

Submission by Asian Development Bank on technology road maps and action plans

30 July 2012

Technology Executive Committee (TEC) at its third Session made a decision to call for accredited Observer Organizations to provide their inputs, including their final products of technology road maps and action plans as well as their experiences and lessons learned from developing and using technology road maps and action plans to help TEC facilitate the development of the inventory of existing technology road maps and action plans. Asian Development Bank (ADB) welcomes this opportunity and is pleased to submit its inputs as following.

ADB is providing technical assistance for the development of road maps for wind power, smart grid technology and carbon capture and storage (CCS) in a number of developing countries in Asia and the Pacific, including the Peoples' Republic of China (PRC), Mongolia, Philippines, Vietnam and Sri Lanka. The technical assistance is designed to help create enabling conditions for the development of technologies and accelerate their diffusion, and typically includes capacity building, analysis and pre-feasibility studies, and knowledge management. Since the projects are under implementation, the final technology road maps are not yet available.

1 People's Republic of China: Developing Smart Grid Technology for Efficient Utilization of Renewable Energy

This capacity development technical assistance (TA) for Developing Smart Grid Technology for Efficient Utilization of Renewable Energy in the PRC started implementation in 2011. By comprehensively analyzing issues surrounding poor grid integration of wind and other intermittent renewable energy sources, the TA will provide key enabling conditions for larger renewable energy utilization and can accelerate and intensify renewable energy development in the PRC. The TA is designed to help the state grid corporation develop smart grid technology for efficient utilization of renewable energy, and will result in the development of a smart grid road map for harmonizing renewable energy development with the grid expansion in a regional grid, the codification and upgrading of technical standards for the connectivity of renewable energy to the grid, and the upgrading and piloting of short-term day-ahead wind power forecasting systems. Furthermore, training activities are provided and lessons learned disseminated to other places and stakeholders, and a policy note on smart grid development will be prepared for high-level governmental officials.

2 Quantum Leap in Wind Power Development in Asia and the Pacific

The TA is starting implementation in 2012, and will draw up wind energy development road maps for better planning and to facilitate public-private partnerships in four countries, namely Mongolia, the Philippines, Sri Lanka, and Viet Nam. The participating

DMC governments are expected to achieve their targets for installed wind power capacity through the formulation of road maps, improved knowledge and capacity, better quantification of wind resource potential, and the identification of viable wind projects. The TA will assess wind resources to reduce start-up time and manage resource risk, prepare pre-feasibility studies, and develop business and financing models to make wind projects in participating countries more bankable.

3 Determining the Potential for Carbon Capture and Storage in Southeast Asia

Given the lack of information on CCS in Southeast Asia, the ADB is taking a phased approach to supporting CCS in the region. The expected outcome will be greater capacity to plan and manage CCS demonstration projects in the focus countries in Southeast Asia. The TA, which began implementation in 2012, will conduct an analysis of the potential for CCS, culminating in a road map for a CCS demonstration project in Indonesia, the Philippines, Thailand, and Viet Nam. It will be followed by a national TA project in each eligible country (i.e., a country with CCS potential and a willingness to commit resources for a demonstration or pilot project) to: (i) establish the enabling environment, (ii) examine the technical aspects related to capture and/or storage, (iii) identify and prepare prefeasibility reports for pilot projects, and (iv) carry out initial geological investigations for the storage aspects of the pilot projects.

4 People's Republic of China - Road Map for Carbon Capture and Storage Demonstration and Deployment

This TA, which will start implementation in 2012, will elaborate a comprehensive roadmap for CCS demonstration and deployment. In addition, it will produce key products for paving the way towards the realization of at least two large-scale integrated CCS demonstration projects in the short-term, each capturing and storing 2 million tons of CO₂ per year. The first component will also produce: (i) recommendation on a set of appropriate policy, regulatory and incentive framework; (ii) a shortlist and ranking of early stage CCS demonstration projects; (iii) suitable business models for implementing early stage projects; and it will deliver capacity development in the policy, regulatory, and techno-economic modeling for the CCS roadmap. The second component will further develop the capacity of Dongfang Boiler Co., Ltd. (DBC) in designing, planning, and implementing CCS with oxy-fuel combustion and support the roadmapping component with (i) techno-economic feasibility assessed of a 100 megawatt coal-fired power plant applying the oxy-fuel combustion technology; (ii) technical standards and pathways for future work prepared for applying the oxy-fuel combustion technology; (iii) a prototype model for CO₂ storage site assessed; (iv) preliminary site characterization and identification of early demonstration project(s) prepared; and (v) capacity development in analysis, planning, and implementation of oxy-fuel combustion with CO₂ capture technology. The outcome of the TA will be assessed techno-economic feasibility of selected early-stage demonstration projects, and the expected impact will be staged demonstration of CCS in the PRC.