FINANCIAL MANAGEMENT ASSESSMENT AND FINANCIAL PERFORMANCE AND PROJECTIONS

A. Project Executing and Implementing Agencies

1. China General Nuclear Power Corporation (CGN) is the Executing Agency for Qinghai Delingha 50 MW Concentrated Solar Power (CSP) project. It owns and manages its subsidiary, CGN Solar Energy Development Co. Ltd. (CGN-SEDC) which in turn established CGN Delingha Solar Energy Co. Ltd. (CGN-DSE) with the mandate to develop the Project and be the implementing agency. This separate project entity approach is considered prudent as it (i) brings transparency, (ii) improves accountability and corporate governance, and (iii) ensures a task force approach to project development that provides management focus.

a. CGN

2. CGN is a wholly state-owned enterprise in the People's Republic of China (PRC). Established in September 1994 with a registered capital of CNY10.2 billion, CGN is under the supervision of the State-owned Assets Supervision and Administration Commission of the State Council. The group has experienced rapid growth over the past 19 years especially in the last 5 years. Its core business is developing and operating nuclear power generation projects, but it is also expanding into renewable energy.

3. CGN provides energy-related products and services in four areas: nuclear, wind, solar, hydro and renewable power electricity; industrial products in connection with clean energy development, construction, production, supply and utilization; professional relevant to clean energy development, construction production, utilization, consumption, financing and maintenance; productions and services of other new clean energy forms. It is a financially autonomous enterprise responsible for profit and loss. By the end of 2012 total assets of CGN amounted to about CNY260 billion ($42 billion); the installed capacity of nuclear power production has reached 6,120 MW, with another 17,750 MW of nuclear power still under-construction. The installed capacity of wind power units in operation has reached 4,060 MW, and the capacity of hydropower is near 3,500 MW. The solar photovoltaic power generation gains 287 MW.

4. An assessment of the group's financial management as well as an analysis of the group's financial statements of the last 5 years has been conducted in accordance with ADB's Guidelines on the Financial Management and Analysis of Projects.[1] CGN has a rigorous and sound accounting system, internal control procedures, and experienced and qualified financial and internal auditing staff. CGN is in a position to provide to both CGN-SEDC and CGN-DSE the guidance and monitoring needed to improve their financial performance and systems for accounting, internal control, and risk management.

5. According to the company's audited consolidated financial statements 2007–2011, total assets value increased at an annual average growth rate of 29% from CNY69.3 billion in 2007 to CNY248.7 billion in 2011, and the total owner's equity increased at an annual average growth rate of 20% from CNY29.2 billion in 2007 to CNY71.8 billion in 2011. During the same time, gross revenue increased from CNY11.3 billion to CNY28.3 billion and net profits from CNY3 billion to CNY5.6 billion, equivalent to an annual average growth rate of 13%.

[1] ADB. 2005. *Financial Management and Analysis of Projects.* Manila.

6. CGN's financial performance has been solid from 2007 to 2011; with no abnormal incident occurring over that period. In 2011, its operating ratio was around 80%, the return on net fixed assets was 6.7%, the account receivable turnover was 1.8 months, the current ratio was 1.02, and the debt to equity ratio was 162%. These indicators are a reflection of CGN's heavy investments over the past 5 years in new and renewable power projects. The company used part of its new borrowings to repay the old loans.[2] Despite the high debt to equity ratio, the company has always access to bank financing. At the end of 2011, the cash balance was CNY23 billion, around 10% of the total assets value. The company has an excellent creditworthiness and enjoys a good reputation with local commercial banks. Therefore, it faces no constraints in accessing new debt financing.

7. In conclusion, the sound financial status of CGN as a parent company has established a strong foundation for supporting further business expansions and for providing guarantees to its subsidiaries in their investments in various energy projects including this project.

b. CGN-SEDC

8. Established in 2009 CGN-SEDC with the mission to develop and operate CGN's solar power projects, it has built a strong reputation since then. Over its 3 years of operating history, the company invested in 15 solar photovoltaic power plants and demonstration projects with a total installed capacity 287MW. By the end of 2012, the company's total asset value was CNY4.29 billion, 70% of which were in fixed assets. Its debt to equity ratio increased from 0.18 in 2011 sharply to 0.81 in 2012. Since all the power plants under CGN-SEDC were constructed in 2010 and 2011, most of them have just started generating profits. CGN-SEDC is still at its early development stage. Consequently, it should be understandable why the company as a whole is in loss so far, and it also should be predictable that the company has a prosperous future considering its leading position in solar energy research and development arena and its huge investments in the solar power generation at such a large electricity market as the PRC.

