



**CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-SSC-PDD)
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**SECTION A. General description of small-scale project activity****A.1 Title of the small-scale project activity:**

Shimian Haiyang Hydropower Project
 Document Version: PDD, Version 06
 Completion Date: 14/07/2009

A.2. Description of the small-scale project activity:

Shimian Haiyang Hydropower Project (hereinafter referred to as the “project”) is invested and developed by Shimian Haiyang Electric Power Co., Ltd.

The project is a run-of-river hydropower project without reservoir, located on the main stream of the Nanya River, one of the branches of Dadu River, in Caluo Yi Countryside and Liziping Yi Countryside, Shimian County, Ya'an City of Sichuan province, P.R.China. Prior to implementation of the proposed project, electricity demand in the absence of the project is supplied by Sichuan provincial grid, which is one of sub-grids of the Central China Power Grid (“CCPG”) dominated by thermal power. Within the project activities, two sets of water turbine and generating units, which are made and supplied by a domestic manufacturer, will be installed at the site with a total generation capacity of 3.2MW (2×1.6MW).

The project is expected to generate an annual average electricity of 19,011 MWh, and to deliver an annual average electricity of 15,932 MWh¹ to the CCPG through Sichuan Provincial Grid. The baseline scenario to the project activity is the same as the scenario existing prior to the start of implementation of the project activity.

The project will displace part of the electricity generated by the CCPG dominated by thermal power plants. Thus, the greenhouse gas (“GHG”) emission reductions will be achieved; the estimated annual GHG emission reductions of the project are 15,510 tCO_{2e} in the first 7-year crediting period.

Besides of generating renewable and clean electricity, the project will contribute to sustainable development to the local environment, economy and society with the following aspects:

- Reducing the emissions of GHG and pollutants resulting from burning fossil fuels;
- Creating job opportunities, it needs 17 workers during the period of operation;
- Preventing water and soil lose through switching wood burning to electricity in cooking and heating;

¹ The project is a non-regulation, run-of-river hydropower station. According to the Table 3.4 in the *Economic Evaluation Code for Small Hydropower Project (SL16-95)*, the effective coefficient for these types of hydropower stations is in a range of 0.80–0.90. The effective power factor of the project (0.88) is within this range. So Electricity to the Grid of the Project = the theoretical Electricity Generation*Effective Coefficient*(1-Internal Consumption rate)*(1-Transmission Line Loss rate)=19,011MWh*0.88*(1-0.8%)*(1-4%)=15,932MWh. The effective coefficient (the plant load factor), the internal consumption rate, and the transmission line loss are derived from PDR which was approved by local DRC.



- Relieving poverty by increasing the income of local government and residents.

A.3. Project participants:

Name of Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
People's Republic of China (host)	Shimian Haiyang Electric Power Co., Ltd.	No
Japan	J-TEC Co., Ltd.	No

A.4. Technical description of the small-scale project activity:**A.4.1. Location of the small-scale project activity:****A.4.1.1. Host Party(ies):**

People's Republic of China

A.4.1.2. Region/State/Province etc.:

Sichuan Province

A.4.1.3. City/Town/Community etc:

Shimian County, Ya'an City



A.4.1.4. Details of physical location, including information allowing the unique identification of this small-scale project activity(ies):

The project is located on the main stream of the Nanya River, one of the branches of Dadu River, in Haiyang village, Shimian County, Ya'an City of Sichuan province, approximately 30km south of Shimian County. The head pivot is located at the convergence of the Gongyihai River and the Nanya River, and the power plant lies to the west of the Nanya River. The geographical coordinates of the project site are 102°20' east longitude and 28°30' north latitude. Location of the project is shown in Figure 1.



Figure 1. Project Location



A.4.2. Type and category(ies) and technology/measure of the small-scale project activity:

Type and category of the small-scale project activity:

Type I – Renewable Energy Projects, and
Category I-D – Grid connected renewable electricity generation.

Technology/measure of the small-scale project activity:

Prior to the start of implementation of the project activity, electricity demand is supplied by the CCPG which is dominated by thermal power, which is also the baseline scenario to the project activity.

The project is a run-of-river hydropower project with a total installed capacity of 3.2MW. The technology employed in the project is two sets of impulse turbines (1.6MW each) manufactured by a domestic company. The installed two sets of turbines and generators are designed to operate for 5941 hours annually.

The project consists of a headwork, a headrace tunnel, a factory pivot, and a transmission line. The factory pivot mainly includes a powerhouse with two water turbine and generator (1.6MW each) systems, an auxiliary powerhouse, a booster station and tail buildings. The project will connect to the CCPG via a transformer substation through a transmission line.

The specific technical data of the project are listed in Table A.4.2.-1.

Table A.4.2.-1 Technical data

Parameter	Unit	Parameter
Station type	headrace tunnel type	
Total length of headrace tunnel	m	3,350.6
Turbine		
Units		2
Model		HL100 -WJ-84
Rated rotational speed	r/min	750
Rated head	m	102
Rated flow	m ³ /s	2
Generator		
Units		2
Model		SFW-K1600-8/1430
Rated power	kW	1600

All the equipment utilized in the project are developed and manufactured in China. There is no overseas technology transferred to the project.

The monitoring equipment includes electricity meters with an accuracy of 0.5S. The installation location of these monitoring equipment and instruments is shown in Figure 2.



According to the applicable methodology, there is no emission sources and the greenhouses gases involved in the project activity. The electricity generated by the project will be delivered to the CCPG, except a small quantity will be utilized in-situ for equipment operation or maintenance, or during shut down period.

The details are shown in Table B.3.-1 in the section B.3.

A.4.3. Estimated amount of emission reductions over the chosen crediting period:

The project applies a renewable crediting period. The first 7-year crediting period is expected to start on 01 October 2009 till 30 September 2016. Emission reductions to be achieved during the first crediting period are shown in Table A.4.3.-1.

Table A.4.3.-1 Emission Reductions in the First Crediting Period

Years	Estimation of annual emission reductions in tonnes of CO₂e
01/10/2009-31/12/2009	3,878
2010	15,510
2011	15,510
2012	15,510
2013	15,510
2014	15,510
2015	15,510
01/01/2016-30/09/2016	11,632
Total estimated reductions during the first 7-year crediting period (tonnes of CO₂e)	108,570
Total number of the first crediting years	7
Annual average of the estimated reductions over the crediting period (tonnes of CO₂e)	15,510

A.4.4. Public funding of the small-scale project activity:

There is no public fund from parties included in Annex I of the UNFCCC involved in the project activity.

A.4.5. Confirmation that the small-scale project activity is not a debundled component of a large scale project activity:

According to Appendix C of the Simplified Modalities and Procedures for small-scale CDM project activities, the proposed small-scale project activity is not a debundled component of a large project activity because there is not a registered small-scale CDM project activity or an application to register another small-scale CDM project activity:

- With the same project participants;



- In the same project category and technology/measure; and
- Registered within the previous 2 years; and
- Whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point.

Besides that, the project owner of the project never invested any hydropower station or applied for any CDM project. Therefore, the project is not a debundled component of any large project activity.

SECTION B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the small-scale project activity:

- AMS-I.D “Grid connected renewable electricity generation”(Version 13)
- Tool to calculate the emission factor for an electricity system (Version 01.1)

Above methodology is available at

<http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html>

Above tool is available at

<http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html>

B.2 Justification of the choice of the project category:

The project meets the applicability conditions of AMS-I.D (Version 13) as following:

- The installed capacity of the project is 3.2MW, within the limit of 15 MW.
- The generating electricity of the project is transmitted to the CCPG through Sichuan Provincial Grid. The geographic and system boundaries for the CCPG can be clearly identified and information on the characteristics of the grid is available.

B.3. Description of the project boundary:

According to the methodology AMS-I.D (Version 13), the project boundary encompasses the physical, geographical site of the renewable generation source.

The project boundary is defined as the CCPG which is a larger regional power grid dominated by thermal power plants. The CCPG consists of Hunan Provincial Power Grid, Hubei Provincial Power Grid, Jiangxi Provincial Power Grid, Sichuan Provincial Power Grid, Henan Provincial Power Grid and Chongqing Municipal Power Grid. In addition, the CCPG also imports electricity from Northwest China Power Grid (NWCPG). Therefore, NWCPG is also included in the project boundary.

Table B.3.-1 Sources and gases included in the project boundary

Item	Source	Gas	Included	Justification / Explanation
Baseline	Emissions from electricity generated in fossil fuel fired power plants connected to the CCPG which is displaced by the project activity	CO ₂	Yes	Main GHG emission sources.
		CH ₄	No	Not GHG emission sources.
		N ₂ O	No	Not GHG emission sources.
Project Activity	Hydropower plant	CO ₂	No	Not GHG emission sources.
		CH ₄	No	Not GHG emission sources.
		N ₂ O	No	Not GHG emission sources.

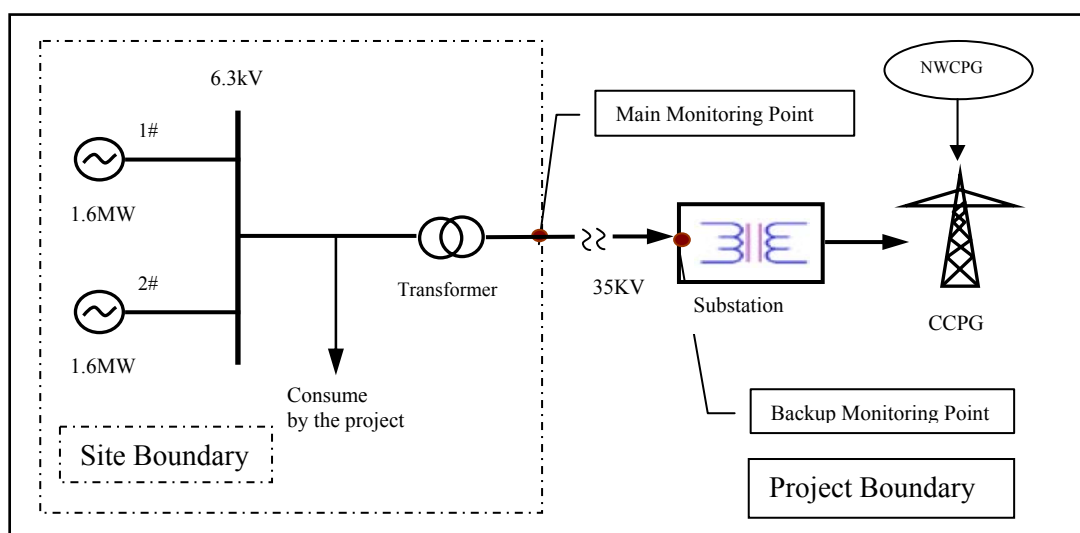


Figure 2. Diagram of Project Boundary

B.4. Description of baseline and its development:

According to the AMS-I.D (Version 13), the proposed project activity is the installation of a new grid-connected renewable power plant/unit. Therefore, the baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO₂e/kWh) calculated in a transparent and conservative manner as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the 'Tool to calculated the emission factor for an electricity system'.

The proposed project will be connected to the CCPG. In this case, the only realistic and reasonable baseline scenario is to provide the same amount electricity by the CCPG.



B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered small-scale CDM project activity:

Considering of CDM before the construction of the project

The Preliminary Design Report (PDR) of the proposed project was approved by Ya'an Water Conservancy & Electricity Bureau and Ya'an Committee of Plan & Economy on September 8th, 1997. However, because of lacking in technology and capital, the developing work of the project was suspended. In April, 2003, the developing right of the proposed project was sold to Mr. Li Yongfu. But construction fund gap was still the main problem the project faced. In order to solve the financial problem and the problem related to power transmission, Mr. Li Yongfu collaborated with Sichuan Asbestos Mine Company (Former of Sichuan Longjiang Electricity Co., Ltd.) to develop this project together in December. But the development has been suspended due to the state-owned enterprises' reformation of Sichuan Asbestos Mine Company in 2004. Till to 2005, the project owner prepared to start the work of this project after the Sichuan Longjiang Electricity Co., Ltd. has been set up based on Sichuan Asbestos Mine Company's reformation. Considering that the PDR completed in 1997 was too old and could not show the realistic investment condition of the project, the project owner consigned the design institute to prepare the revised PDR. According to the revised PDR, the total investment of the project greatly increased due to the worse geological conditions and increased material and labour costs, the IRR of the project is lower than the benchmark. Then the project owner knew about CDM and decided to apply CDM after contacting with the consultant company. Under the support from CDM project, the proposed project finally started constructed in February, 2007.

The main events regarding the project implementation and application for CDM can be found in the table below.

Table B.5.-1 Main events regarding the implementation and application for CDM of the project

Time	Milestone
September 8 th , 1997	PDR was approved by Ya'an Water Conservancy & Electricity Bureau and Ya'an Committee of Plan & Economy
April 1 st , 2003	The developing right of the proposed project was sold to Mr. Li Yongfu
December 23 rd , 2003	Mr. Li Yongfu signed Developing Contract with Sichuan Asbestos Mine Company (Former of Sichuan Longjiang Electricity Co., Ltd.)
January 29 th , 2004	EIA was approved by Shimian County Environmental Protection Bureau
February 15 th , 2005	Shimian Haiyang Power Electric Co, Ltd. was founded
August, 2005	Revised PDR was completed
October 25 th , 2005	Board meeting for considering to apply for CDM
January 15 th , 2006	Board meeting for deciding to seek CDM support
August 15 th , 2006	Consulting contract to apply for CDM project was signed between PO and Shanghai JEC Environmental Consultant Co., Ltd.(SHJEC)
October 12 th , 2006	The PO, together with SHEJC, carried out the stakeholders' consultation for the social, economic and environmental effects caused by the project.
February 25 th , 2007	The Construction Contract was signed between the PO and the construction company.
September 2007	The negotiation with the CER Buyer candidate started.



April 3 rd , 2008	Preliminary Emission Reductions Purchase Agreement(ERPA) was signed
July 22 nd , 2008	Final ERPA was signed
October, 2008	Commissioning Start

The above events clearly demonstrate that the incentive from the CDM was seriously considered in the decision to proceed with the project activity. And the PO took successive actions to secure the CDM application in parallel with the construction works for the project.

The main barrier identified for the proposed project activity is the investment barrier.

With reference to *Economic evaluation code for small hydropower projects (SL16-95)*, which is still valid up to now, the financial benchmark IRR of the total investment in Chinese small hydropower industries is 10% (after tax). Therefore, the proposed project chose 10% as the project IRR.

The following parameters and values are applied for calculation and comparison of financial indicators, IRR.

Table B.5.-2 Parameters to determine the project IRR

Item	Value	Unit	Source
Installed Capacity	3.2	MW	Preliminary Design Report and Revised PDR
Total investment	30.14	million CNY	Revised Preliminary Design Report
Annual operational and maintenance costs	0.599	million CNY	Preliminary Design Report and Revised PDR
Electricity generation	15,932	MWh	Preliminary Design Report and Revised PDR
Tariff (without VAT)	0.246	CNY/kWh	Sichuan Price Bureau
Value Added Tax (VAT)	6	%	Information from Local Tax Bureau
City Construction & Maintenance Tax and Educational Surcharge rate	4	%	Information from Local Tax Bureau
Income tax	4	%	Information from Local Tax Bureau
Project Operational Lifetime	30	year	Preliminary Design Report
Exchange Rate	7.4	¥/\$	Estimation
Estimated CER price	12.25	US\$/CER	Estimation

The financial analysis of the proposed project is shown in Table B.5.-3, with and without CERs taken into account. The calculated IRR value of the project without CERs would be 8.73%, which is far below the financial benchmark 10%. Thus without CERs revenue, it is evident that this project will face substantial financial hurdles and cannot be implemented.

