



**18** China  
**Power Distribution System Rehabilitation Project (Chongqing)**

Contributing to the reduction of air pollution by reducing power distribution losses

**Loan Amount / Disbursed Amount** 13,754 million yen / 9,219 million yen  
**Loan Agreement** December 1998  
**Terms & Conditions** 0.75% interest rate, 40 year repayment period (10 year grace period), General untied  
**Final Disbursement Date** June 2004  
**Executing Agency** State Grid Corporation of China (<http://www.sgcc.com.cn/ywlm/default.shtml>)



**Project Objectives**

The objectives of this project were to reduce power transmission and distribution losses by 430 million kWh per year and to conserve power generation by replacing, expanding, and improving power distribution facilities in Chongqing and thereby contribute to conservation of coal fuel accompanied by reduction of air pollution.

**Effectiveness and Impact**

Rating **a**

By replacing and building new power distribution facilities, this project accomplished a reduction in the power distribution network loss rate from 8.81% before project implementation to 7.18% in 2005 after project implementation. Even compared with developed countries (USA 7.0%, France 6.8%), it is obvious that this project has achieved a comparable level. Also, accompanying the improved power distribution loss rate, the initially planned reduction in electric power loss was 263 million kWh in the first year after completion and 430 million kWh in the following year. The actual results almost achieved these targets, with 291 million kWh in 2004 (the first year after completion), and 417 million kWh in 2005 (the second year). Accompanying the reduced loss rate, about 157,000 tons of coal fuel was conserved. The expected reductions in air pollutant matter by implementing this project was 5,616 tons of

SO<sub>x</sub>, 2,263 tons of NO<sub>x</sub>, and 750,000 tons of CO<sub>2</sub>; the actual 2005 results achieved planned targets, with 5,781 tons of SO<sub>x</sub>, 2,330 tons of NO<sub>x</sub>, and 770,000 tons of CO<sub>2</sub>. Thus the project is judged to have made certain contributions to the reduction of air pollution. Therefore, this project has largely achieved its objectives, and effectiveness is highly satisfactory.

**Relevance**

Rating **a**

This project has been highly relevant with China's national policies both at the time of the appraisal and at the time of the ex-post evaluation. From the time of appraisal through the ex-post evaluation, the project was fundamentally consistent with the policy direction, which emphasizes improvement of energy efficiency in China and the resulting environmental protection.

**Efficiency**

Rating **b**

The project costs were lower than planned (75% of planned costs), but the project period was much longer than planned (138% of planned period), therefore the evaluation for efficiency is moderate. The period was longer than planned due to additional procurement, etc.

**Sustainability**

Rating **a**

The executing agency was changed from the State Power Corporation of China to the State Grid Corporation of China, due to the 2002 administrative reform, which divided power generation operations from power transmission operations, but no major problem has been observed for the capacity, operation and maintenance system nor the financial status of the executing agency, therefore, sustainability of this project is high.

**Analysis of Finance Mechanisms in the China Electric Power Sector**

In addition to the ex-post evaluation based on the five DAC evaluation criteria, finance mechanisms of the China electric power sector were analyzed in detail. In China, the authority for decisions on planning has been transferred to regional governments, the central government continues to control electric utility prices, and the lack of balance in authority between central and regional governments is hindering achievement of economic efficiency. Certain improvements can be seen in addressing market failures such as deregulation of fuel prices and electric power prices, and introduction of various economic and fiscal supports for introduction of technologies. But it is thought that more efficient operations are required to reduce environmental impacts, which are also an issue in the China electric power sector. To this end, correcting the unbalanced level of authority between the central and regional governments, which was mentioned above, is desirable from the point of view of both the investment efficiency and operational efficiency.

**Third-Party Opinion**

This project contributed to relieving the tight electric power supply/demand and reducing the air pollution in Chongqing. Energy conservation and environmental conservation are positioned as extremely important priorities in the current national strategies, and this project is highly relevant. The strong capability of the operation and maintenance department is one of the reasons for the success of this project.

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