9. An assessment based on the completed financial management assessment questionnaire indicates that accrual basis accounting and the PRC accounting standards are followed. Existing accounting procedures are aligned with regulations and policies issued by the Ministry of Finance. A computerized accounting system is in place, and the company has a complete set of accounting procedures for recording and processing transactions. Internal control is effective. Separation of functions for authorization, transaction, recording, and asset management are well established under existing accounting procedures. A rigorous budgeting system is uniformly implemented within CGN, and the budget contains both financial and physical indicators that are compared with actual performance, which is monitored monthly. The same accounting systems and procedures will be used for the Project. Both CGN and CGN-SEDC have set up an independent internal audit department directly reporting to the group's board of directors. The external audit of its financial statements is conducted annually by an independent accounting firm designated by CGN.

10. The financial management capacity assessment ascertained that the accounting and finance department is adequately staffed and that the staff of CGN-SEDC are well trained and qualified. Despite its relatively young history, CGN-SEDC has already gained significant experiences in project financing, project management and dealing with international financial institutions. The management team has a strong capacity and is assessed to be capable in

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[2] It is not unusual in China that the state-owned large power companies hold low debt service ratios due to their stable cash flows and good creditworthiness. For instance, the debt service ratios of Huaneng Power International Inc. were 0.22. 0.25 and 0.23 respectively in 2009, 2010 and 2011.

developing and implementing the project. Training in both project management, as well as in ADB's guidelines and procedures on procurement and disbursement and on safeguard mechanisms, have been identified as areas for improvement.

11. CGN-SEDC will exercise supervisory functions over CGN-DSE and will provide project management support and oversight to CGN-DSE, under the guidance of CGN. CGN-SEDC will

(i) provide guidance of the day-to-day activities of the project and assistance to CGN-DSE to ensure smooth project implementation;
(ii) endorse bidding documents, bid evaluation reports, contracts, and other necessary documentations and submit them to ADB for necessary approval;

12. As a management company, CGN-SEDC mainly incurs administrative and research and development expenses to acquire future competitive edge. Its net income over the past 3 years was in loss. However, in 2012 the company's cash on hand reduced by 61%, the consolidated operating revenue increased by 350%, the operating loss reduced by 37%, and the net operating cash flow became positive for the first time. Overall CGN-SEDC is expected to attain positive operating profit in 2014.

13. Based on the review and assessment of the financial management system and routine accounting practices, it can be concluded that CGN and CGN-SEDC have comprehensive and a satisfactory financial management and accounting system and an effective internal control system in place. CGN has maintained a company-wide sound monitoring and supervising structure in terms of budgeting, asset management, funding control, reporting and internal auditing, to assure strict surveillance of its finances. CGN-SEDC has experiences in international investments. The subsidiary is efficiently implementing the solar power projects in construction and managing the solar power plants in operation through its advanced on-line enterprise resource planning system and regular headquarters-field communication approaches.

c. CGN-DSE

14. CGN-DSE has been registered with CNY8 million as a project company in Delingha City, Qinghai Province. As per the initial financing schedule ADB is expected to lend around 50% of the total capital costs, CGN will contribute 30%, and the rest will be borrowed from a the Export-Import Bank of China (China Exim Bank). The project has been formally approved by the CGN investment committee in May 2013, its organizational arrangement is still being established.

15. As required by the local government the project has opened a basic account with the Agricultural Bank of China and will pay tax to where it is registered. This basic account is used only for small and miscellaneous expenditure and particularly for the purpose of tax payment. Capital accounts will be opened with the China Exim Bank. The capital account will deal with the funding flows from ADB, CGN and the China Exim Bank for the project construction and handle operating income and expenditure when the project is completed. CGN and CGN-SEDC will closely monitor the capital account. The account will freely receive incoming funds but any capital expenditures will have to be endorsed by CGN and CGN-SEDC according to a pre-approved detailed budget.

16. The project company has 13 accounting staff; all being professionals from CGN-SEDC or qualified accountants from the province. All have a college degree or an accountant degree; the primary requirement for a person to undertake accounting and

financial management work. The duration of employment contract is usually 3 years and its renewal depends on the person's performance. CGN has a well-designed accounting staff transfer and rotation system where people are moving for the sake of internal control and for their own career development. Regular training is carried out at three levels: by the government finance bureau, by CGN group and by external trainers, in order to let the staff access to the most recent knowledge and skills.

17. Once the CSP plant starts normal production, the project company will be allowed to operate on its own and its accounting functions would be gradually handed over from CGN-SEDC to the local staff of CGN-DSE. Notwithstanding, the project accounting will still be monitored and controlled by CGN and CGN-SEDC.