After taking CERs revenue into consideration, the project's IRR of total investment will reach 12.41%, over than the benchmark 10%. Therefore, this project is financially feasible and can be

implemented.

Table B.5.-3 Financial analysis results of the proposed project

	IRR (%) (after tax)
Without CERs	8.73
With CERs	12.41

A sensitivity analysis was conducted by altering the parameters: investment, operation & maintenance costs, electricity sales, and electricity tariff. As the above parameters fluctuated by 10%, the impact on the project IRR is shown in the Figure 3.

The expected variation range of $\pm 10\%$ of the input parameters is based on the experience and expectation of the industry in China.

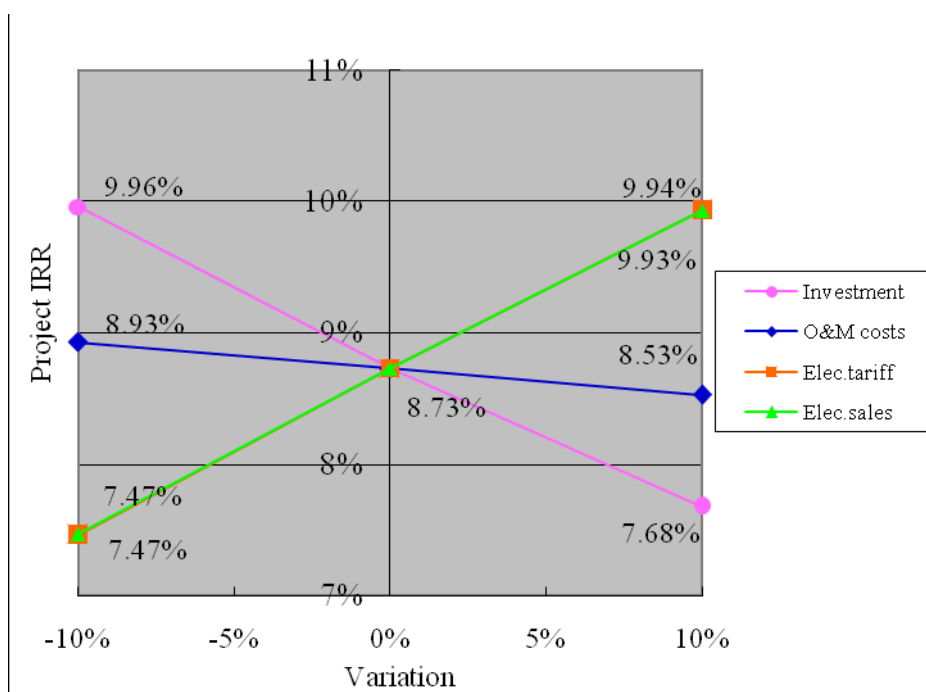


Figure 3 Sensitivity analysis of the project

Figure 3 shows that in the case of the fluctuation in investment, operation & maintenance costs, electricity sales, and electricity tariff by 10%, the project IRR is still lower than the 10% benchmark. Therefore, the sensitivity analysis concludes that the proposed project activity is unlikely to be implemented due to the lacking of financial attractive if without CERs revenue taken into account.

Alternatively, when the project IRR is equal to the benchmark, the variations of critical parameters are shown in the table below.



Table B.5.-3 Parameter variation when project IRR is equal to the benchmark

Parameters	Investment	O&M costs	Elec. Tariff	Elec. Sales
Project IRR = Benchmark	-10.3%	-64.5%	10.5%	10.6%

As for investment, it is unlikely to decrease by 10.3% due to the continuous increase in material and labor costs etc. in China. According to the National Bureau of Statistics of China, the procurement price index for material, fuel and power was increased by 8.3%², 6.0%³ and 4.4%⁴ nationwide during the year 2005, 2006, and 2007, respectively.

As for Operation & Maintenance costs, it is impossible to decrease 64.5% since price is increasing.

As for the electricity tariff, it is regulated and managed by provincial and local government. The PPA which has been signed between the PO and local grid company on 9th February 2009 showed that the actually tariff for the project would not higher than 0.195CNY/kWh. Therefore, the tariff used in the investment analysis in the PDD is conservative and the increase in tariff by 10.5% is unlikely to occur.

As for the electricity sales, all water flow data used for designing the installed capacity of the project were based on the water resource data collected from an independent Nangua Bridge Hydrological Station during the past 31 years⁵. Therefore, the amount of electricity sales is unlikely to be increased by 10.6% in the project activity.

In sum, the above sensitivity analysis by altering four critical parameters clearly demonstrates that without CDM support, the proposed project cannot be implemented.

The project faces investment barrier which could prevent its implementation if without CDM support. In such a case, the coequal electricity to be generated by the project would be substituted and supplied by the CCPG dominated by thermal power for its energy source and therefore no GHG emission would be reduced accordingly. But with CDM revenue, the project owner can overcome the financial hurdle as demonstrated in this section.

Hence, it can be concluded that the project activity is additional to the baseline scenario.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

According to the AMS-I.D “Grid connected renewable electricity generation” (Version 13), and Tool to calculate the emission factor for an electricity system (Version 01.1), the emission reductions of the proposed project are calculated as following steps:

1. Baseline Emissions (BE_y)

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity, calculated as follows:

² http://www.stats.gov.cn/tjgb/ndtjgb/qgndtjgb/t20060227_402307796.htm

³ http://www.stats.gov.cn/tjgb/ndtjgb/qgndtjgb/t20070228_402387821.htm

⁴ http://www.stats.gov.cn/tjgb/ndtjgb/qgndtjgb/t20080228_402464933.htm

⁵ Preliminary Design Report of the Project



$$BE_y = (EG_{PJ,y} - EG_{baseline}) \times EF_{grid,CM,y} \quad (1)$$

Where:

BE_y	Baseline emissions in year y (tCO ₂ /yr.);
$EG_{PJ,y}$	Electricity supplied by the project activity to the grid (MWh);
$EG_{baseline}$	Baseline electricity supplied to the grid in the case of modified or retrofit facilities (MWh), For new power plants this value is taken as zero;
$EF_{grid,CM,y}$	Combined margin CO ₂ emission factor for grid connected power generation in year y calculated using the latest version of the “ <i>Tool to calculate the emission factor for an electricity system</i> ”.

※ **Calculation of $EF_{grid,CM,y}$ for the CCPG based on the *Tool to calculate the emission factor for an electricity system***

The electricity generated by the project activity will be transferred to the CCPG. The total installed capacity is 3.2 MW throughout the first crediting period. *China Electric Power Yearbook* and *China Energy Statistical Yearbook* data are publicly available to calculate the Emission Factor of the CCPG. The default values for the calculation of calorific values for fuel types came from the *China Energy Statistical Yearbook (2007)*, the potential emission factor and fuel oxidation came from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. Moreover, the Chinese DNA published emission factor of the CCPG on its website⁶ which is also available.

Step 1. Identify the relevant electric power system

The electricity generated by the project will be connected to the CCPG which consists of Hunan Provincial Power Grid, Hubei Provincial Power Grid, Jiangxi Provincial Power Grid, Sichuan Provincial Power Grid, Henan Provincial Power Grid and Chongqing Municipal Power Grid. Therefore, the CCPG is identified as the relevant electric power system. In addition, the CCPG also imports electricity from Northwest China Power Grid (NWCPG). Therefore, NWCPG is also identified as the relevant electric power system.

Step 2. Select an operating margin (OM) method

The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following methods:

- (a) Simple OM, or
- (b) Simple adjusted OM, or
- (c) Dispatch data analysis OM, or
- (d) Average OM.

For the simple OM, the five most recent years (2002-2006) where data are available, the low-cost/must run resources⁷ constituted less than 50% of total power generation of the CCPG and the relevant ratios are respectively 35.9%, 34.4%, 38.5%, 38.6% and 35.1%⁸ for year 2002, 2003, 2004, 2005 and 2006. Therefore, the simple OM is applicable to calculate the OM emission factor

⁶ <http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=3239>

⁷ Low-cost/must-run resources are defined as power plants with low marginal generation costs or power plants that are dispatched independently of the daily or seasonal load of the grid. Low-cost/must-run resources in CCPG typically include hydro, wind, and nuclear resources.

⁸ China Electric Power Yearbook (2003~2007)



for the project.

For the simple adjusted OM, due to the load data for each hour of the year and power generation data from each power plant/unit are confidential information which is not available to be obtained by public. So, the Simple adjusted OM is not applicable.

For the dispatch data analysis OM, the OM emission factor is determined based on the power units that are actually dispatched at the margin during each hour where the project is dispatching electricity. However the detailed dispatch data of the CCPG is unavailable. Thus, the dispatch data analysis OM is not applicable.

For the average OM, it is only applicable to: 1) low-cost/must run resources constitute more than 50% of the grid generation, and 2) detailed data required by applying method (b) or method (c) is unavailable. However, the low-cost/must run resources constituted are less than 50% of total power generation of the CCPG. Hence, the average OM is not applicable.

In conclusion, the simple OM is the only appropriate method.

Step 3. Calculate the operating margin emission factor according to the selected method

The simple OM emission factor is calculated as the generation-weighted average CO₂ emissions per unit net electricity generation (tCO₂e/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units. It may be calculated:

- Based on data on fuel consumption and net electricity generation of each power plant / unit (Option A), or
- Based on data on net electricity generation, the average efficiency of each power unit and the fuel type(s) used in each power unit (Option B), or
- Based on data on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system (Option C)

Option C is the only appropriate method based on the following two reasons:

- a. The data required in Option A and Option B belong to commercial secret and not publicly available in China;
- b. Renewable power generation is considered as low-cost / must-run power sources; and the data of electricity sales of these resources are publicly available.

According to Option C, it may be calculated using following equation:

$$EF_{grid,OMsimple,y} = \frac{\sum_i FC_{i,y} \times NCV_{i,y} \times EF_{CO_2,i,y}}{EG_y} \quad (2)$$

Where:

- $EF_{grid,OMsimple,y}$ Simple operating margin CO₂ emission factor in year y (tCO₂e/MWh)
- $FC_{i,y}$ Amount of fossil fuel type i consumed in the project electricity system in year y (mass or volume unit). Using country specific data from *China Energy Statistical Yearbook (2005-2007)*
- $NCV_{i,y}$ Net calorific value (energy content) of fossil fuel type i in year y (GJ/mass or volume unit). Using country specific data from *China Energy Statistical*



	<i>Yearbook (2007)</i>
$EF_{CO_2,i,y}$	CO ₂ emission factor of fossil fuel type <i>i</i> in year <i>y</i> (tCO ₂ /GJ). Using 2006 IPCC Guidelines for default values
EG_y	Net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost/must-run power plants/units, in year <i>y</i> (MWh)
<i>i</i>	All fossil fuel types combusted in power sources in the project electricity system in year <i>y</i>
<i>y</i>	The three most recent years for which data is available at the time of submission of the CDM-PDD to the DOE for validation (ex-ante)

According to the above steps and the emission factor of the CCPG published by Chinese DNA on its website, a 3-year average Simple OM emission factor of the CCPG is:

$$EF_{grid,OM,y} = 1.2783 \text{ tCO}_2\text{e/MWh}$$

See Annex 3 for detailed calculation.

Step 4. Identify the cohort of power units to be included in the build margin

According to the methodology, the sample group of power units *m* used to calculate the build margin consists of either:

- (1) The set of five power units that have been built most recently, or
- (2) The set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently.

The set of power units that comprise the larger annual generation is selected. In terms of the vintage of data, Option 1 is selected for calculating BM in the project. Option 1 is described as following:

- For the first crediting period, calculating the build margin emission factor ex-ante based on the most recent information available on units already built for sample group *m* at the time of CDM-PDD submission to the DOE for validation;
- For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to DOE;
- For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

Step 5. Calculate the build margin emission factor

The build margin emission factor is the generation-weighted average emission factor (tCO₂e/MWh) of all power units *m* during the most recent year *y* for which power generation data is available, calculated as follows:

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}} \quad (3)$$



Where:

$EF_{grid,BM,y}$	Build margin CO ₂ emission factor in year y (tCO ₂ e/MWh)
$EG_{m,y}$	Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
$FE_{EL,m,y}$	CO ₂ emission factor of power unit m in year y (tCO ₂ e/MWh)
m	Power units included in the build margin
y	Most recent historical year for which power generation data is available

However, data on either the five power plants that have been built most recently or the power plants capacity additions in the electricity system that comprise 20% of the system generation are classified as business confidential and are not publicly available. In accordance with the EB's guidance, the following deviations are accepted:

- Use of capacity additions during last 1~3 years for estimating the build margin emission factor for grid electricity;
- Use of weights estimated using installed capacity in place of annual electricity generation.

EB also suggests using the efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy, for each fuel type in estimating the fuel consumption to estimate the build margin (BM).

According to the data published by Chinese DNA⁹, the generating systems with a capacity of over 600MW share 40% of total installation capacity and represent the most advanced technology commercially used in domestic coal-fired plants. The combined cycle technology with a capacity of 200MW stands for the most advanced technology used in thermal plants fired by gas or oil in China. Therefore, the BM emission factor of the CCPG is calculated using the data from 2004~2006, based on the above best technology commercially available at the time of this PDD submission. The calculation procedures are shown below.

$$\lambda_{coal} = \frac{\sum_{i \in COAL, j} F_{i,j,y} * COEF_{i,j}}{\sum_{i,j} F_{i,j,y} * COEF_{i,j}} \quad (4)$$

$$\lambda_{oil} = \frac{\sum_{i \in OIL, j} F_{i,j,y} * COEF_{i,j}}{\sum_{i,j} F_{i,j,y} * COEF_{i,j}} \quad (5)$$

$$\lambda_{gas} = \frac{\sum_{i \in GAS, j} F_{i,j,y} * COEF_{i,j}}{\sum_{i,j} F_{i,j,y} * COEF_{i,j}} \quad (6)$$

Where:

λ_{coal} , λ_{oil} and λ_{gas} represent the proportion of CO₂ emission of the solid, liquid and gas fuel in the total emission, respectively.

$F_{i,j,y}$ is the amount of fuel i consumed by relevant power sources j in year y (mass or volume).

⁹<http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=3239>



$COEF_{i,j,y}$ is the CO_2 emission coefficient of fuel i (tCO_2 /mass or volume), taking into account the carbon content of the fuels used by relevant power sources j and the percent oxidation of the fuel in year y .

COAL, OIL and GAS are the mark aggregation of solid fuel, liquid fuel and gas fuel, respectively.

$$EF_{thermal} = \lambda_{coal} * EF_{coal,Adv} + \lambda_{oil} * EF_{oil,Adv} + \lambda_{gas} * EF_{gas,Adv} \quad (7)$$

$EF_{thermal}$ is the emission factor of thermal power plant. $EF_{coal,Adv}$, $EF_{oil,Adv}$ and $EF_{gas,Adv}$ represent the CO_2 emission factor of the most advanced technology commercially used in coal-, oil- and gas-fired plants in China, respectively.

$$EF_{BM,y} = \frac{CAP_{Thermal}}{CAP_{Total}} \times EF_{Thermal} \quad (8)$$

CAP_{Total} is the total newly capacity addition on different power sources connected to the CCPG. $CAP_{Thermal}$ is the newly capacity addition on thermal power sources connected to the CCPG.

