricity is generated by use of locally available and otherwise wasted poultry refuse. Each of these endeavours are efforts at energy access for the poorest and the remotest. Our government believes that this alone is the strongest motivation for an increased push for renewable energy. In this context, I am happy to note that the ADB's 2009 policy also lends its support to use of renewable energy in providing universal access to energy. I call upon ADB to join with us in India in this transformational effort.

Even though the distributed use of renewable energy is high on our agenda, we are not unaware of the enormous potential of renewable energy in generating and feeding power to the grid. In November 2009, the Government of India approved the Jawaharlal Nehru National Solar Mission (JNNSM). This is a unique and ambitious transformational objective that aims to establish India as a global leader in solar energy. The Mission aims to enable 20,000 MW of solar energy being deployed in India by 2022. It aims to facilitate the generation of 1000 MW of grid connected electricity by 2013 itself. This is the largest and the most ambitious programme of its kind anywhere in the world.

Though solar energy is the future, wind energy is where India competes globally in manufacturing and deployment in the present scenario. India has an installed capacity of over 11,000 MW in wind energy and occupies the fifth position in the world, after USA, Germany, China and Spain. Our policy framework in wind energy generation is extremely investor friendly and an attractive tariff and regulatory regime provide a strong foundation for the growth

of the sector. In fact, a recent decision of my Ministry to incentivize generation of power by a generation based incentive will create a level playing field between foreign and domestic investors. I hope this will catalyze more investments in this field by large independent power producers and foreign investors.

Biomass, which is an eco-friendly source for production of electricity, too holds considerable promise for India. Our estimates indicate that, with the present utilization pattern of crop residues, the amount of surplus biomass materials is about 150 million tones, which could generate about 16,000 MW of power.

Hydro-projects up to 25 MW capacities are termed as small hydro and this energy stream has a potential of over 15,000 MW. At present, a capacity addition of about 300 MW per year is being achieved from Small Hydro projects – about 70 per cent is coming through private sector. So far over 2700 MW hydropower projects have been set up in the country and about 900 MW are in various stages of implementation. The aim is to double the current growth rate and take it to a capacity addition of 500 MW per year in next 2-3 years.

The challenge before us in the renewable energy sector, generally and, in India, particularly is to reduce the per-unit cost of renewable energy. Hence, there is a continuous need to innovate to increase efficiencies and bring down costs. Costs can be brought down by several means- it is possible to harness lower wind speeds, the energy of tides and waves can be channelized to produce electricity, alternate transport fuels can make our journeys less carbon intensive, hydrogen can be an ideal energy storage and carrier. It is possible to have a trans-continental grid with lowest losses of electricity. Similarly another area of innovation could be technological-managing the complexity of variable power generation through computer-enabled power networks, or smart grids. The efficiencies of smart grid management coupled with the sustainability of renewable energy could be a win-win combination. India as the leading light of the IT world would have a natural advantage in this.

We are also building centres of excellence to become focal points for research. For instance, the Solar Energy Center, located near Delhi, is the focal point for solar energy development. We hope that the Solar Energy Center could become a Centre of Excellence for all R&D activities in the country. For wind, we have built the Centre for Wind Energy Technology (CWET) as an Institution of Excellence for pursuing research and development activities. We are also facilitating and collaborating with the private sector-well known organizations are working with us to developing a wide range of innovative solutions using newer technologies, processes and materials.

On the policy front, my Ministry is also working with the State regulators to lay down the framework for tradable renewable energy certificates. While this will provide a mechanism for better tariff for renewable energy developers, it will also enable us to achieve a larger share of renewable energy in our electricity mix. The federal electricity regulator has already announced normative guidelines for provincial regulators to fix tariffs for Renewable energy. These, we hope will further boost investments in the sector. We also working towards closer engagement with the banks and lending agencies to help developers gain access to easy and cheaper sources of finance. We are looking to the Asian Development bank and other multilateral institutions to come forward with innovative options of financing and risk mitigation.

For centuries, the Indian tradition has worshipped the sun, the wind, the earth and the water has the sources of life, energy and creation. It is somewhat ironic that after over a millennium of amnesia and destruction, humankind is returning to the same elements is once revered and worshipped. I believe that it still not too late. We have a real opportunity to transform the promise of boundless and clean energy to reality. From rooftop solar power in urban agglomerations during peak demand hours to megawatt size grid-connected power plants based to small decentralized and off grid solutions in remote rural communities- the opportunities in renewable power are immense. We believe that governments, in their facilitative role, have to create an enabling ecosystem

for promoting newer business models, technical as well as market innovations as well as for promoting basic and applied research. It is for the entrepreneurs and stakeholders to rise to the challenge. My vision is to see that every citizen of the world has access to clean energy reliably and affordably. Today's technology provides us this opportunity. It is for us to rise together to take advantage of these opportunities and translate to reality the vision of a better world for all mankind.

Thank You.