B. Assumptions for Financial Projections

18. **CGN.** The projections of financial statements for the CGN are based on its historic development and consider the company's future development prospect. A 10-year financial projection for 2012-2021 has been prepared for the Balance Sheet, Income Statement, Cash Flow Statement and financial ratios (Table 1). Operating revenues are expected to grow at a conservative rate of 5% per annum, from CNY29.7 billion in 2012 to CNY46.1 billion in 2021. Operating expenses are projected to increase proportionately to revenues. Income from investments is assumed to increase with long-term investment assets. As a result, the company's net profit is projected to grow from CNY7.7 billion in 2012 to CNY17.9 billion in 2021. Current and fixed assets are also assumed to increase proportionately to operating revenues. Considering i) the development potential of the nuclear power industry in the PRC encouraged by the government energy policy; and ii) the group's expansion strategy in renewable energy projects over the next decade, equity investments, including the investment in the project, are expected to grow at 7% per annum. Consequently, equity will increase from CNY79.9 billion in 2012 to CNY204.7 billion in 2021.

19. In terms of financial performance, it is projected that in future the group's debt equity ratio will be reduced and the debt service ratio be enhanced. Therefore, in the projection the long-term debt is thought to decrease by 10% year on year and the short-term debt is kept at the 2011 level, while the cash on hand also reduces within a certain period. Such an approach would be able to obviously optimize the capital structure, facilitate the asset liquidity and reduce the financial risk.

Table.1: Summary of Financial Projections for CGN

Year ending December 31	2009 actual	2010 actual	2011 actual	2012 actual	2015 projected	2018 projected	2021 projected
Key indicators (CNY Billion)							
Operating Revenues	18.42	19.33	28.31	29.73	34.42	39.84	46.12
Net Operating Income	4.05	7.92	4.97	7.56	10.43	13.33	16.40
Net Income	4.15	8.20	5.62	7.67	10.91	14.19	17.94
Current Assets	38.24	40.63	52.15	47.53	51.65	71.28	110.87
Net Fixed Assets	34.98	62.48	73.86	77.09	89.25	103.31	119.60
Accounts Receivables	1.36	3.56	4.20	4.10	4.75	5.50	6.37
Current Liabilities	45.31	59.33	50.88	51.78	65.54	80.66	101.38
Long- Term Debt	36.50	67.66	116.44	104.80	76.40	55.69	40.60
Equity	48.22	61.66	71.83	79.97	111.24	152.36	204.70
Net Internal Cash Generation	11.71	15.82	12.64	18.08	20.93	24.23	28.05
Financial Ratios							
Operating Ratio [a] (%)	78.03	59.03	82.44	74.56	69.70	66.53	64.43
Return on Net Fixed Assets[b] (%)	11.57	12.68	6.73	9.81	11.68	12.91	13.72
Months in Accounts Receivable [s]	0.88	2.21	1.78	1.66	1.66	1.66	1.66
Current Ratio[d]	0.84	0.68	1.02	0.92	0.79	0.88	1.09
Debt to Equity Ratio[e] (%)	0.76	1.10	1.62	1.31	0.69	0.37	0.20
Debt Service Ratio[f] (times)	0.36	0.34	0.33	0.32	0.51	0.82	1.29

[a] Total operating expenses as a percentage of total revenues.

[b] Net operating income as a percentage of net fixed assets.

[c] Number of month's sales in accounts receivables.

[d] Current assets to current liabilities.

[e] Ratio of long-term debt to equity.

[f] Ratio of internal cash generation to debt service requirement.

20. **CGN-DSE.** Financial projections for CGN-DSE are essentially based on the impact of the Project on the company's financial statements. The Project is assessed to be financially viable. The financial operations of the project company were projected for 2013–2030 based on the major assumptions described below. The capital investment program considers only the ADB-funded project. Annual investment outlays were adjusted using the projected annual escalation factors used in ADB projects. The projections use an exchange rate of CNY6.2 to $1.00. After project completion, capital expenditures for major overhauls are expected every four years throughout the project life. The expenditures, however, are minor as compared to initial investment. The expected economic life of the project is 25 years, with residual value assumed for the civil works and land-use right.