According to the above steps and the emission factor of the CCPG published by Chinese DNA on its website, the BM emission factor of the CCPG is:

$$EF_{grid,BM,y} = 0.6687 \text{ tCO}_2\text{e/MWh}$$

See Annex 3 for detailed calculation.

Step 6. Calculate the combined margin emissions factor

$EF_{grid,CM,y}$ is the weighted average of the Operating Margin emission factor ($EF_{grid,OM,y}$) and the Build Margin emission factor ($EF_{grid,BM,y}$):

$$EF_{grid,CM,y} = EF_{grid,OM,y} * w_{OM} + EF_{grid,BM,y} * w_{BM} \quad (9)$$

Where:

w_{OM} Weighting of operating margin emission factor (%)
 w_{BM} Weighting of build margin emission factor (%)

For hydropower project the weights w_{OM} and w_{BM} , by default, are 50% (i.e., $w_{OM} = w_{BM} = 0.5$) during the first crediting period. $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ are calculated as described in above and are expressed in $tCO_2\text{e/MWh}$.

Baseline emission is:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y} \quad (10)$$

3. Leakage Emissions L_y

According to AMS-I.D., the leakage (L_y) of the project is zero.

4. Emission Reductions ER_y

Therefore, the emission reductions of the project is

$$ER_y = BE_y - PE_y - L_y \quad (11)$$

**B.6.2. Data and parameters that are available at validation:**

Data / Parameter:	FC_{i,y}
Data unit:	Mass or volume
Description:	Amount of fossil fuel type i consumed by power plants connected to the CCPG in year y
Source of data used:	<i>China Energy Statistical Yearbook (2005~2007)</i>
Value applied:	See Annex 3
Justification of the choice of data or description of measurement methods and procedures actually applied :	China Energy Statistical Yearbook is an authoritative publication.
Any comment:	-

Data / Parameter:	NCV_{i,y}
Data unit:	TJ/volume or TJ/mass
Description:	net calorific value (energy content) per mass or volume unit of fuel i
Source of data used:	<i>China Energy Statistical Yearbook (2007)</i>
Value applied:	See Annex 3
Justification of the choice of data or description of measurement methods and procedures actually applied :	China Energy Statistical Yearbook is an authoritative publication.
Any comment:	-

Data / Parameter:	EF_{CO₂i}
Data unit:	tCO ₂ /TJ
Description:	CO ₂ emission factor of fossil fuel type i in year y
Source of data used:	Default values from 2006 IPCC Guidelines for National Greenhouse Gas Inventories
Value applied:	See Annex 3
Justification of the choice of data or description of measurement methods and procedures actually applied :	No local specific value available, therefore using default values from 2006 IPCC Guidelines for National Greenhouse Gas Inventories.
Any comment:	-

Data / Parameter:	EG_y
Data unit:	MWh
Description:	Net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost/must run power plants/units.
Source of data to be used:	<i>China Electric Power Yearbook (2005~2007)</i>
Value applied:	See Annex 3



Justification of the choice of data or description of measurement methods and procedures actually applied :	China Electric Power Yearbook is an official and authoritative publication.
Any comment:	-

Data / Parameter:	GENE_{best,coal}
Data unit:	%
Description:	Best power supply efficiency by the most advanced technology commercially used in coal-fired plants in China
Source of data used:	Bulletin on Baseline Emission Factors of the China's Regional Grids- the calculation of baseline Build Margin emission factor for the China's Regional Grids http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=3239
Value applied:	37.28%
Justification of the choice of data or description of measurement methods and procedures actually applied :	Official data from Chinese DNA
Any comment:	-

Data / Parameter:	GENE_{best,oil,gas}
Data unit:	%
Description:	Best power supply efficiency by the most advanced technology commercially used in oil- and gas-fired plants in China
Source of data used:	Bulletin on Baseline Emission Factors of the China's Regional Grids- the calculation of baseline Build Margin emission factor for the China's Regional Grids http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=3239
Value applied:	48.81%
Justification of the choice of data or description of measurement methods and procedures actually applied :	Official data from Chinese DNA
Any comment:	-

Data / Parameter:	CAP_{i,v}
Data unit:	MW
Description:	Installed generation capacity on different power sources connected to the CCPG
Source of data used:	<i>China Electric Power Yearbook (2005~2007)</i>
Value applied:	See Annex 3
Justification of the choice of data or description of measurement methods and procedures actually applied :	China Electric Power Yearbook is an authoritative publication.
Any comment:	-

**B.6.3 Ex-ante calculation of emission reductions:****1. Project Emissions (PE_y)**

According to AMW.I.D, the project emissions are not accounted.

2. Baseline Emissions (BE_y)

The combined margin emission factor ($EF_{grid,CM,y}$):

$$EF_{grid,CM,y} = 0.5 \times 1.2783 + 0.5 \times 0.6687 = 0.9735 \text{ tCO}_2\text{e/MWh}$$

The baseline emission is:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y} = 15,932 \times 0.9735 = 15,510 \text{ tCO}_2\text{e/yr}$$

3. Leakage Emissions L_y

According to AMS-I.D., the leakage $L_y=0$

4. Emission Reductions ER_y

Therefore, the emission reductions of the project is

$$ER_y = BE_y - PE_y - L_y = 15,510 - 0 - 0 = 15,510 \text{ tCO}_2\text{e/yr}$$

B.6.4. Summary of the ex-ante estimation of emission reductions:

Year	Estimation of project activity emissions (tonnes of CO ₂ e)	Estimation of baseline emissions (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of overall emission reductions (tonnes of CO ₂ e)
01/10/2009-31/12/2009	0	3,878	0	3,878
2010	0	15,510	0	15,510
2011	0	15,510	0	15,510
2012	0	15,510	0	15,510
2013	0	15,510	0	15,510
2014	0	15,510	0	15,510
2015	0	15,510	0	15,510
01/01/2016-30/09/2016	0	11,632	0	11,632
Total(tCO₂e)	0	108,570	0	108,570

B.7 Application of a monitoring methodology and description of the monitoring plan:**B.7.1 Data and parameters monitored:**



The following data and parameters will be monitored during the project crediting period.

Data / Parameter:	EG_{PJ,y}
Data unit:	MWh
Description:	Net electricity supplied to the CCPG by the project ¹⁰
Source of data to be used:	Measured by meters
Value of data applied for the purpose of calculating expected emission reductions in section B.6.	15,932MWh/yr
Description of measurement methods and procedures to be applied:	Directly measured by meters installed at the outlet of the project site. The recording frequency will be measured and recorded hourly and then aggregated monthly. 100% of the data will be monitored, archived electronically and kept during the crediting period and the following 2 years. The metering systems are calibrated as stated in B.7.2
QA/QC procedures to be applied:	Data will be referenced with the electricity sales receipt. Meters will be calibrated by a qualified third party.
Any comment:	-

B.7.2 Description of the monitoring plan:

In order to ensure the completion, coherence, and accuracy of monitoring and calculation of the emission reductions from the project during the entire crediting period, the monitoring plan was established. Under the cooperation of the grid company, the project owner is responsible for implementing the monitoring plan.

1. Monitoring organization

The monitoring plan will be carried out by a CDM team, designated by the project owner, which consists of a team leader, a CDM Assistant and operators who are responsible for recording and storing the metering readings (Figure 4).

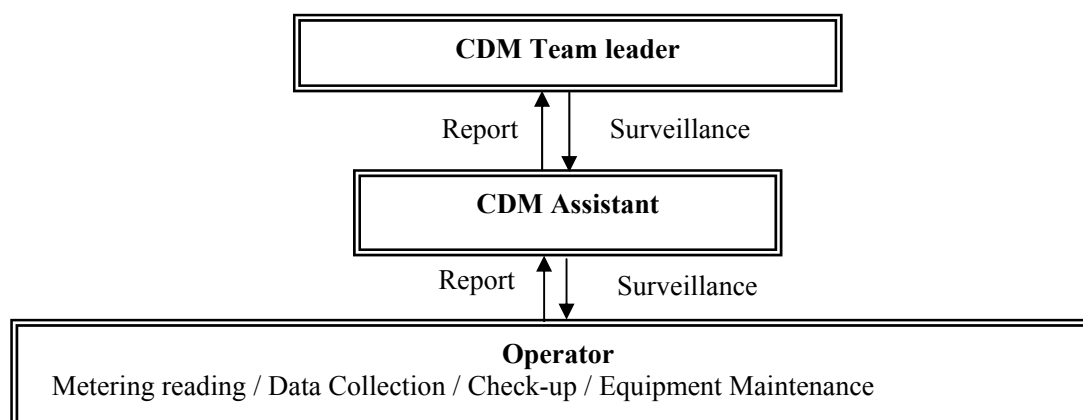


Figure 4. Organization Chart for the Project Monitoring

¹⁰ It is different between electricity delivered to the grid and imported from the grid.



This team leader has the overall responsibility for the monitoring and verification process, training and managing all CDM team members, and acting as the focal contact for DOE, DNA and other organizations relating to CDM.

The assistant will help the team leader to supervise the operation of the project, including data monitoring, negotiations with the grid company, and to collect financial data such as receipts of electricity sales.

The operators will be responsible for calibrating and maintaining the electricity meters, measuring and recording relevant readings, collecting, checking, archiving and managing data, and making summary according to the CDM project's requirements in a regular basis.

2. Data to be Monitored

Electricity supplied to the CCPG will be monitored by the main metering device installed at the outlet of the project site. The representatives of the grid company and the project will jointly read the main meter monthly. The electricity sale receipt will be provided to the project owner as a reference of the amount of electricity supplied to the CCPG. The grid company will pay it as per the value on the sale receipt.

In addition, the backup metering device installed at the inlet of the substation will also measure the electricity supplied to the CCPG and providing a useful cross check and back up of the main metering device.

Detailed monitoring procedures of measuring electricity supplied to the CCPG by the project have been established between the project owner and the grid company in line with the Power Purchase Agreement.

The monitoring point of the project is shown in Figure 2 in B.3.

The project owner will provide DOE with metering device readings and calibration recordings during the verification period.

3. Installation of Metering Devices

One set of metering system with an accuracy of 0.5s is equipped at the project site and another set of metering system with an accuracy of 0.5s is equipped at the substation. They are classified as main system and backup system respectively. Both systems are capable of metering the exported and imported electricity simultaneously. The accuracy is determined by *Technical Administration Code of Electric Energy Metering (DL/T448-2000)*.

The metering equipment will be properly calibrated periodically for accuracy. The calibration will be done by a qualified third party. The metering equipment shall have sufficient accuracy so that any error resulting from such equipment shall not exceed 0.5% of full-scale rating.

4. Data Reading

The recording frequency at the project site will be recorded hourly, and aggregated monthly.

Electricity sales receipts and the payment/receipt voucher provided by the project owner and the



grid company will be available to check the electricity exported to/imported from the CCPG monthly. The project owner will provide DOE with electricity sales receipts and the payment vouchers during the verification period.

5. Data Management System

All data will be archived with backup in case of any data damage:

- 1) Data of electricity delivered to/imported from the CCPG will be archived in electronic spreadsheet at the end of each month. The electronic files will be stored on hard disk or other media periodically. In addition, a hard copy printout will be archived.
- 2) Hard copy documentation such as paper maps, diagrams and operation/maintenance manual will be archived by the project owner with at least one copy, together with this monitoring plan.

For reading conveniently, all documents will be kept in a central place and accessible to staff. All data records will be kept for 2 years after the end of the crediting period.

6. Abnormity Handling

If reading precision of the main meter is beyond allowable error ($\pm 0.5\%$) or the main meter is in malfunction in any previous months, the grid-connected electricity generated by the project shall be determined by:

- The reading of the backup meter, unless inaccuracy is revealed on the backup meter by either party;
- If the backup meter is beyond the acceptable limits of accuracy or it performs improperly, a correct reading estimate report will be jointly prepared and approved by both of the project owner and the power company;
- If the project owner and the grid company fail to agree on the correct reading estimate report, then it will refer to arbitration according to agreed procedures.

The electricity recorded by the main meter alone will be sufficient for the purpose of billing and emission reduction verification as long as the error in the main meter is within the permissible limits.

If a data error happens during the crediting period, especially the data of electricity transmitted to the CCPG, the project owner and the grid company will deal with it as contingency. Meanwhile, the CDM team should be informed about the accidents occurred at power station in time. The CDM team leader and assistant will analyze the rationality of data according to conservative rules of CDM projects. The data will be recorded and archived.

7. Verification of monitoring results

The project owner should complete the monitoring report periodical, which contains instrument maintenance, verification record, monitoring record and CER calculation and so on. And provide the report to DOE at verifying for the accuracy and rationality of the data. It is expected the data be verified annually.

The responsibilities of verification for the project owner are as follows:



- Arranging and cooperating the work of verification, and preparing for the audit and verification process on site;
- Cooperating with DOE, and providing any required necessary information to DOE during verification;
- Instructing staff and managers available for interviews and honest for all questions from the DOE.

8. Training

Specialized worker and graduates studied for related major will be hired. In order to operate/maintain the hydropower station smoothly, training in the station and in similar station will be conducted. Operation/maintenance manual will be compiled and accessible to staff.

B.8 Date of completion of the application of the baseline and monitoring methodology and the name of the responsible person(s)/entity(ies)

Completion date: 14/08/2008

Name of entity/person determining the baseline and monitoring plan:

Ms. Ou Yuanyang ovy@shjec.cn
Ms. Gao Haiying helen@shjec.cn
Mr. Li Shude lisd@shjec.cn
Ms. Chen Yingwen Chenyw@shjec.cn

Shanghai JEC Environmental Consultant Co., Ltd.
Address: Room1601, 500 Chengdu North Road, Shanghai 200003, China
Tel: +86-21-63596675
Fax: +82-21-63596020

None of the entity/responsible persons mentioned above is the project participant.

SECTION C. Duration of the project activity / crediting period

C.1 Duration of the project activity:

C.1.1. Starting date of the project activity:

25/02/2007 (The date when the PO signed Construction Contract with the construction company)

C.1.2. Expected operational lifetime of the project activity:

30 years 0 month

C.2 Choice of the crediting period and related information:

C.2.1. Renewable crediting period

**C.2.1.1. Starting date of the first crediting period:**

01/10/2009 or the registration date, whichever comes later.

C.2.1.2. Length of the first crediting period:

7 years

C.2.2. Fixed crediting period:**C.2.2.1. Starting date:**

Not applicable

C.2.2.2. Length:

Not applicable

SECTION D. Environmental impacts**D.1. If required by the host Party, documentation on the analysis of the environmental impacts of the project activity:**

According to national, regional and local environmental regulations, the Environmental Impact Assessment (EIA) was carried out by Ya'an Environmental Science & Technology Service on 26 December 2003 and approved by Shimian Environmental Protection Bureau of Sichuan Province on 29 January 2004.

