

RISK ASSESSMENT AND RISK MANAGEMENT PLAN

Risks	Assessment without Mitigation	Management Plan or Measures	Assessment with Mitigation
Counterparty risk	Medium	BPTAs protect POWERGRID from offtaker default through a combination of letters of credit against billings and the ability to provide joint and several reappportionment of charges to non-defaulting customers on the project.	Low
Completion and execution risk	Medium	POWERGRID has entered BPTAs protecting against late completion of supply projects. POWERGRID has good execution and management experience.	Low
Regulatory risk	Medium	CERC provides tariff framework in 5-year intervals; the next is set for FY2015. Adjustments may be made but are not known at this time. CERC has provided consistent support for POWERGRID's financial and operational stability and, based on the central transmission utility's importance, is not expected to greatly change their principles.	Low
Exchange rate and interest rate risk	Low	Tariff regulations permit POWERGRID to pass rate variation and hedging costs through to customers but customers must agree to any additional hedging related costs. To date, they are willing to pay any adjusted costs of exchange and interest rate movements as and when incurred; POWERGRID is protected by CERC cost-plus tariff principles.	Low
Funding risk	Low	POWERGRID has an ability to source the balance of project funding from domestic bond issues. It is an experienced issuer.	Low
Right-of-way risk	Low	This would mostly involve land compensation cases. POWERGRID is accustomed to addressing these cases, which have low individual values. The project will directly affect a relatively small number of household and is categorized as resettlement B. In 2009, POWERGRID introduced a comprehensive environment and social management system acceptable to ADB.	Low
Overall	Low		Low

ADB = Asian Development Bank, BPTA = bulk power transmission agreement, CERC = Central Electricity Regulatory Commission, POWERGRID = Power Grid Corporation of India.

Sources: POWERGRID; CRISIL; Herbert Smith and J. Sagar Associates; Asian Development Bank estimates.

1. POWERGRID is a high-quality borrower. A due diligence review shows that it operates at a high level of capacity, integrity, and professionalism. Granted special status of "Navratna" by the government, the public sector company enjoys a high degree of autonomy in managing its governance, strategy, investment, finances, and operations. The bulk of POWERGRID's operations fall under Central Electricity Regulatory Commission (CERC) regulation, which provides robust tariff-based remuneration for its transmission services. The project's major potential risks and their mitigation measures are summarized below:

2. **Counterparty risk.** The project has been designed to support transmission of power supplies between specific generators and specific offtakers. The project will pool supplies from 14 independent power producers (IPPs). These IPPs will arrange sales to specific offtakers, who are typically state-based utilities charged with delivering power distribution services to end-customers within their jurisdictions. POWERGRID is protected against defaults by these parties under the terms of standardized bulk power transmission agreements (BPTAs) sanctioned by

the CERC. The terms of these BPTAs provide POWERGRID with protection against late delivery of new generation projects and against credit issues from the offtakers. Specific security in the form of performance bonds from suppliers and letters of credit from offtakers is provided to promote performance. An offtaker's letter of credit must provide 105% of 2 months' projected billings in favor of POWERGRID. In the event of a failure of a transmission counterparty under a BPTA, under the point of connection charging system imposed by the CERC, the balance of non-defaulting customers have the responsibility for sharing pro rata in increased transmission charges to keep POWERGRID whole in the context of the specific transmission project. In an extreme case, POWERGRID can line up new customers to replace a defaulting customer. To date, POWERGRID has not had trouble collecting from customers and, during the five prior financial years assessed for this loan, has not suffered a customer default.

3. Completion and execution risk. POWERGRID is exposed to two project execution and completion risks: delay in completion by generators while the transmission line is ready, and (ii) a completion delay by POWERGRID while the generators are ready to connect. POWERGRID is protected from the first risk under the terms of the BPTAs because generators must post performance bonds. Generators are also responsible for lining up their customers; if a generator's customer does not materialize, the generator becomes liable for paying its proportion of the transmission charge. In any case, the relevant IPP projects have been progressing well and are unlikely to be delayed beyond the completion of the project. In the event that the second risk materialized, POWERGRID would be liable for payment of liquidated damages only if it could not find an alternative route of evacuation. In such a case, it would be required to pay the generator the proportion of the transmission charge that would have been due from that particular generator. However, alternative transmission routes exist for initial evacuation of the additional power from the IPPs and POWERGRID will not need to pay a penalty if the project transmission system is delayed. Per the terms of the BPTA, the defaulting party is insulated from consequential damages if either risk arises. Although POWERGRID has typically completed projects close to intended schedule, project delays are possible with multiple parties involved. To minimize this possibility, POWERGRID and the concerned IPPs hold regular joint coordination meetings to update progress and address scheduling issues promptly. The assets to be constructed under the project are a component of a larger overall grid strengthening and expansion project, which limits the possibility that any given IPP asset would be stranded. The financial sensitivity analysis ensures the project financial and economic viability against 1-year delay in project completion as well as increased construction and operation and maintenance costs. POWERGRID has a commendable record in planning, procuring, implementing, and commissioning projects. With such project management measures in place, no major delays are expected.

