



Draft Design and Monitoring Framework

Project Number: 39630
March 2009

IND: Multitranche Financing Facility - National Power Grid Development Investment Program – Tranche 2

A design and monitoring framework is an active document, progressively updated and revised as necessary, particularly following any changes in project design and implementation. In accordance with ADB's public communications policy (2005), it is disclosed before appraisal of the project or program. This draft framework may change during processing of the project or program, and the revised version will be disclosed as an appendix to the report and recommendation of the President.

Asian Development Bank

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Impact</p> <p>Increased transmission capacity and affordable and reliable power supply for sustained economic growth.</p>	<ul style="list-style-type: none"> • 78,600 MW of generation capacity addition during the 11th Five-Year Investment Plan period (FY2008-FY2012) to reach the total national generation capacity of 210,929 MW. • Access to electricity by rural households increases from 43.5% in 2006 to 100.0% in 2012. 	<ul style="list-style-type: none"> • Government economic statistics and reports • National statistics on power supply • Program and project completion reports 	<p>Assumptions</p> <ul style="list-style-type: none"> • Government's continued support and commitment to power sector reforms and development of the national electricity market. • Timely and transparent implementation of the Electricity Act 2003. • Stable economic growth in India.
<p>Outcome</p> <p>National power grid strengthening and augmentation/expansion with transmission bottlenecks removed and losses reduced.</p>	<ul style="list-style-type: none"> • Development of an integrated national power grid with additional 60,000 ckm transmission lines by 2013. • Increased interregional transmission capacity from 14,100 MW in March 2007 to more than 37,000 MW by 2013. • Maintain transmission system availability at not less than 99.0%. • Maintain transmission losses in the 3-4% range on a par with international standards. 	<ul style="list-style-type: none"> • Annual report of POWERGRID • Regulation statistics of NLDC • Quarterly project progress reports. • ADB's project review missions. • Program completion reports 	<p>Assumptions</p> <ul style="list-style-type: none"> • Timely development of envisaged generation projects by other utilities. • Load growth and system expansion as forecast. <p>Risks</p> <ul style="list-style-type: none"> • Mismatch between generation and transmission network upgrades. • Delays in project implementation
<p>Outputs</p> <p>±800kV HVDC Northeastern-Northern/Western Interconnector</p>	<ul style="list-style-type: none"> • About 1,800 km of ±800 kV, 6,000 MW HVDC bipole line by 2013. • About 860 km of 400 kV D/C transmission line by 2013. • About 22 km of 132 kV S/C transmission line by 2013. • Addition of 400/220/33 kV, 315 MVA transmission capacity by 2013. • HVDC rectifier module of 3,000 MW at Biswanath Chaiyali and inverter module of 3,000 MW at Agra by 2013. 	<ul style="list-style-type: none"> • Annual report of POWERGRID • Regulation statistics of NLDC • Quarterly project progress reports. • ADB's project review mission • Field visits • Program completion report 	<p>Assumptions</p> <ul style="list-style-type: none"> • Government's timely approval of the required investment programs. • Counterpart funds mobilized on time. • POWERGRID's full ownership of the transmission sector development program. <p>Risk</p> <ul style="list-style-type: none"> • Unexpected increase in prices of commodities and raw materials, and construction delays.

Activities with Milestones	Inputs
<ol style="list-style-type: none"> 1. Field survey for Project 2 completed by March 2009. 2. Compensation for construction of transmission lines under Project 2 completed by August 2009. 3. Bidding for civil works and procurement of goods for Project 2 completed by July 2009. 4. Construction of Project 2 commenced by August 2009. 5. Construction of Project 2 completed by December 2013 	<p>ADB MFF: \$600 million</p> <ul style="list-style-type: none"> - Tranche 1: \$400 million - Tranche 2: \$200 million <p>POWERGRID: \$707.6 million</p> <p>Other Financial Institutions: \$1,051.3 million</p>

D/C = double circuit, HVDC = High Voltage Direct Current, kV = kilovolt, 1,000 volts, MFF = multitranches financing facility, MVA = megavolt-ampere, MW = megawatts, NLDC = National Load Dispatching Center, PFR = periodic finance request, POWERGRID = Power Grid Corporation of India Limited, S/C = single circuit.

Source: Asian Development Bank estimates.