The main conclusions of the EIA are summarized as following:

Potential environmental impacts and the mitigation measures**In Construction Stage**

- Water** Wastewater and sewage generated by site construction activities will be treated to meet *Integrated Wastewater Discharge Standard (GB 8978-1996)*¹¹ before being discharged.
- Air** The main air pollutant is particulates (dust) which is released during construction and transportation. Measures will be taken to control particulates, such as spraying water at construction sites and on dusty roads, transporting material in covered vehicles or in closed containers, installing and using a wheel washing system, controlling vehicle speeds and operating with proper maintenance and in

¹¹ <http://www.mep.gov.cn/tech/hjbz/bzwb/shjbh/swrwpfbz/199801/W020061027521858212955.pdf>



compliance with *Integrated Emission Standard of Air Pollutants*(GB 16297-1996)¹².

- Noise** Vehicles, construction machinery and explosion of dynamite will generate noise pollution. The mitigation measures include: installing in-situ sound barriers, selecting suitable equipment, correcting operation and maintenance; limiting the speed of vehicles, and carrying out explosion activities strictly in compliance with *Safety Regulations for Explosion* (GB6722-86)¹³.
- Solid waste** The main sources of solid wastes from this project include: refuse generated on construction site and waste generated by construction workers. These solid wastes will be separated, collected and properly handled in approved landfills and recycling facilities.
- Ecology** Measures for water and soil conservation will be prepared and carried out by the project owner for minimize the adverse impact on the ecological environment during the project construction. Rehabilitation of vegetation will be conducted after the construction work.
- Social** No inhabitant will be relocated. The submerged area is mainly covered by small trees and bushes. The temporarily and permanently occupied lands are all barren fields.

In Operation Stage

- Water** The operation staff will generate little wastewater during operation period. The wastewater will be disposed in a cesspool, following which it will be used as fertilizer by the local farmers. So no impact on environment will be caused by wastewater after treatment during operation period.
- Air** There is no air pollution caused by the project during operation stage.
- Noise** Noise pollution is caused mainly by machines during operations. The mitigation measures are: selecting low noise machines, locating noisy equipment indoors, installing noise enclosures or buffers, providing green zones with vegetation.
- Solid waste** The main solid waste from this project is generated by workers. These solid wastes will be separated, collected and properly handled in approved landfills and recycling facilities.

The project has no great adverse impact on the local people and environment.

D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

¹² <http://www.mep.gov.cn/image20010518/5302.pdf>

¹³ <http://www.yn.gov.cn/yunnan.china/jst.htm?name=http://www.yn.gov.cn/yunnan.china/77405618595430400/20051122/1024731.html>



The EIA has been approved by the Shimian County Environmental Protection Bureau of Sichuan Province. During the construction and operation period, the mitigation measures required in EIA will be strictly executed by the project owner. In addition, regular and irregular check will be carried out by local Environmental Protection Bureau during construction and operation period to make sure that the project consistent with the mitigation measures required in EIA and meet national and local environmental standards. Through these measures, the adverse impacts on environment caused by the project will be controlled and mitigated to a minimum. Therefore, the proposal project will not influence adjacent environment.

SECTION E. Stakeholders' comments

E.1. Brief description how comments by local stakeholders have been invited and compiled:

The project owner, together with Shanghai JEC Environmental Consultant Co., Ltd., carried out the public consultation for the social, economic and environmental effects caused by the project in Oct., 2006. The interviewed stakeholders include the workers and inhabitants who maybe impacted by the project.

Fifty two questionnaires were sent out and all received, in which 100% participation was noted.

Questions of the investigation are as follows:

1. Do you have an understanding of the Haiyang Hydropower project?
2. Could you accept the impact on the public benefit caused by the project?
3. What kind of impact do you think the project will have on the local ecological system?
4. What kind of impact do you think the project will have on the local economic and social development?
5. What is your attitude towards current local environment quality?

E.2. Summary of the comments received:

The results of the survey showed that:

- 23.1% of the participants find out the project implementation from newspaper, broadcast, public advertising and relevant meetings, and 26.9% and 50% of the participants get the information of the project implementation by people's discussion and from the construction unit respectively;
- 78.8% of the participants can bear the environmental impact, and 21.2% of the participants think that the environmental impact is too slight to care about;
- All participants think the project will only cause noise pollution during the construction of the project;
- 36.5% of the participants think the project will obviously promote the development of the local economic and social, 46.2% of the participants think it will bring only a little active influence, and 17.3% of the participants think the project will bring no active influence;
- 57.7% of the participants are very supportive to the implementation of the project, 42.3% of the participants don't mind the construction of the project.



E.3. Report on how due account was taken of any comments received:

The project owner took the public comments and feedback seriously and took prompt and proper action in response to the stakeholders' comments and suggestions, particularly on noise pollution and the water & soil loss.

The survey shows that the main environmental impact caused by the project is noise pollution. The necessary mitigation measures include: installing in-situ sound barriers, selecting suitable equipment, correcting operation and maintenance; limiting the speed of vehicles, and carrying out the explosion activities strictly in compliance with safety regulations for explosion issued by the nation.

As for the protection of water and soil, the Water and Soil Conservation Plan of the Project were conducted by Ya'an Design & Research Institute of Water Conservancy & Hydropower and approved by Shimian County Water Conservancy Bureau of Sichuan province on 15 November 2005.

**Annex 1****CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY**

Project Owner/Host

Organization:	Shimian Haiyang Electric Power Co., Ltd.
Street/P.O.Box:	Nanya Village, Caluo Countryside, Shimian County
Building:	
City:	Ya'an City
State/Region:	Sichuan Province
Postfix/ZIP:	625400
Country:	China
Telephone:	86-835-8866517
FAX:	86-835-8861522
E-Mail:	scljdlyxbwxc@126.com
URL:	
Represented by:	
Title:	Board Chairman
Salutation:	Mr.
Last Name:	Liu
Middle Name:	
First Name:	Fuquan
Department:	
Mobile:	86-13684452679
Direct FAX:	86-835-8861522
Direct tel:	86-835-8866517
Personal E-Mail:	



Carbon Buyer

Organization:	J-TEC Co., Ltd.
Street/P.O.Box:	TKK Nishi-shimbashi Building, 2-11-5, Nishi-shimbashi, Minato-ku
Building:	
City:	Tokyo
State/Region:	
Postfix/ZIP:	105-0003
Country:	Japan
Telephone:	81-3-3444-8698
FAX:	81-3-3444-8678
E-Mail:	j-tec@pp.em-net.ne.jp
URL:	
Represented by:	
Title:	
Salutation:	Ms.
Last Name:	Tanaka
Middle Name:	
First Name:	Mizuho
Department:	
Mobile:	
Direct FAX:	81-3-3444-8678
Direct tel:	81-3-3444-8698
Personal E-Mail:	



Annex 2

INFORMATION REGARDING PUBLIC FUNDING

There is no public fund involved in this project activity.

Annex 3

BASELINE INFORMATION

Emission Factor of Central China Power Grid^{14,15,16,17}I. Operating Margin

Table 1. Fuel consumed by the CCPG in year 2004

Fuel Type	Unit	Jiangxi	Henan	Hubei	Hunan	Chongqing	Sichuan	Sub-total	Emission Factor	Oxidation	LHV	CO ₂ emission (tCO ₂ e)
		A	B	C	D	E	F	G=A+B+C+D+E+F	(tc/TJ) H	(%) I	(MJ/t,km3) J	J=G*H*I*F*44/12/10000 (mass) J=G*H*I*F*44/12/1000 (volume)
Raw coal	10 ⁴ tn	1863.8	6948.5	2510.5	2197.9	875.5	2747.9	17144.1	25.8	100	20908	339092605
Cleaned coal	10 ⁴ tn		2.34					2.34	25.8	100	26344	58316
Other washed coal	10 ⁴ tn	48.93	104.22			89.72		242.87	25.8	100	8363	1921441
Coke oven	10 ⁴ tn		109.61					109.61	29.2	100	28435	3337011
Coke oven gas	10 ⁸ m ³			1.68		0.34		2.02	12.1	100	16726	149900
Other gas	10 ⁸ m ³					2.61		2.61	12.1	100	5227	60527
Crude oil	10 ⁴ tn		0.86	0.22				1.08	20	100	41816	33118
Gasoline	10 ⁴ tn		0.06			0.01		0.07	18.9	100	43070	2089
Diesel oil	10 ⁴ tn	0.02	3.86	1.70	1.72	1.14		8.44	20.2	100	42652	266627
Fuel oil	10 ⁴ tn	1.09	0.19	9.55	1.38	0.48	1.68	14.37	21.1	100	41816	464893
PLG	10 ⁴ tn							0	17.2	100	50179	0
Refinery gas	10 ⁴ tn	3.52	2.27					5.79	15.7	100	46055	153506
Natural gas	10 ⁸ m ³						2.27	2.27	15.3	100	38931	495775
Other petroleum product	10 ⁴ tn							0	20	100	38369	0
Other coking products	10 ⁴ tn							0	25.8	100	28435	0
Other energy	10 ⁴ tce		16.92		15.20	20.95		53.07	0	100	0	0
											Sub-total	346035810
《China Energy Statistical Yearbook 2005》												

¹⁴ China Energy Statistical Yearbook 2005~2007¹⁵ China Electric Power Yearbook 2005~2007¹⁶ 2006 IPCC Guidelines for National Greenhouse Gas Inventories¹⁷ <http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=3239>



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Table 2. Electricity generation and supply by the CCPG in year 2004

Province	Generation (MWh)	On-site Use (%)	Supply (MWh)
Jiangxi	30,127,000	7.04	28,006,059
Henan	109,352,000	8.19	100,396,071
Hubei	43,034,000	6.58	40,202,363
Hunan	37,186,000	7.47	34,408,206
Chongqing	16,520,000	11.06	14,692,888
Sichuan	34,627,000	9.41	31,368,599
Total			249,074,186

China Electric Power Yearbook 2005

Table 3. Fuel consumed by the CCPG in year 2005

Fuel Type	Unit	Jiangxi	Henan	Hubei	Hunan	Chongqing	Sichuan	Sub-total	Emission Factor (tc/TJ)	Oxidation (%)	LHV (MJ/t,km3)	CO ₂ emission (tCO ₂ e) J=G*H*I*F*44/12/10000 (mass) J=G*H*I*F*44/12/1000 (volume)
		A	B	C	D	E	F	G=A+B+C+D+E+F	H	I	J	
Raw coal	10 ⁴ tn	1869.29	7638.87	2732.15	1712.27	875.4	2999.77	17827.75	25.8	100	20908	352614497
Cleaned coal	10 ⁴ tn	0.02						0.02	25.8	100	26344	498
Other washed coal	10 ⁴ tn		138.12			89.99		228.11	25.8	100	8363	1804669
Coke oven	10 ⁴ tn		25.95		105			130.95	29.2	100	28435	3986695
Coke oven gas	10 ³ m ³			1.15		0.36		1.51	12.1	100	16726	112054
Other gas	10 ³ m ³		10.2			3.12		13.32	12.1	100	5227	308897
Crude oil	10 ⁴ tn		0.82	0.36				1.18	20	100	41816	36185
Gasoline	10 ⁴ tn		0.02			0.02		0.04	18.9	100	43070	1194
Diesel oil	10 ⁴ tn	1.3	3.03	2.39	1.39	1.38		9.49	20.2	100	42652	299798
Fuel oil	10 ⁴ tn	0.64	0.29	3.15	1.68	0.89	2.22	8.87	21.1	100	41816	286959
PLG	10 ⁴ tn							0	17.2	100	50179	0
Refinery gas	10 ⁴ tn	0.71	3.41	1.76	0.78			6.66	15.7	100	46055	176572
Natural gas	10 ⁸ m ³						3	3	15.3	100	38931	655209
Other petroleum product	10 ⁴ tn							0	20	100	38369	0
Other coking products	10 ⁴ tn				1.5			1.5	25.8	100	28435	40349
Other energy	10 ⁴ ice		2.88		1.74	32.8		37.42	0	100	0	0
Sub-total												360323575

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CDM – Executive Board

Table 4. Electricity generation and supply by the CCPG in year 2005

Province	Generation (MWh)	On-site Use (%)	Supply (MWh)
Jiangxi	30,000,000	6.48	28,056,000
Henan	131,590,000	7.32	121,957,612
Hubei	47,700,000	2.51	46,502,730
Hunan	39,900,000	5	37,905,000
Chongqing	17,584,000	8.05	16,168,488
Sichuan	37,202,000	4.27	35,613,475
Total			286,203,305

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Table 5. Fuel consumed by the CCPG in year 2006

Fuel Type	Unit	Jiangxi	Henan	Hubei	Hunan	Chongqing	Sichuan	Sub-total	Emission Factor (tc/TJ)	Oxidation (%)	LHV (MJ/t,km3)	CO ₂ emission (tCO ₂ e)
		A	B	C	D	E	F	G=A+B+C+D+E+F	H	I	J	J=G*H*I*F*44/12/10000 (mass) J=G*H*I*F*44/12/1000 (volume)
Raw coal	10 ⁴ tn	1926.02	8098.01	3179.79	2454.48	1184.3	3285.22	20127.82	25.8	100	20908	398107508
Cleaned coal	10 ⁴ tn					5.79		5.79	25.8	100	26344	144295
Other washed coal	10 ⁴ tn	4.51	104.12		8.59	79.21		196.43	25.8	100	8363	1554036
Coke oven	10 ⁴ tn						0.01	0.01	26.6	100	20908	204
Coke oven gas	10 ³ m ³		17.23		0.32			17.55	29.2	100	28435	534299
Other gas	10 ³ m ³		0.52	1.07	4.24	0.38	0.01	6.22	12.1	100	16726	461572
Crude oil	10 ⁴ tn	12.69	3.95		1.7	4.36	0.01	22.71	12.1	100	5227	526655
Gasoline	10 ⁴ tn		0.49					0.49	20	100	41816	15026
Diesel oil	10 ⁴ tn		0.01					0.01	18.9	100	43070	298
Fuel oil	10 ⁴ tn	0.91	2.23	1.41	1.78	0.96		7.29	20.2	100	42652	230298
PLG	10 ⁴ tn	0.51	1.26	1.31	0.8	0.57	3.49	7.94	21.1	100	41816	256872
Refinery gas	10 ⁴ tn							0	17.2	100	50179	0
Natural gas	10 ⁸ m ³	0.86	8.1	1	0.97			10.93	15.7	100	46055	289780
Other petroleum product	10 ⁴ tn			0.28		0.16	18.63	19.07	15.3	100	38931	4164943
Other coking products	10 ⁴ tn							0	20	100	38369	0
Other energy	10 ⁴ tce						0.01	0.01	25.8	100	28435	269
											Sub-total	406286055

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Table 6. Electricity generation and supply by the CCPG in year 2006

Province	Generation (MWh)	On-site Use (%)	Supply (MWh)
Jiangxi	34,449,000	6.17	32,323,497
Henan	151235000	7.06	140557809
Hubei	54,841,000	2.75	53,332,873
Hunan	46,408,000	4.95	44,110,804
Chongqing	23,487,000	8.45	21,502,349
Sichuan	44193000	4.51	42199896
Total			334,027,226

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Table 7. Net electricity imported from Northwest of China Power Grid (NCPG) in year 2006

Net electricity imported from NWCPG (MWh)	3,028,950
Average Emission Factor of NWCPG in 2006	0.82214

Therefore, OM emission factor of the CCPG is the weighted average value of 2004~2006.

$$\begin{aligned}
 EF_{OM} &= \Sigma F_{i,m,y} * COEF_{i,m} / \Sigma GEN \\
 &= (346,035,810 + 360,323,575 + 406,286,055 + 3,028,950 * 0.82214) / (249,074,186 + 286,203,305 + 334,027,226 + 3,028,950) \\
 &= 1.2783 \text{ tCO}_2\text{e/MWh}
 \end{aligned}$$

**II. Build Margin**

According to the recent research¹⁸ undertaken by National Development and Reform Commission (“NDRC”, Chinese DNA), the generating systems with a capacity of over 600MW shares of 40% of total installed capacity and represents the most advanced technology commercially used in domestic coal-fired plants. The weighted value based on the coal consumption by 30 sets of 600MW generating units installed in 2006 is calculated as 329.94 gce/kWh, which also means the power supply efficiency of these plants is weighted as 37.28%.

