

Pathways to Wind Energy- *Using Policy to Harness the power of the Wind*

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Ladies and Gentlemen,

It is a matter of immense pleasure and great privilege to have been invited to speak at this consultation workshop on Wind Power in Asia on the occasion of the 5Th Asia Clean Energy Forum. This is an appreciable effort made by the Asian Development Bank. I would like to thank the organizers for their initiative and for inviting me to this important function.

In today's power scenario, renewable energy has become vital for the sustainable economic development of the entire world, especially the developing countries. The increasing growth in energy demand, the limitations of supply, the rising cost of fossil fuel based power generation and environmental concerns all make renewable energy a desirable and often, viable option. Issues of energy access, supply, and affordability are increasingly getting inextricably intertwined with those of energy requirements of a rapidly expanding global economy. This is more so for most Asian countries whose current and medium-term projected growth rates are higher than those of the developed countries of Europe, North America and Japan. In such a scenario, where energy shortages are also not unlikely, we need to start looking at

renewable energies, more seriously than we have done so far. We need to prepare for the future and unless we invest in alternative energy sources today, a situation might arise when we might unwittingly become victims of severe energy shortages with unimaginable consequences in the coming decades. The time has come when we must create an enabling framework for a shift from economic activity based on fossil fuels to one based on non-fossil fuels and from reliance on conventional sources of energy to renewable sources of energy.

We believe that governments should be technology agnostic and encourage a diverse variety of technologies drawing upon diverse renewable sources- wind, solar, hydro, bio mass, geothermal and any new sources that appear on the horizon. However we are also acutely aware of the need for governments to ensure energy access affordably and reliably to their citizens. It is in this context that we see wind energy to be the most mature and commercially viable technology. While I would not take the risk of stating that it is the most mature technology or that there is no room for further development, I still hold that the potential of wind energy in powering our economy and leading the renewable charge continues to be considerable. I must also add that for this to happen, we have to pool our scientific, technical, and managerial talents along with sufficient financial resources. We will also have to consciously move away from the pattern of heavy public sector investments and instead facilitate the private sector to take the initiatives, innovate, invest and reap the rewards. The desired objective will be achieved by a combination of governmental policies, regulations, innovative financing and effective integration into the grid feeding the utilities and the consumers.

Those of you following the global trends in wind energy would have observed that wind sector has been growing at a rate that has not been observed in any other sector. If one observes the trend in the current decade alone, the total wind capacity that was 24322 MW in 2001 has jumped to 158213 MW in 2009. The annual capacity addition in the world that was around 6200 MW in 2001 has increased to 38312 MW in 2010. In other words, the annual capacity addition during the recent past has been more than the installed capacity in 2001. This is despite the economic downturn that affected almost all the countries from 2008 onwards. One has to sit back and analyze the factors that have driven this growth. The growth rate has also been at different levels in various countries. We have a fair idea of the policies that have enabled the growth in different countries. It may be worthwhile to study in detail the growth pattern that has been seen in various countries in the context of macro policies and micro regulations that were adopted.

Today in India, we have reached a capacity of 12000 MW. We were the fourth largest country in terms of installation but were overtaken by China last year. We have no regret about China going ahead. But we are keen on catching up with them as fast as possible. Each country has a different political and economic environment. But it remains a fact that wind is a commercially mature technology that will provide the answer to energy problems in many countries. All that is required is a commitment to increase the wind energy component in total energy mix and then design policies suited to the country to ensure rapid deployment.

India's wind energy deployment started off as governmental demonstration project in the eighties but rapidly went through a phase of growth

with investments from the private sector. Initially, these were mainly meant to meet their own captive power requirements. However, they soon branched into commercial generation. Once the interest of the private sector in wind energy was seen, the government framed newer policies for mainstreaming wind energy. In order to make it more attractive for the private sector, a new fiscal incentive by way of accelerated depreciation and resultant tax benefit was introduced. Several other incentives including a 10 years tax holiday on income and concessional customs and excise duties were offered. These measures led to a rapid increase in installed capacity but little improvement in efficiency. Early this year, our government announced a generation based incentive (GBI) under which additional US Cent 1.25 per kWh generated from wind power projects is to be provided to the projects which do not avail of the accelerated depreciation benefit. However, we did not contemplate a total shift in the system of incentives lest it should affect the growth of the sector adversely. We now have a dual system of incentives that are mutually exclusive to promote the growth of the sector. We are also moving ahead with several new initiatives to accelerate the pace of wind power development. These include expansion of the wind resource data base, technical improvements, testing, and enlargement of the user profile. We have monitored around 700 locations for a period of 1-3 years and identified 233 wind potential sites. We have recently published a Wind Atlas, to help better micro-siting leading to higher generation from wind power projects. We have also facilitated easy financing through the financing arm of the ministry, Indian Renewable Energy Development Agency (IREDA).