4. Regulatory Risk. Interstate transmission services account for about 95% of POWERGRID's revenue and, since these services fall under CERC regulation, the bulk of POWERGRID's revenue is governed by tariffs set by CERC. The current tariff framework runs to 31 March 2014. Ahead of that date, the CERC will promulgate a revised tariff framework to cover next 5 years and will continue to revise tariff regulations every 5 years thereafter. These regular revisions subject POWERGRID operations to some revenue uncertainty. So far, however, the tariffs set by the CERC have been adequate for POWERGRID to recover costs of investment and operation of transmission projects while providing a reasonable return on equity. CERC has historically provided reasonable adjustments and incentives for strong transmission sector performance, promoting a climate of sustainable investment and fiscal health for POWERGRID. This regulatory support is expected to continue, enabling POWERGRID to fulfill its important economic role as the designated central transmission utility, supporting its continued viability as a predominantly government-owned company, and ensuring that a reliable

power supply remains a national priority. Nonetheless, the financial projections for the project have run sensitivities to test the impact of potential reductions or removals of various historic tariff components. In all cases, including a composite, worst-case scenario, the project remains financially viable. POWERGRID also maintains a robust cash flow and a debt service coverage ratio above 1.5.

5. **Exchange rate and interest rate risk.** Tariff regulations permit POWERGRID to pass any increase in debt servicing cost due to changes in exchange rates through to customers on a semiannual basis without regulatory approval. The regulations also allow POWERGRID to pass through the cost of entering into any currency or interest rate hedging mechanisms, including any gain or loss resulting from those instruments. This can be done on a monthly basis without need for prior regulatory approval. However, under each tariff for each project, POWERGRID must seek advanced permission from customers to enter into those hedging arrangements, given that they will be required to absorb any hedging related costs in the tariff. To date, customers have refused to accept the additional costs of hedging, preferring to accept the risk of increased costs or benefits of exchange rate or interest rate movements if they occur. Despite this, POWERGRID has been tracking the cost and nature of hedges in the event customers decide it prudent to implement them.

6. **Funding risk.** POWERGRID must raise the balance of the project funding needs from external sources. It is likely POWERGRID will issue domestic bonds to do so. It approaches the bond market for 3–5 times a year. Its offerings have all been oversubscribed. Funding risk could be mitigated if POWERGRID continues to have access to large bond funding as it had in the past. In line with ADB's stated developmental objective of facilitating POWERGRID's transition away from heavy dependence on bonds and sovereign-guaranteed facilities to more commercial funding sources, ADB will continue its efforts to pursue risk participations, as well as risk distribution of ADB's nonsovereign exposure to encourage participation in the transaction by commercial financiers. Given POWERGRID's solid reputation in the market, investment-grade rating and strong support from the sovereign, obtaining such commercial participation should be achievable. On average, POWERGRID issues its bonds at 70–100 basis points above the rate of similar tenor government securities. Short of a severe market disruption affecting all issuers equally, it should have no difficulty raising the balance of funds for the project.

7. **Right-of-way risk.** POWERGRID has been engaged in material litigation involving land acquisition, land use compensation, and other minor areas. Most cases are disputes against land valuation or loss of cropland under tower foundations. POWERGRID provides standard compensation according to state guidelines. Landowners have the right to file counterclaims against the proposed compensation and a large number of small individual value suits are pending. Although POWERGRID faces this risk in every project, these cases are usually settled. The project will directly affect 38 households who will lose their land while none of them will be physically relocated from their homes. Resettlement is category B and identified as less significant. Safeguards will be implemented in accordance with ADB's Safeguard Policy Statement (2009) and POWERGRID's corporate environmental and social policy and procedures, which were adopted with guidance from the World Bank in 2009.

8. **Transaction structure (long tenor).** The proposed loan tenor and grace period are long for a corporate loan. However, such a structure permits better matching of the borrower's revenues and cash flows with debt repayment. ADB will ensure that strong credit risk protection is provided by the loan's security and lending terms to ensure satisfactory repayment of ADB's loans. Financial covenants will safeguard POWERGRID's creditworthiness during the loan life, including debt service coverage, leverage, liquidity and operating efficiency.