The combined cycle technology with a capacity of 200MW stands for the most advanced technology used in thermal plants fired by gas or oil in China. Based on the statistics in 2006, the thermal plant with the maximum power supply efficiency 48.81% consumed the equivalent fuel of 252 gce/kWh.

Table 8. Emission factor of most advanced technology commercially used in China’s domestic thermal power plants

	Parameters	Power supply efficiency	EF of fuel (tC/TJ)	Oxidation	Emission Factor (tCO ₂ e/MWh)
		(GENE)			
		A			
Coal fire plant	EF _{Coal,Adv}	37.28%	25.8	1	0.9138
Gas fire plant	EF _{Gas,Adv}	48.81%	15.3	1	0.4138
Oil fire plant	EF _{Oil,Adv}	48.81%	21.1	1	0.5706

¹⁸ <http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=3239>



Table 9. Fuel consumption and emission on the CCPG in 2006

	Unit	Jiangxi	Henan	Hubei	Hunan	Chongqing	Sichuan	Total	Caloric value (MJ/t, m3)	Emission Factor (tc/TJ)	Oxidation	Emission (tCO ₂ e)
Fuel Type		A	B	C	D	E	F	G=A+...+F	H	I	J	K=G*H*J*44/12/100
Raw coal	10 ⁴ ton	1,926	8,098	3,180	2,454	1,184	3285.22	20,128	20,908	26	1	398107508
Cleaned coal	10 ⁴ ton	0	0	0	0	6	0	6	26,344	26	1	144,295
Other washed coal	10 ⁴ ton	5	104	0	9	79	0	196	8,363	26	1	1,554,036
Briquette	10 ⁴ ton	0	0	0	0	0	0.01	0	20,908	27	1	204
Coke		0	17	0	0	0	0	18	28,435	29	1	534,299
Sub-total												400,340,342
Crude oil	10 ⁴ ton	0	0.49	0	0	0	0	0.49	41,816	20	1	15,026
Gasoline	10 ⁴ ton	0	0.01	0	0	0	0	0.01	43,070	18.9	1	298
Kerosene	10 ⁴ ton	0	0	0	0	0	0	0	43,070	19.6	1	0
Diesel oil	10 ⁴ ton	0.91	2.23	1.41	1.78	0.96	0	7.29	42,652	20.2	1	230,298
Fuel oil	10 ⁴ ton	0.51	1.26	1.31	0.8	0.57	3.49	7.94	41,816	21.1	1	256,872
Other petroleum product	10 ⁴ ton	0	0	0	0	0	0	0	38,369	20	1	0
Other coking product		0	0	0	0	0	0.01	0.01	28,435	25.8	1	269
Sub-total												502,763
Natural gas	10 ⁸ m ³	0	0	2.8	0	1.6	186.3	190.7	38931	15.3	1	4,164,943
Coke oven gas	10 ⁸ m ³	0	5.2	10.7	42.4	3.8	0.1	62.2	16726	12.1	1	461,572
Other gas	10 ⁸ m ³	126.9	39.5	0	17	43.6	0.1	227.1	5227	12.1	1	526,655
PLG	10 ⁴ ton	0	0	0	0	0	0	0	50179	17.2	1	0
Refinery gas	10 ⁴ ton	0.86	8.1	1	0.97	0	0	10.93	46055	15.7	1	289,780
Sub-total												5,442,950
Total												406,286,055
《China Energy Statistical Yearbook 2007》												

$$\lambda_{coal} = \frac{\sum_{i \in COAL, j} F_{i,j,y} * COEF_{i,j}}{\sum_{i,j} F_{i,j,y} * COEF_{i,j}} \quad \lambda_{oil} = \frac{\sum_{i \in OIL, j} F_{i,j,y} * COEF_{i,j}}{\sum_{i,j} F_{i,j,y} * COEF_{i,j}} \quad \lambda_{gas} = \frac{\sum_{i \in GAS, j} F_{i,j,y} * COEF_{i,j}}{\sum_{i,j} F_{i,j,y} * COEF_{i,j}}$$

$$\lambda_{coal} = 400,340,342 / 406,286,055 = 0.9854 \quad \lambda_{oil} = 502,763 / 406,286,055 = 0.0012 \quad \lambda_{gas} = 5,442,950 / 406,286,055 = 0.0134$$

$$\begin{aligned} EF_{thermal} &= \lambda_{coal} * EF_{coal,Adv} + \lambda_{oil} * EF_{oil,Adv} + \lambda_{gas} * EF_{gas,Adv} \\ &= 0.9854 * 0.9135 + 0.0012 * 0.5706 + 0.0134 * 0.4138 \\ &= 0.9064 \text{ (tCO}_2\text{e/MWh)} \end{aligned}$$

Capacity addition during the 2004~ 2006 on the CCPG



Table 10. Generation capacity of the CCPG installed in year 2004

Capacity	Unit	Jiangxi	Henan	Hubei	Hunan	Chongqing	Sichuan	Total
Thermal	MW	5496	21788.5	9590.3	6779.5	3271.1	6900.3	53825.7
Hydro	MW	2549.9	2438	7415.1	7448.2	1407.9	13382.9	34642
Nuclear	MW	0	0	0	0	0	0	0
Wind and other	MW	0	0	0	0	0	0	0
Total	MW	8045.9	24226.5	17005.4	14227.7	4679	20283.2	88467.7

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Table 11. Generation capacity of the CCPG installed in year 2005

Capacity	Unit	Jiangxi	Henan	Hubei	Hunan	Chongqing	Sichuan	Total
Thermal	MW	5906	26267.8	9526.3	7211.6	3759.5	7496	60167.2
Hydro	MW	3019	2539.9	8088.9	7905.1	1892.7	14959.6	38405.2
Nuclear	MW	0	0	0	0	0	0	0
Wind and other	MW	0	0	0	0	24	0	24
Total	MW	8925	28807.7	17615.2	15116.7	5676.2	22455.6	98596.4

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Table 12. Generation capacity of the CCPG installed in year 2006

Capacity	Unit	Jiangxi	Henan	Hubei	Hunan	Chongqing	Sichuan	Total
Thermal	MW	6568	32603	11623	10715	5594	9555	76658
Hydro	MW	3288	2553	8521	8648	1979	17730	42719
Nuclear	MW	0	0	0	0	0	0	0
Wind and other	MW	0	106	0	0	0	0	106
Total	MW	9856	35262	20144	19363	7573	27285	119483

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Therefore, the Build Margin of the CCPG is calculated as the table below:



Table 13. Capacity addition of the CCPG during 2004~2006

Capacity		2004	2005	2006	2005-2006 Capacity Addition	Share in the Capacity Addition	
		A	B	C	D=C-A	E	
1	Thermal (MW)	53825.7	60167.2	76658	22832.3	73.77%	D1/D5
2	Hydro (MW)	34642	38405.2	42719	8077	26.10%	D2/D5
3	Nuclear (MW)	0	0	0	0	0.00%	D3/D5
4	Other (MW)	0	24	41	41	0.13%	D4/D5
5	Total (MW)	88467.7	98596.4	119418	30950.3	100%	D5/D5
6	Share in the capacity of 2006	74.08%	82.56%	100%	The capacity addition is 73.77% between 2005~2006. Therefore, it is selected as sample m for this project.		
		A5/C5	B5/C5	C5/C5			

$$EF_{BM} = 0.9064 * 73.77\% = 0.6687 \text{ tCO}_2\text{e/MWh}$$

Taking the default value of weights w_{OM} and w_{BM} , 50% respectively, the emission factor of the CCPG is calculated as follows:

$$EF_y = 1.2783 * 50\% + 0.6687 * 50\% = 0.9735 \text{ tCO}_2\text{e/MWh}$$



Annex 4

MONITORING INFORMATION

Please refer to B.7 for the monitoring information of the project.

Haiyang / 海洋 - Project IRR

I . Investment

No.	Items	Amount (10 ⁶ CNY)
	Total Investment	3,014.3
1	Fixed assets	3,014.3
1.1	The first year	1,707.7
1.2	The second year	1,306.6
2	Circulating capital	0
Remarks	Construction years	2
	Operation years	30

II . Operation & Maintenance Costs

No.	Items	Unit	Unit Cost	Unit	Operation Year	Remarks
1	O&M costs			10 ⁶ CNY/year	59.9	
1.1	Repair costs		1.0%	10 ⁶ CNY/year	30.1	Fixed assets * repair cost rate
1.2	Labor costs and pension	10 ⁶ CNY/year	1.14	10 ⁶ CNY/year	20.5	Number of staff 18
1.3	Material costs	CNY/kW	0	10 ⁶ CNY/year	0	Installed capacity (kW) 3,200
1.4	Maintenance fund for reserve	CNY/kW.b	4	10 ⁶ CNY/year	4	
1.5	Fixed assets premium		0	10 ⁶ CNY/year	0	Fixed assets % rate
1.6	Water resource fee	CNY/kW.b	0.001	10 ⁶ CNY/year	1.6	
1.7	Other costs	CNY/kW	24	10 ⁶ CNY/year	7.7	
2	CER costs			10 ⁶ CNY/year	16.8	
2.1	EB SOP-Admin	US\$/CER	0.1\0.2	10 ⁶ CNY/year	1.2	EB
2.2	EB SOP-Adap		2%	10 ⁶ CNY/year	2.8	EB
2.3	Transaction costs by Chinese DNA		2%	10 ⁶ CNY/year	2.8	Chinese CDM Regulations
2.4	Verification/Certification costs	10 ⁶ CNY/year	10.0	10 ⁶ CNY/year	10	Assumption

III. Depreciation

No.	Items	Unit	Amount
1	Fixed assets	10 ⁶ CNY	3,014.3
2	Depreciation period	Year	20
3	Annual depreciation value	10 ⁶ CNY/year	151
4	Residual value	10 ⁶ CNY	0

IV. Revenues

No.	Items	Unit	Operation Year	Remarks
1	Electricity Revenues	10 ⁶ /year	392	Electricity Tariff (without VAT) (CNY/kWh) 0.246
2	Electricity generation	MWh/year	19,011	Annual operation hours (hrs) 5941
3	Electricity sales	MWh/year	15,932	Effective power coefficient 88%
4	CER Quantity	#CER/year	15,510	Transmission Loss rate 4%
5	Gross CER Revenues	10 ⁶ /year	141	Electricity consumption rate by the project 0.8%
6	Net CER Revenues	10 ⁶ /year	124	Effective electricity (MWh/year) 16,730
				Exchange Rate (Y/\$) 7.4
				CER Price (US\$/CER) 12.25
				Emission Factor of Central China Power Grid (#CO2e/MWh) 0.9735

V . Tax

No.	Items	Rate
1	Value Added Tax	6%
2	City Construction and Maintenance Tax	1%
3	Educational Surcharge	3%
4	Income Tax	4%

VI. Total Cost

With CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ⁶ CNY/year)	1798	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2	CER costs (10 ⁶ CNY/year)	353	12	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0
3	Depreciation (10 ⁶ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	0
4	Total costs (10 ⁶ CNY/year)	5165	172	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	77	60	60	60	60	60	60	60	60	60

Without CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ⁶ CNY/year)	1798	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2	CER costs (10 ⁶ CNY/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	Depreciation (10 ⁶ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	
4	Total costs (10 ⁶ CNY/year)	4812	160	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	60	60	60	60	60	60	60	60	60	

VII. Profit and Loss

With CER

No.	Items	Total (10 ⁶ CNY)	Average (10 ⁶ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Elcc.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	
2	CER.revenues	2953	98	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0	
3	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
4	Total costs	5165	172	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	77	60	60	60	60	60	60	60	60	
5	Gross profits	8811	294	281	281	281	281	281	281	281	281	281	281	281	281	281	281	281	281	281	281	281	281	281	431	308	308	308	308	308	308	308	308	
6	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	Income tax	352	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	17	12	12	12	12	12	12	12	12	
8	Profits after tax	8459	282	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	414	295	295	295	295	295	295	295	295	295

Without CER

No.	Items	Total (10 ⁶ CNY)	Average (10 ⁶ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Elec.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	
2	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
3	Total costs	4812	160	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	
4	Gross profits	6212	207	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	308	308	308	308	308	308	308	308	308	
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6	Income tax	248	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	12	12	12	12	12	12	12	12	12	
7	Profits after tax	5963	199	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	295	295	295	295	295	295	295	295	295	295

Ⅶ. Cash Flow

With CER

No.	Items	Total (10 ⁶ CNY)	Average (10 ⁶ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	14711	490			533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	CER revenues	2953	98			141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Cash outflow	6252	208	1708	1307	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	112	118	97	97	97	97	97	97	97	97	97
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital																																			
2.3	O&M costs	1798	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2.4	CER costs	353	12			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	
2.5	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.6	Income tax	352	12			11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	17	12	12	12	12	12	12	12	12
3	Net cashflow (before income tax)	8811	294	(1708)	(1307)	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	308	308	308	308	308	308	308	308	308
4	Net cashflow (after income tax)	8459	282	(1708)	(1307)	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	420	414	295	295	295	295	295	295	295	295	295

No.	Financial indicator	Before tax	After tax
1	IRR	12.78%	12.41%
2	NPV (ic=10%)	649	560

Without CER

No.	Items	Total (10 ⁶ CNY)	Average (10 ⁶ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	5795	193	1708	1307	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	97	97	97	97	97	97	97	97	
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital	0	0																																	
2.3	O&M costs	1798	60			59.9	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60		
2.4	Sales tax	734	24			24.5	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24		
2.5	Income tax	248	8			6.3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	12	12	12	12	12	12	12	12		
3	Net cashflow (before income tax)	6212	207	(1708)	(1307)	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	308	
4	Net cashflow (after income tax)	5963	199	(1708)	(1307)	301	301	301	301	301	301	301	301	301	301	301	301	301	301	301	301	301	301	301	301	301	301	301	295	295	295	295	295	295	295	295

No.	Financial indicator	Before tax	After tax
1	IRR	8.97%	8.73%
2	NPV (ic=10%)	-236	-290

Variation	
Investment	10.00%
O&M costs	0.00%
Elec.tariff	0.00%
Elec.sales	0.00%

No.	Items	Amount (10 ⁶ CNY)
	Total Investment	3,315.7
1	Fixed assets	3,315.7
1.1	The first year	1,878.5
1.2	The second year	1,437.2
2	Circulating capital	0
Remarks	Construction years	2
	Operation years	30