21. Under the proposed loan, CGN and CGN-SEDC will cause CGN-DSE to maintain sound financial management systems in accordance with ADB's Financial Management and Analysis of Projects, including the maintenance of minimum balances to ensure smooth cash flow and the timely settlement of the project construction liabilities and future debt servicing. CGN-DSE will maintain a DSCR of at least 1.2 times and a debt-equity ratio of at least 80 to 20. The financial covenants of ADB are expected to be satisfied during the life of the Project. The DSCR is forecasted to be adequate throughout. The debt–equity ratio will be within the prescribed maximum limit.

a. Revenues

22. Commercial operation is expected to commence in November 2016. The expected net energy yield of the plant is 197.28 gigawatt-hours (GWh) out of which 102.71 GWh, equivalent to 52.1%, will be generated in the months of January to June and 94.9 GWh, or 47.9%, during the months of July to December. The annual as well as the major overhauls will be conducted during the month with the lowest sunshine-hours, i.e. the month of December. Thereby, an impact on revenues from regular and preventive maintenance may be avoided. Revenues have been projected at an estimated inflation-indexed feed-in tariff of CNY 1.15 per kilowatt-hour (kWh), including value-added tax (VAT), or CNY 0.98 per kWh, excluding VAT.

b. Operating, Maintenance, and Other Expenses

23. Other cost assumptions considered in the feasibility study include (i) annual fixed costs, including personnel, insurance, external services, general maintenance, spare parts, consumables, supplies, and other costs estimated at CNY 18.14 million; (ii) annual variable operating cost for general maintenance, spare parts and consumables estimated at CNY 1.43 million; (iii) water costs of CNY0.33 million, excluding VAT; (iv) cost for gas consumption of CNY 16.09 million, excluding VAT; and (v) parasitic power consumption estimated at CNY 3.32 million, excluding VAT. Fixed assets are depreciated using the straight line over 20 years. A major maintenance reserve will be held to provide for the major overhauls every four years.

c. Interest on Long-term Debts and Taxes

24. Interest expenses on existing long-term debts are calculated based on prevailing loan terms. Interest on the ADB loan is calculated based on the current London inter-bank offered rate (LIBOR) on the 5-year fixed-interest swap (currently at 0.844%), plus the ADB loan spread of 0.40% plus the average maturity margin of 0.1%. The loans from local banks carry an interest rate of 6.55%, the prevailing rate prescribed for long-term loans by the People's Bank of China. The net income from the Project is tax exempted for the first three years of operation; subject to half of the regular income tax of 25% for the following years of operation and in subsequent subject to the regular income tax rate. CGN-DSE will retain after-tax profit, and no dividends will be paid. Other local taxes include VAT of 17% on sales, a construction and educations tax of 10% on VAT. For capital costs, a 17% VAT on equipment value has been adopted.

Table 2: Summary of Financial Projections for CGN-DSE

	2014	2015	2016	2017	2018	2019	2020	2025	2030
Start of Period	**1-Jan-14**	**1-Jan-15**	**1-Jan-16**	**1-Jan-17**	**1-Jan-18**	**1-Jan-19**	**1-Jan-20**	**1-Jan-25**	**1-Jan-30**
End of Period	**31-Dec-14**	**31-Dec-15**	**31-Dec-16**	**31-Dec-17**	**31-Dec-18**	**31-Dec-19**	**31-Dec-20**	**31-Dec-25**	**31-Dec-30**
Financial Accounts CNY million									
Operating Revenues	--	--	33.7	216.6	223.1	229.8	236.7	274.4	318.1
Net Operating Income	--	--	26.9	169.4	174.6	184.8	190.3	220.6	255.7
Net Income	--	--	11.9	51.6	56.1	55.9	64.0	106.5	153.9
Total Assets	576.5	1,327.6	1,622.1	1,964.7	1,933.5	1,855.8	1,778.1	1,397.3	1,020.6
Net Fixed Assets	576.5	1,327.6	1,595.2	1,891.0	1,801.0	1,711.1	1,636.4	1,187.1	747.0
Long-Term Liabilities	403.0	951.1	1,117.2	1,366.5	1,335.2	1,257.5	1,179.8	791.4	402.9
Equity	173.5	376.5	493.0	598.2	598.2	598.2	598.2	598.2	598.2
Net Internal Cash Generation	--	--	15.0	105.0	195.0	284.9	374.9	830.2	1,289.7
Financial Ratios									
Operating Ratio [a] (%)	n/a	n/a	200.3	218.1	217.4	195.9	195.9	195.9	195.9
Return on Net Fixed Assets[b] (%)	**0%**	**0%**	2%	9%	9%	10%	10%	15%	24%
Debt/(Debt & Equity) Ratioe [c] (%)	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.4
Debt Service Ratio[f] (times)	n/a	n/a	n/a	2.87	2.92	1.51	1.60	2.12	2.87

[a] Total operating expenses as a percentage of total revenues.

[b] Net operating income before interest and taxes divided by average net assests

[c] Ratio of long-term debt to long-term debt plus equity

[d] Cash flow from operation divided by annual debt service obligations

Source: Asian Development Bank estimates.