In 2003, the passing of the Indian Electricity Act and the creation of Electricity Regulatory Commissions with specific responsibilities for promotion of renewable power also gave a fillip to the wind sector. The

authority given to them to fix Renewable Portfolio Standards and to fix the tariff at which the power is to be sold brought the micro details on a regular and legal footing. The latest proposal to include wind and solar power in the Indian Electricity Grid Code (IEGC) is another positive step by the Central regulator that will integrate wind power into the grid. This dynamic approach of policy and regulatory initiatives has changed the landscape of the sector with the entry of new developers and manufacturers. New private sector companies are moving in for large scale development.

As many as 16 manufacturers in India – up from only 7 in 2007 - are competing in the market. Their combined manufacturing capacity- currently around 5000 MW is expected to go up to 10000 MW in the near future. The average unit capacity that was 553 KW in 2002 now stands at 2 MW. Indian manufacturers have come of age both in terms of the size of the turbine as well as technology. The newer wind energy generators have lower land requirements and lower O&M costs. There has been an increase in the hub heights of the wind turbines in order to harvest the wind potential more effectively. An indigenization level up to 80% has been achieved in machines. In addition, indigenously produced wind turbines and components valued at over US\$ 1,000 million are likely to be exported this year. It is also true that capital costs of wind generators have gone up and this will ultimately show up in the cost of energy that will be generated. But increased efficiencies would bring down the cost of energy to some extent.

With the right policy framework and enabling regulatory mechanism, new business models have started emerging. There have been instances of new companies taking over existing wind farms through acquisitions in

order to increase capacities. The scene today in wind energy is more dynamic than ever before. There are others looking at repowering the capacities in the existing wind site so as to generate more power. A few are looking at the possibility of combining solar power with wind power in the same sites. All these are new business initiatives that have to be combined with commercial innovations. At the same time they should not be held back by restrictions from the regulatory authorities.

The government has simultaneously built the Centre for Wind Energy Technology (CWET) for testing and certification of machines as well as to pursue research and development activities. CWET has played a crucial role in ensuring the quality of machines. This institution is fast turning out to be an “Institution of Excellence” in the wind energy area, with research tie-ups with European and American Institutions. I am not aware of a similar institution in any other Asian country. In fact, I would urge upon other countries embarking upon a wind energy growth path to utilize the services of this facility for testing, training, capacity building and research. We are committed to the growth and expansion of CWET with the aim of converting it into a centre of excellence in the region for all activities related to wind energy technology. I would ask ADB also to associate itself with us in this task.

Wind has emerged a major source of clean energy. In India alone, we have estimated a potential of about 48,000 MW in the country. This needs to be encouraged and taken to greater heights. While we would call upon the private sector to exploit this sustainable source of energy, governments too have a responsibility to provide a friendly and transparent policy framework that would need to change to respond to emerging needs. Renewable purchase

obligations, attractive feeding tariffs and improved interaction with the grid are some of the measures that will facilitate the growth of this sector. Ready financing at costs lower than the cost of financing normal business, longer maturity debt and lower interest costs are the need of the day to promote wind energy in the developing world. It is in this area, I would call upon the Asian Development Bank to co-ordinate with the local financing institutions with long term and cheaper funds. Foreign Direct Investment, as well as newly emerging environmental funding opportunities, could also become potent and effective mechanisms for financing of wind power projects. I assure you that India is ready to take the lead in this direction. All favourable conditions in terms of potential, technical and support facilities, favourable policy and regulatory environment, robust manufacturing base, and investor confidence are available for an accelerated growth of wind sector. The vision of my Ministry is to enable India to be a global leader in wind energy. I hope that the quantum leap in wind power in Asia shall come from India.

I wish the 5th Asia Clean Energy Forum all success.

Thank you.