No.	Items	Unit	Unit Cost	Unit	Operatin Year	Remarks
1	O&M costs			10/CNY/year	63.0	
1.1	Repair costs		1.0%	10/CNY/year	31.2	Fixed assets * repair cost rate
1.2	Labor costs and pension	10/CNY/year	1.1	10/CNY/year	20.5	Number of staff
1.3	Material costs	CNY/kW	0	10/CNY/year	0.0	Installed capacity (kW)
1.4	Maintenance fund for reservoir	CNY/kW/h	4	10/CNY/year		3,200
1.5	Fixed assets premium		0.00%	10/CNY/year	0.0	Fixed assets * rate
1.6	Water resource fee	CNY/kW/h	0.0010	10/CNY/year	1.6	
1.7	Other costs	CNY/kW	24	10/CNY/year	7.7	
2	CCR costs			10/CNY/year	16.8	
2.1	EB SOP-Admin	US\$/CER	0.1/0.2	10/CNY/year	1.2	EB
2.2	EB SOP-Adap		2%	10/CNY/year	2.8	EB
2.3	Transaction costs by Chinese DNA		2%	10/CNY/year	2.8	Chinese CDM Regulations
2.4	Verification/Verification costs	10/CNY/year	10.0	10/CNY/year	1.0	Assumption

No.	Items	Unit	Amount
1	Fixed assets	10 ⁴ CNY	3,315.7
2	Depreciation period	Year	20
3	Yearly depreciation value	10 ⁴ CNY/year	165.8
4	Residual value	10 ⁴ CNY	0

No.	Items	Unit	Operation Year	Remarks	
1	Electricity Revenues	10 ⁹ year	392	Electricity Tariff (without VAT) (CNY/kWh)	0.246
2	Electricity generation	MW/year	19,011	Annual operation hours (hrs)	5941
3	Electricity sales	MW/year	14,552	Active power coefficient	80%
4	CER Quantity	100,000/year	15,510	Transmission Loss	
5	Gross CER Revenues	10 ⁹ year	141	Electricity consumption by the project	
6	Net CER Revenues	10 ⁹ year	124	Active electricity (MWh/year)	16,730
				Dumping Rate (Y/Y)	12
				CER Price (US\$/CER)	7.4
				Emission Factor of Central China Power Grid (CO ₂ /kWh)	0.9735

No.	Items	Rate
1	Value Added Tax	6%
2	City Construction and Maintenance Tax	1%
3	Educational Surcharge	3%
4	Income Tax	4.0%

[illegible][illegible][illegible]

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
2	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
3	Total costs	5204	173	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229	229	63	63	63	63	63	63	63	63	63	63
4	Gross profits	5820	194	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	139	305	305	305	305	305	305	305	305	305	305
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Income tax	233	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	12	12	12	12	12	12	12	12	12	
7	Profits after tax	5587	186	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	292	292	292	292	292	292	292	292	292	292

Ⅶ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																															
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
1	Cash inflow	14711	490			533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	392	392	392	392	392	392	392	392	392	392	
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	
1.2	CER revenues	2953	98			141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	6628	221	1878	1437	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	121	100	100	100	100	100	100	100	100	100	
2.1	Fixed assets investment	3316	111	1878	1437																																
2.2	Circulating capital	0	0																																		
2.3	O&M costs	1889	63			63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	
2.4	CER costs	353	12			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0	
2.5	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.6	Income tax	337	11			11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	17	12	12	12	12	12	12	12	12	12	
3	Net cashflow (before income tax)	8420	281	(1878)	(1437)	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	305	305	305	305	305	305	305	305	305	305
4	Net cashflow (after income tax)	8083	269	(1878)	(1437)	418	418	418	418	418	418	418	418	418	418	418	418	418	418	418	418	418	418	418	418	418	411	292	292	292	292	292	292	292	292	292	292

No.	Financial indicator	Before tax	After tax
1	IRR	11.44%	11.11%
2	NPV (ic=10%)	362	278

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	6171	206	1878	1437	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	93	100	100	100	100	100	100	100	100	100	100	
2.1	Fixed assets investment	3316	111	1878	1437																															
2.2	Circulating capital																																			
2.3	O&M costs	1889	63			63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63		
2.4	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24		
2.5	Income tax	233	8			6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	12	12	12	12	12	12	12	12	12		
3	Net cashflow (before income tax)	5820	194	(1878)	(1437)	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	
4	Net cashflow (after income tax)	5587	186	(1878)	(1437)	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	292	292	292	292	292	292	292	292	

No.	Financial indicator	Before tax	After tax
1	IRR	7.89%	7.68%
2	NPV (ic=10%)	-523	-571

Investment -10%

Variation	
Investment	-10.00%
O&M costs	0.00%
Elec.tariff	0.00%
Elec.sales	0.00%

I . Investment

No.	Items	Amount (10 ³ CNY)
	Total Investment	2,712.9
1	Fixed assets	2,712.9
1.1	The first year	1,536.9
1.2	The second year	1,175.9
2	Circulating capital	0
Remarks	Construction years	2
	Operation years	30

II . Operation & Maintenance Costs

No.	Items	Unit	Unit Cost	Unit	Operatin Year	Remarks	
1	O&M costs			10 ³ CNY/year	56.9		
1.1	Repair costs		1.0%	10 ³ CNY/year	27.1	Fixed assets * repair cost rate	
1.2	Labor costs and pension	10 ³ CNY/year	1.1	10 ³ CNY/year	20.5	Number of staff	18
1.3	Material costs	CNY/kW	0	10 ³ CNY/year	0.0	Installed capacity (kW)	3,200
1.4	Maintenance fund for reservoir	CNY/AW.h	-	10 ³ CNY/year			
1.5	Fixed assets premium		0.00%	10 ³ CNY/year	0.0	Fixed assets * rate	
1.6	Water resource fee	CNY/AW.h	0.0010	10 ³ CNY/year	1.6		
1.7	Other costs	CNY/kW	24	10 ³ CNY/year	7.7		
2	CER costs			10 ³ CNY/year	16.8		
2.1	EB SOP-Admin	US\$/CER	0.1/0.2	10 ³ CNY/year	1.2	EB	
2.2	EB SOP-Adap		2%	10 ³ CNY/year	2.8	EB	
2.3	Transaction costs by Chinese DNA		2%	10 ³ CNY/year	2.8	Chinese CDM Regulations	
2.4	Verification/Certification costs	10 ³ CNY/year	10.0	10 ³ CNY/year	10	Assumption	

III. Depreciation

No.	Items	Unit	Amount
1	Fixed assets	10 ³ CNY	2,712.9
2	Depreciation period	Year	20
3	Yearly depreciation value	10 ³ CNY/year	135.6
4	Residual value	10 ³ CNY	0

IV. Revenues

No.	Items	Unit	Operation Year	Remarks	
1	Electricity Revenues	10 ³ /year	392	Electricity Tariff (without VAT) (CNY/kWh)	0.246
2	Electricity generation	MWh/year	19,011	Annual operation hours (hrs)	5941
3	Electricity sales	MWh/year	15,932	Active power coefficient	88%
4	CER Quantity	tCO ₂ e/year	15,510	Transmission Loss	4%
5	Gross CER Revenues	10 ³ /year	141	Electricity consumption by the project	1%
6	Net CER Revenues	10 ³ /year	124	Active electricity (MWh/year)	16,703
				Exchange Rate (R/Y)	7.4
				CER Price (US\$/CER)	12
				Emission Factor of Central China Power Grid (tCO ₂ e/MWh)	0.9735

V. Tax

No.	Items	Rate
1	Value Added Tax	6%
2	City Construction and Maintenance Tax	1%
3	Educational Surcharge	3%
4	Income Tax	4.0%

VI. Total Cost

With CERs																																	
No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ³ CNY/year)	1708	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
2	CER costs (10 ³ CNY/year)	353	12	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0
3	Depreciation (10 ³ CNY/year)	2713	90	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	0	0	0	0	0	0	0	0	0
4	Total costs (10 ³ CNY/year)	4774	159	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	74	57	57	57	57	57	57	57	57

Without CERs																																	
No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ³ CNY/year)	1708	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	
2	CER costs (10 ³ CNY/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	Depreciation (10 ³ CNY/year)	2713	90	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	0	0	0	0	0	0	0	0	0	
4	Total costs (10 ³ CNY/year)	4421	147	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	57	57	57	57	57	57	57	57	57	

VII. Profit and Loss

With CER																																		
No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Elec.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
2	CER revenues	2953	98	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0	0
3	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
4	Total costs	4774	159	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	209	74	57	57	57	57	57	57	57	57	57
5	Gross profits	9203	307	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	434	311	311	311	311	311	311	311	311	311
6	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Income tax	368	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	17	12	12	12	12	12	12	12	12	12	12
8	Profits after tax	8835	295	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	417	298	298	298	298	298	298	298	298	298

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	
2	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
3	Total costs	4421	147	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	57	57	57	57	57	57	57	57	57	
4	Gross profits	6604	220	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	311	311	311	311	311	311	311	311	311	
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Income tax	264	9	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	12	12	12	12	12	12	12	12	12	
7	Profits after tax	6340	211	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	298	298	298	298	298	298	298	298	298	298

Ⅷ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	14711	490			533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	CER revenues	2953	98			141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	5875	196	1537	1176	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	116	94	94	94	94	94	94	94	94
2.1	Fixed assets investment	2713	90	1537	1176																															
2.2	Circulating capital	0	0																																	
2.3	O&M costs	1708	57			57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	
2.4	CER costs	353	12			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	
2.5	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.6	Income tax	368	12			12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	17	12	12	12	12	12	12	12	
3	Net cashflow (before income tax)	9203	307	(1537)	(1176)	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	311	311	311	311	311	311	311	311	
4	Net cashflow (after income tax)	8835	295	(1537)	(1176)	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	417	298	298	298	298	298	298	298	

No.	Financial indicator	Before tax	After tax
1	IRR	14.36%	13.95%
2	NPV (ic=10%)	935	841

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	5418	181	1537	1176																															
2.1	Fixed assets investment	2713	90	1537	1176																															
2.2	Circulating capital																																			
2.3	O&M costs	1708	57			57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	
2.4	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.5	Income tax	264	9			7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
3	Net cashflow (before income tax)	6604	220	(1537)	(1176)	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	
4	Net cashflow (after income tax)	6340	211	(1537)	(1176)	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	298	298	298	298	298	298	298	298	298

No.	Financial indicator	Before tax	After tax
1	IRR	10.24%	9.96%
2	NPV (ic=10%)	50	-8

O&M Cost +10%

Variation	
Investment	0.00%
O&M costs	10.00%
Elec.tariff	0.00%
Elec.sales	0.00%

I . Investment

No.	Items	Amount (10^6CNY)
	Total Investment	3,014.3
1	Fixed assets	3,014.3
1.1	The first year	1,707.7
1.2	The second year	1,306.6
2	Circulating capital	0
Remarks	Construction years	2
	Operation years	30

II . Operation & Maintenance Costs

No.	Items	Unit	Unit Cost	Unit	Operatin Year	Remarks	
1	O&M costs			10^6CNY/year	65.9		
1.1	Repair costs		1.0%	10^6CNY/year	33.2	Fixed assets * repair cost rate	
1.2	Labor costs and pension	10^6CNY/year	1.1	10^6CNY/year	22.6	Number of staff	18
1.3	Material costs	CNY/kW	0	10^6CNY/year	0.0	Installed capacity (kW)	3,200
1.4	Maintenance fund for reservoir	CNY/AW.h	-	10^6CNY/year			
1.5	Fixed assets premium		0.00%	10^6CNY/year	0.0	Fixed assets * rate	
1.6	Water resource fee	CNY/AW.h	0.0010	10^6CNY/year	1.8		
1.7	Other costs	CNY/AW	24	10^6CNY/year	8.4		
2	CER costs			10^6CNY/year	16.8		
2.1	EB SOP-Admin	US\$/CER	0.1 \ 0.2	10^6CNY/year	1.2	EB	
2.2	EBI SOP-Adapt		2%	10^6CNY/year	2.8	EBI	
2.3	Transaction costs by Chinese DNA		2%	10^6CNY/year	2.8	Chinese CDM Regulations	
2.4	Verification/Certification costs	10^6CNY/year	10.0	10^6CNY/year	10	Assumption	

III. Depreciation

No.	Items	Unit	Amount
1	Fixed assets	10^6CNY	3,014.3
2	Depreciation period	Year	20
3	Yearly depreciation value	10^6CNY/year	150.7
4	Residual value	10^6CNY	0

IV. Revenues

No.	Items	Unit	Operation Year	Remarks	
1	Electricity Revenues	10^6/year	392	Electricity Tariff (without VAT) (CNY/kWh)	0.246
2	Electricity generation	MWh/year	19,011	Annual operation hours (hrs)	5941
3	Electricity sales	MWh/year	15,932	Active power coefficient	88%
4	CER Quantity	tCO2e/year	15,510	Transmission Loss	4%
5	Gross CER Revenues	10^6/year	141	Electricity consumption by the project	1%
6	Net CER Revenues	10^6/year	124	Active electricity (MWh/year)	16,780
				Exchange Rate (R/Y)	7.4
				CER Price (US\$/CER)	12
				Emission Factor of Central China Power Grid (tCO2e/MWh)	0.9733

V. Tax

No.	Items	Rate
1	Value Added Tax	6%
2	City Construction and Maintenance Tax	1%
3	Educational Surcharge	3%
4	Income Tax	4.0%

VI. Total Cost

With CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ⁶ CNY/year)	1978	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	
2	CER costs (10 ⁶ CNY/year)	353	12	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0
3	Depreciation (10 ⁶ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0
4	Total costs (10 ⁶ CNY/year)	5345	178	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	83	66	66	66	66	66	66	66	66	

Without CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ⁶ CNY/year)	1978	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	
2	CER costs (10 ⁶ CNY/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	Depreciation (10 ⁶ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	0
4	Total costs (10 ⁶ CNY/year)	4992	166	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	66	66	66	66	66	66	66	66	66	66

VII. Profit and Loss

With CER

No.	Items	Total (10 ⁶ CNY)	Average (10 ⁶ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Elec.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	
2	CER revenues	2953	98	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0	
3	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
4	Total costs	5345	178	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	83	66	66	66	66	66	66	66	66	
5	Gross profits	8632	288	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	425	302	302	302	302	302	302	302	302	302	
6	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	Income tax	345	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	17	12	12	12	12	12	12	12	12	12	
8	Profits after tax	8286	276	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	264	408	289	289	289	289	289	289	289	289	289

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
2	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
3	Total costs	4992	166	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	217	66	66	66	66	66	66	66	66	66	66
4	Gross profits	6032	201	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	302	302	302	302	302	302	302	302	302	302
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Income tax	241	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	12	12	12	12	12	12	12	12	12	12
7	Profits after tax	5791	193	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	289	289	289	289	289	289	289	289	289	289

Ⅷ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	14711	490			533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	CER revenues	2953	98			141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	6424	214	1708	1307	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	124	102	102	102	102	102	102	102	102	102
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital	0	0																																	
2.3	O&M costs	1978	66			66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	
2.4	CER costs	353	12			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0
2.5	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.6	Income tax	345	12			11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	17	12	12	12	12	12	12	12	12	12
3	Net cashflow (before income tax)	8632	288	(1708)	(1307)	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	302	302	302	302	302	302	302	302	302
4	Net cashflow (after income tax)	8286	276	(1708)	(1307)	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	408	289	289	289	289	289	289	289	289	289

No.	Financial indicator	Before tax	After tax
1	IRR	12.59%	12.23%
2	NPV (ic=10%)	602	515

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																													
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Cash inflow	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Cash outflow	5967	199	1708	1307	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	102	102	102	102	102	102	102	102	102
2.1	Fixed assets investment	3014	100	1708	1307																														
2.2	Circulating capital																																		
2.3	O&M costs	1978	66			66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	
2.4	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.5	Income tax	241	8			6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	12	12	12	12	12	12	12	12	
3	Net cashflow (before income tax)	6032	201	(1708)	(1307)	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
4	Net cashflow (after income tax)	5791	193	(1708)	(1307)	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	289	289	289	289	289	289	289	289	289

No.	Financial indicator	Before tax	After tax
1	IRR	8.76%	8.53%
2	NPV (ic=10%)	-283	-335

O&M Cost -10%

Variation	
Investment	0.00%
O&M costs	-10.00%
Elec.tariff	0.00%
Elec.sales	0.00%

I . Investment

No.	Items	Amount (10^3CNY)
	Total Investment	3,014.3
1	Fixed assets	3,014.3
1.1	The first year	1,707.7
1.2	The second year	1,306.6
2	Circulating capital	0
Remarks	Construction years	2
	Operation years	30

II . Operation & Maintenance Costs

No.	Items	Unit	Unit Cost	Unit	Operatin Year	Remarks	
1	O&M costs			10^3CNY/year	53.9		
1.1	Repair costs		1.0%	10^3CNY/year	27.1	Fixed assets * repair cost rate	
1.2	Labor costs and pension	10^3CNY/year	1.1	10^3CNY/year	18.5	Number of staff	18
1.3	Material costs	CNY/kW	0	10^3CNY/year	0.0	Installed capacity (kW)	3,200
1.4	Maintenance fund for reservoir	CNY/AW.h	-	10^3CNY/year			
1.5	Fixed assets premium		0.00%	10^3CNY/year	0.0	Fixed assets * rate	
1.6	Water resource fee	CNY/AW.h	0.0010	10^3CNY/year	1.4		
1.7	Other costs	CNY/AW	24	10^3CNY/year	6.9		
2	CER costs			10^3CNY/year	16.8		
2.1	EB SOP-Admin	US\$/CER	0.1 \ 0.2	10^3CNY/year	1.2	EB	
2.2	EBI SOP-Adapt		2%	10^3CNY/year	2.8	EBI	
2.3	Transaction costs by Chinese DNA		2%	10^3CNY/year	2.8	Chinese CDM Regulations	
2.4	Verification/Certification costs	10^3CNY/year	10.0	10^3CNY/year	10	Assumption	

III. Depreciation

No.	Items	Unit	Amount
1	Fixed assets	10^3CNY	3,014.3
2	Depreciation period	Year	20
3	Yearly depreciation value	10^3CNY/year	150.7
4	Residual value	10^3CNY	0

IV. Revenues

No.	Items	Unit	Operation Year	Remarks	
1	Electricity Revenues	10^3/year	392	Electricity Tariff (without VAT) (CNY/kWh)	0.246
2	Electricity generation	MWh/year	19,011	Annual operation hours (hrs)	5941
3	Electricity sales	MWh/year	15,932	Active power coefficient	88%
4	CER Quantity	tCO2e/year	15,510	Transmission Loss	4%
5	Gross CER Revenues	10^3/year	141	Electricity consumption by the project	1%
6	Net CER Revenues	10^3/year	124	Active electricity (MWh/year)	16,700
				Exchange Rate (R/Y)	7.4
				CER Price (US\$/CER)	12
				Emission Factor of Central China Power Grid (tCO2e/MWh)	0.9735

V. Tax

No.	Items	Rate
1	Value Added Tax	6%
2	City Construction and Maintenance Tax	1%
3	Educational Surcharge	3%
4	Income Tax	4.0%

VI. Total Cost

With CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ³ CNY/year)	1618	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
2	CER costs (10 ³ CNY/year)	353	12	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0
3	Depreciation (10 ³ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0
4	Total costs (10 ³ CNY/year)	4986	166	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	71	54	54	54	54	54	54	54	54

Without CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ³ CNY/year)	1618	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	
2	CER costs (10 ³ CNY/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	Depreciation (10 ³ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	
4	Total costs (10 ³ CNY/year)	4633	154	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	54	54	54	54	54	54	54	54	54	

VII. Profit and Loss

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Elec.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	
2	CER revenues	2953	98	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0	
3	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
4	Total costs	4986	166	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	71	54	54	54	54	54	54	54	54	
5	Gross profits	8991	300	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	437	314	314	314	314	314	314	314	314	314	
6	Making up losses		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	Income tax		360	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	17	13	13	13	13	13	13	13	13	13	
8	Profits after tax	8632	288	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	420	301	301	301	301	301	301	301	301	301

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
2	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
3	Total costs	4633	154	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	205	54	54	54	54	54	54	54	54	54	54
4	Gross profits	6392	213	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	314	314	314	314	314	314	314	314	314	314
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Income tax	256	9	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	13	13	13	13	13	13	13	13	13	13	
7	Profits after tax	6136	205	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	301	301	301	301	301	301	301	301	301	301

Ⅶ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	14711	490			533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	CER revenues	2953	98			141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	6079	203	1708	1307			107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	107	113	91	91	91	91	91	91	91	91	91
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital	0	0																																	
2.3	O&M costs	1618	54			54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	
2.4	CER costs	353	12			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0	
2.5	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.6	Income tax	360	12			11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	17	13	13	13	13	13	13	13	13	13	
3	Net cashflow (before income tax)	8991	300	(1708)	(1307)	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	437	314	314	314	314	314	314	314	314	
4	Net cashflow (after income tax)	8632	288	(1708)	(1307)	426	426	426	426	426	426	426	426	426	426	426	426	426	426	426	426	426	426	426	426	426	420	301	301	301	301	301	301	301	301	

No.	Financial indicator	Before tax	After tax
1	IRR	12.97%	12.60%
2	NPV (ic=10%)	695	605

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	5622	187	1708	1307	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	91	91	91	91	91	91	91	91	91	
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital																																			
2.3	O&M costs	1618	54			54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	
2.4	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.5	Income tax	256	9			7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
3	Net cashflow (before income tax)	6392	213	(1708)	(1307)	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	314	
4	Net cashflow (after income tax)	6136	205	(1708)	(1307)	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	301	301	301	301	301	301	301	301	301

No.	Financial indicator	Before tax	After tax
1	IRR	9.18%	8.93%
2	NPV (ic=10%)	-190	-245

Elec. Tariff +10%

Variation	
Investment	0.00%
O&M costs	0.00%
Elec.tariff	10.00%
Elec.sales	0.00%

I . Investment

No.	Items	Amount (10'CN¥)
	Total Investment	3,014.3
1	Fixed assets	3,014.3
1.1	The first year	1,707.7
1.2	The second year	1,306.6
2	Circulating capital	0
Remarks	Construction years	2
	Operation years	30

II . Operation & Maintenance Costs

No.	Items	Unit	Unit Cost	Unit	Operatin Year	Remarks	
1	O&M costs			10'CN¥/year	59.9		
1.1	Repair costs		1.0%	10'CN¥/year	30.1	Fixed assets * repair cost rate	
1.2	Labor costs and pension	10'CN¥/year	1.1	10'CN¥/year	20.5	Number of staff	18
1.3	Material costs	CN¥/k·W	0	10'CN¥/year	0.0	Installed capacity (k·W)	3,200
1.4	Maintenance fund for reservoir	CN¥/A·h	-	10'CN¥/year			
1.5	Fixed assets premium		0.00%	10'CN¥/year	0.0	Fixed assets * rate	
1.6	Water resource fee	CN¥/A·h	0.0010	10'CN¥/year	1.6		
1.7	Other costs	CN¥/A·W	24	10'CN¥/year	7.7		
2	CER costs			10'CN¥/year	16.8		
2.1	EB SOP-Admin	US\$/CER	0.1 \ 0.2	10'CN¥/year	1.2	EB	
2.2	EB SOP-Adapt		2%	10'CN¥/year	2.8	EB	
2.3	Transaction costs by Chinese DNA		2%	10'CN¥/year	2.8	Chinese CDM Regulations	
2.4	Verification/Certification costs	10'CN¥/year	10.0	10'CN¥/year	10	Assumption	

III. Depreciation

No.	Items	Unit	Amount
1	Fixed assets	10'CN¥	3,014.3
2	Depreciation period	Year	20
3	Yearly depreciation value	10'CN¥/year	150.7
4	Residual value	10'CN¥	0

IV. Revenues

No.	Items	Unit	Operation Year	Remarks	
1	Electricity Revenues	10 ⁹ /year	431	Electricity Tariff (without VAT) (CN¥/kWh)	0.271
2	Electricity generation	MWh/year	19,011	Annual operation hours (hrs)	5941
3	Electricity sales	MWh/year	15,932	Active power coefficient	88%
4	CER Quantity	tCO ₂ e/year	15,510	Transmission Loss	4%
5	Gross CER Revenues	10 ⁹ /year	141	Electricity consumption by the project	1%
6	Net CER Revenues	10 ⁹ /year	124	Active electricity (MWh/year)	16,780
				Exchange Rate (R ¥)	7.4
				CER Price (US\$/CER)	12
				Emission Factor of Central China Power Grid (tCO ₂ e/MWh)	0.9735

V. Tax

No.	Items	Rate
1	Value Added Tax	6%
2	City Construction and Maintenance Tax	1%
3	Educational Surcharge	3%
4	Income Tax	4.0%

VI. Total Cost

With CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10/CNY/year)	1798	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2	CER costs (10/CNY/year)	353	12	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0
3	Depreciation (10/CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	0
4	Total costs (10/CNY/year)	5165	172	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	77	60	60	60	60	60	60	60	60	60

Without CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10\CNY/year)	1798	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2	CER costs (10\CNY/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	Depreciation (10\CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	
4	Total costs (10\CNY/year)	4812	160	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	60	60	60	60	60	60	60	60	60	

VII. Profit and Loss

With CER

No.	Items	Total (10'CN¥)	Average (10'CN¥)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Elec.revenues	12934	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	
2	CER revenues	2953	98	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0
3	Taxes	807	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
4	Total costs	5165	172	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	77	60	60	60	60	60	60	60	60	
5	Gross profits	9914	330	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	468	344	344	344	344	344	344	344	344	344
6	Making up losses		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	Income tax		397	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	19	14	14	14	14	14	14	14	14	14	
8	Profits after tax	9517	317	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	449	331	331	331	331	331	331	331	331	331

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	12934	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	
2	Taxes	807	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
3	Total costs	4812	160	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	60	60	60	60	60	60	60	60	60	
4	Gross profits	7314	244	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	344	344	344	344	344	344	344	344	344	344	
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Income tax	293	10	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	14	14	14	14	14	14	14	14	14	
7	Profits after tax	7022	234	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	331	331	331	331	331	331	331	331	331	331

Ⅷ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	15886	530			572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	431	431	431	431	431	431	431	431	431
1.1	Elec.revenues	12934	431			431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431
1.2	CER revenues	2953	98			141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	6369	212	1708	1307	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	122	101	101	101	101	101	101	101	101
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital	0	0																																	
2.3	O&M costs	1798	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2.4	CER costs	353	12			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	
2.5	Sales tax	807	27			27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
2.6	Income tax	397	13			13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	19	14	14	14	14	14	14	14	14	
3	Net cashflow (before income tax)	9914	330	(1708)	(1307)	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	344	344	344	344	344	344	344	344	344
4	Net cashflow (after income tax)	9517	317	(1708)	(1307)	455	455	455	455	455	455	455	455	455	455	455	455	455	455	455	455	455	455	455	455	455	455	449	331	331	331	331	331	331	331	331

No.	Financial indicator	Before tax	After tax
1	IRR	13.94%	13.54%
2	NPV (ic=10%)	935	835

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	12934	431			431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431
1.1	Elec.revenues	12934	431			431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	5912	197	1708	1307	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital																																			
2.3	O&M costs	1798	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2.4	Sales tax	807	27			27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
2.5	Income tax	293	10			8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
3	Net cashflow (before income tax)	7314	244	(1708)	(1307)	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	
4	Net cashflow (after income tax)	7022	234	(1708)	(1307)	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	

No.	Financial indicator	Before tax	After tax
1	IRR	10.21%	9.94%
2	NPV (ic=10%)	50	-15

Elec. Tariff -10%

Variation	
Investment	0.00%
O&M costs	0.00%
Elec.tariff	-10.00%
Elec.sales	0.00%

I . Investment

No.	Items	Amount (10^CNY)
	Total Investment	3,014.3
1	Fixed assets	3,014.3
1.1	The first year	1,707.7
1.2	The second year	1,306.6
2	Circulating capital	0
Remarks	Construction years	2
	Operation years	30

II . Operation & Maintenance Costs

No.	Items	Unit	Unit Cost	Unit	Operatin Year	Remarks	
1	O&M costs			10^CNY/year	59.9		
1.1	Repair costs		1.0%	10^CNY/year	30.1	Fixed assets * repair cost rate	
1.2	Labor costs and pension	10^CNY/year	1.1	10^CNY/year	20.5	Number of staff	18
1.3	Material costs	CNY/kW	0	10^CNY/year	0.0	Installed capacity (kW)	3,200
1.4	Maintenance fund for reservoir	CNY/AW.h	-	10^CNY/year			
1.5	Fixed assets premium		0.00%	10^CNY/year	0.0	Fixed assets * rate	
1.6	Water resource fee	CNY/AW.h	0.0010	10^CNY/year	1.6		
1.7	Other costs	CNY/AW	24	10^CNY/year	7.7		
2	CER costs			10^CNY/year	16.8		
2.1	EB SOP-Admin	US\$/CER	0.1 \ 0.2	10^CNY/year	1.2	EB	
2.2	EBI SOP-Adapt		2%	10^CNY/year	2.8	EBI	
2.3	Transaction costs by Chinese DNA		2%	10^CNY/year	2.8	Chinese CDM Regulations	
2.4	Verification/Certification costs	10^CNY/year	10.0	10^CNY/year	10	Assumption	

III. Depreciation

No.	Items	Unit	Amount
1	Fixed assets	10^CNY	3,014.3
2	Depreciation period	Year	20
3	Yearly depreciation value	10^CNY/year	150.7
4	Residual value	10^CNY	0

IV. Revenues

No.	Items	Unit	Operation Year	Remarks	
1	Electricity Revenues	10^/year	353	Electricity Tariff (without VAT) (CNY/kWh)	0.221
2	Electricity generation	MWh/year	19,011	Annual operation hours (hrs)	5941
3	Electricity sales	MWh/year	15,932	Active power coefficient	88%
4	CER Quantity	tCO2e/year	15,510	Transmission Loss	4%
5	Gross CER Revenues	10^/year	141	Electricity consumption by the project	1%
6	Net CER Revenues	10^/year	124	Active electricity (MWh/year)	16,780
				Exchange Rate (R/Y)	7.4
				CER Price (US\$/CER)	12
				Emission Factor of Central China Power Grid (tCO2e/MWh)	0.9735

V. Tax

No.	Items	Rate
1	Value Added Tax	6%
2	City Construction and Maintenance Tax	1%
3	Educational Surcharge	3%
4	Income Tax	4.0%

VI. Total Cost

With CERs																																	
No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ⁶ CNY/year)	1798	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
2	CER costs (10 ⁶ CNY/year)	353	12	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0
3	Depreciation (10 ⁶ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0
4	Total costs (10 ⁶ CNY/year)	5165	172	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	77	60	60	60	60	60	60	60	60

Without CERs																																	
No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ³ CNY/year)	1798	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2	CER costs (10 ³ CNY/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Depreciation (10 ³ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	0
4	Total costs (10 ³ CNY/year)	4812	160	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	60	60	60	60	60	60	60	60	60	60

VII. Profit and Loss

With CER																																	
No.	Items	Total (10 ⁶ CNY)	Average (10 ⁶ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	10582	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353
2	CER revenues	2953	98	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0
3	Taxes	660	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
4	Total costs	5165	172	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	77	60	60	60	60	60	60	60	60
5	Gross profits	7709	257	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	395	271	271	271	271	271	271	271	271
6	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Income tax	308	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	16	11	11	11	11	11	11	11	11	11
8	Profits after tax	7401	247	234	234	234	234	234	234	234	234	234	234	234	234	234	234	234	234	234	234	234	234	379	260	260	260	260	260	260	260	260	260

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	10582	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353
2	Taxes	660	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
3	Total costs	4812	160	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	60	60	60	60	60	60	60	60	60	60
4	Gross profits	5109	170	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	271	271	271	271	271	271	271	271	271	271
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Income tax	204	7	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	11	11	11	11	11	11	11	11	11	11
7	Profits after tax	4905	164	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	260	260	260	260	260	260	260	260	260	260

Ⅶ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	13535	451			493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	353	353	353	353	353	353	353	353	353	353
1.1	Elec.revenues	10582	353			353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353
1.2	CER revenues	2953	98			141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Cash outflow	6134	204	1708	1307																															
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital	0	0																																	
2.3	O&M costs	1798	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2.4	CER costs	353	12			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0
2.5	Sales tax	660	22			22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
2.6	Income tax	308	10			10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	16	11	11	11	11	11	11	11	11	11
3	Net cashflow (before income tax)	7709	257	(1708)	(1307)	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	395	271	271	271	271	271	271	271	271
4	Net cashflow (after income tax)	7401	247	(1708)	(1307)	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385	379	260	260	260	260	260	260	260	260

No.	Financial indicator	Before tax	After tax
1	IRR	11.58%	11.25%
2	NPV (ic=10%)	362	285

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																													
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Cash inflow	10582	353			353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353
1.1	Elec.revenues	10582	353			353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Cash outflow	5677	189	1708	1307	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	93	93	93	93	93	93	93	93	93
2.1	Fixed assets investment	3014	100	1708	1307																														
2.2	Circulating capital																																		
2.3	O&M costs	1798	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2.4	Sales tax	660	22			22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
2.5	Income tax	204	7			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
3	Net cashflow (before income tax)	5109	170	(1708)	(1307)	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	
4	Net cashflow (after income tax)	4905	164	(1708)	(1307)	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	260	260	260	260	260	260	260	260

No.	Financial indicator	Before tax	After tax
1	IRR	7.67%	7.47%
2	NPV (ic=10%)	-523	-565

With CER

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	12934	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	
2	Taxes	807	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
3	Total costs	4817	161	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	60	60	60	60	60	60	60	60	60	
4	Gross profits	7310	244	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	193	344	344	344	344	344	344	344	344	344	
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Income tax	292	10	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	14	14	14	14	14	14	14	14	14	
7	Profits after tax	7017	234	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	186	330	330	330	330	330	330	330	330	330	

Ⅶ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	16182	539			586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	586	431	431	431	431	431	431	431	431	431
1.1	Elec.revenues	12934	431			431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431
1.2	CER revenues	3248	108			155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	6401	213	1708	1307	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	124	101	101	101	101	101	101	101	101	
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital	0	0																																	
2.3	O&M costs	1803	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2.4	CER costs	370	12			18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0	0	0	0	
2.5	Sales tax	807	27			27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
2.6	Income tax	408	14			13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	19	14	14	14	14	14	14	14	14	
3	Net cashflow (before income tax)	10188	340	(1708)	(1307)	481	481	481	481	481	481	481	481	481	481	481	481	481	481	481	481	481	481	481	481	481	481	344	344	344	344	344	344	344	344	
4	Net cashflow (after income tax)	9780	326	(1708)	(1307)	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	468	462	330	330	330	330	330	330	330	

No.	Financial indicator	Before tax	After tax
1	IRR	14.32%	13.91%
2	NPV (ic=10%)	1028	924

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	12934	431			431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431
1.1	Elec.revenues	12934	431			431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431	431
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	5917	197	1708	1307	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	101	101	101	101	101	101	101	101	101	101	
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital																																			
2.3	O&M costs	1803	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60		
2.4	Sales tax	807	27			27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
2.5	Income tax	292	10			8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	14	14	14	14	14	14	14	14	14	
3	Net cashflow (before income tax)	7310	244	(1708)	(1307)	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	344	
4	Net cashflow (after income tax)	7017	234	(1708)	(1307)	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	336	330	330	330	330	330	330	330	330	330	

No.	Financial indicator	Before tax	After tax
1	IRR	10.21%	9.93%
2	NPV (ic=10%)	49	-16

Elec. Sales -10%

Variation	
Investment	0.00%
O&M costs	0.00%
Elec.tariff	0.00%
Elec.sales	-10.00%

I . Investment

No.	Items	Amount (10^6CNY)
	Total Investment	3,014.3
1	Fixed assets	3,014.3
1.1	The first year	1,707.7
1.2	The second year	1,306.6
2	Circulating capital	0
Remarks	Construction years	2
	Operation years	30

II . Operation & Maintenance Costs

No.	Items	Unit	Unit Cost	Unit	Operatin Year	Remarks	
1	O&M costs			10^6CNY/year	59.8		
1.1	Repair costs		1.0%	10^6CNY/year	30.1	Fixed assets * repair cost rate	
1.2	Labor costs and pension	10^6CNY/year	1.1	10^6CNY/year	20.5	Number of staff	18
1.3	Material costs	CNY/kW	0	10^6CNY/year	0.0	Installed capacity (kW)	3,200
1.4	Maintenance fund for reservoir	CNY/AW.h	-	10^6CNY/year			
1.5	Fixed assets premium		0.00%	10^6CNY/year	0.0	Fixed assets * rate	
1.6	Water resource fee	CNY/AW.h	0.0010	10^6CNY/year	1.4		
1.7	Other costs	CNY/AW	24	10^6CNY/year	7.7		
2	CER costs			10^6CNY/year	15.1		
2.1	EB SOP-Admin	US\$/CER	0.1 \ 0.2	10^6CNY/year	0.0	EB	
2.2	EBI SOP-Adapt		2%	10^6CNY/year	2.5	EBI	
2.3	Transaction costs by Chinese DNA		2%	10^6CNY/year	2.5	Chinese CDM Regulations	
2.4	Verification/Certification costs	10^6CNY/year	10.0	10^6CNY/year	10	Assumption	

III. Depreciation

No.	Items	Unit	Amount
1	Fixed assets	10^6CNY	3,014.3
2	Depreciation period	Year	20
3	Yearly depreciation value	10^6CNY/year	150.7
4	Residual value	10^6CNY	0

IV. Revenues

No.	Items	Unit	Operation Year	Remarks	
1	Electricity Revenues	10^6/year	353	Electricity Tariff (without VAT) (CNY/kWh)	0.246
2	Electricity generation	MWh/year	17,110	Annual operation hours (hrs)	5941
3	Electricity sales	MWh/year	14,339	Active power coefficient	88%
4	CER Quantity	tCO2e/year	13,959	Transmission Loss	4%
5	Gross CER Revenues	10^6/year	127	Electricity consumption by the project	
6	Net CER Revenues	10^6/year	111	Active electricity (MWh/year)	15,057
				Exchange Rate (R/Y)	7.4
				CER Price (US\$/CER)	12
				Emission Factor of Central China Power Grid (tCO2e/MWh)	0.9735

V. Tax

No.	Items	Rate
1	Value Added Tax	6%
2	City Construction and Maintenance Tax	1%
3	Educational Surcharge	3%
4	Income Tax	4.0%

VI. Total Cost

With CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ⁶ CNY/year)	1793	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2	CER costs (10 ⁶ CNY/year)	316	11	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	0	0	0	0	0	0	0	0	
3	Depreciation (10 ⁶ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	
4	Total costs (10 ⁶ CNY/year)	5124	171	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	75	60	60	60	60	60	60	60	60	

Without CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ⁶ CNY/year)	1793	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2	CER costs (10 ⁶ CNY/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	Depreciation (10 ⁶ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	
4	Total costs (10 ⁶ CNY/year)	4808	160	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	60	60	60	60	60	60	60	60	60	

VII. Profit and Loss

With CER

No.	Items	Total (10 ⁶ CNY)	Average (10 ⁶ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Elec.revenues	10582	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353		
2	CER revenues	2657	89	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	0	0	0	0	0	0	0	0	0	
3	Taxes	660	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22		
4	Total costs	5124	171	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	226	75	60	60	60	60	60	60	60	60	
5	Gross profits	7455	249	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232	232	382	271	271	271	271	271	271	271	271	271	
6	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	Income tax	298	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	15	11	11	11	11	11	11	11	11	11		
8	Profits after tax	7157	239	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	367	260	260	260	260	260	260	260	260	260	260

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	10582	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	
2	Taxes	660	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
3	Total costs	4808	160	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	60	60	60	60	60	60	60	60	60	60
4	Gross profits	5114	170	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	271	271	271	271	271	271	271	271	271	271
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Income tax	205	7	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	11	11	11	11	11	11	11	11	11	11
7	Profits after tax	4910	164	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	260	260	260	260	260	260	260	260	260	260

Ⅷ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	13239	441			479	479	479	479	479	479	479	479	479	479	479	479	479	479	479	479	479	479	479	479	479	479	353	353	353	353	353	353	353	353	353
1.1	Elec.revenues	10582	353			353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353
1.2	CER revenues	2657	89			127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	6082	203	1708	1307	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	112	93	93	93	93	93	93	93	93	93
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital	0	0																																	
2.3	O&M costs	1793	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2.4	CER costs	316	11			15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	0	0	0	0	0	0	0	0	
2.5	Sales tax	660	22			22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
2.6	Income tax	298	10			9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	15	11	11	11	11	11	11	11	11	11
3	Net cashflow (before income tax)	7455	249	(1708)	(1307)	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	271	271	271	271	271	271	271	271	271
4	Net cashflow (after income tax)	7157	239	(1708)	(1307)	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373	373	367	260	260	260	260	260	260	260	260

No.	Financial indicator	Before tax	After tax
1	IRR	11.21%	10.89%
2	NPV (ic=10%)	275	202

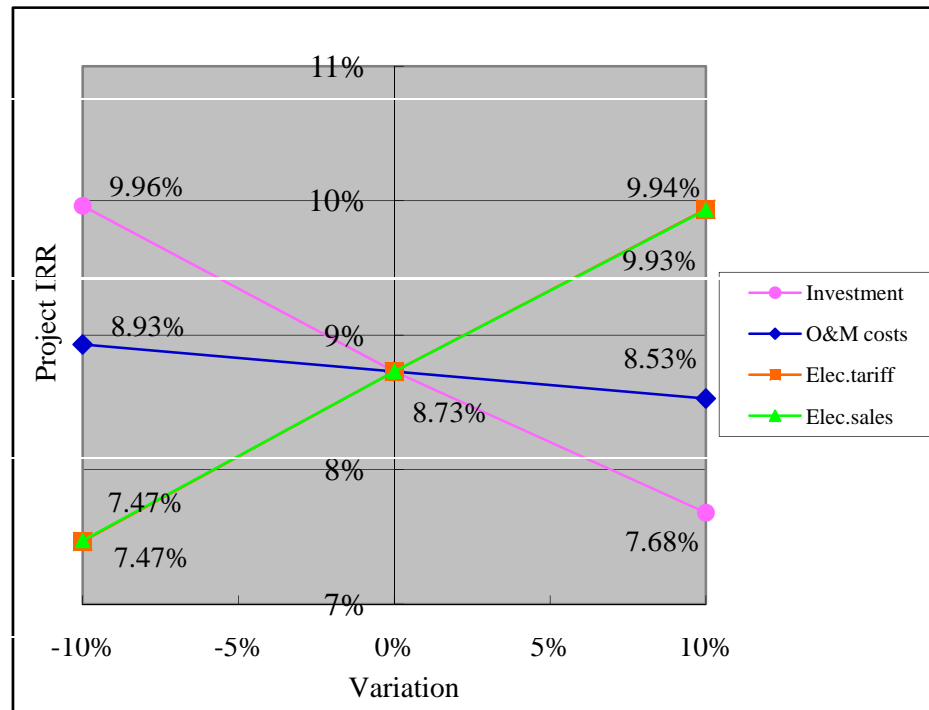
Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																													
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Cash inflow	10582	353			353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353
1.1	Elec.revenues	10582	353			353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	5672	189	1708	1307	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	93	93	93	93	93	93	93	93	93
2.1	Fixed assets investment	3014	100	1708	1307																														
2.2	Circulating capital																																		
2.3	O&M costs	1793	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2.4	Sales tax	660	22			22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
2.5	Income tax	205	7			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
3	Net cashflow (before income tax)	5114	170	(1708)	(1307)	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	271	
4	Net cashflow (after income tax)	4910	164	(1708)	(1307)	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266	260	260	260	260	260	260	260	260	260

No.	Financial indicator	Before tax	After tax
1	IRR	7.68%	7.47%
2	NPV (ic=10%)	-521	-563

Sensitivity Analysis - Without CER

Items	Variation	IRR after tax
Investment	10%	7.68%
	0%	8.73%
	-10%	9.96%
O&M costs	10%	8.53%
	0%	8.73%
	-10%	8.93%
Elec.tariff	10%	9.94%
	0%	8.73%
	-10%	7.47%
Elec.sales	10%	9.93%
	0%	8.73%
	-10%	7.47%



Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
2	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
3	Total costs	4409	147	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	57	57	57	57	57	57	57	57	57	57
4	Gross profits	6615	221	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	311	311	311	311	311	311	311	311	311	311
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Income tax	265	9	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	12	12	12	12	12	12	12	12	12	12
7	Profits after tax	6351	212	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	298	298	298	298	298	298	298	298	298	298

Ⅷ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	14711	490			533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	CER revenues	2953	98			141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	5864	195	1532	1172	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	115	94	94	94	94	94	94	94	94
2.1	Fixed assets investment	2704	90	1532	1172																															
2.2	Circulating capital	0	0																																	
2.3	O&M costs	1705	57			57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	
2.4	CER costs	353	12			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	
2.5	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.6	Income tax	369	12			12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	17	12	12	12	12	12	12	12	
3	Net cashflow (before income tax)	9215	307	(1532)	(1172)	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	434	311	311	311	311	311	311	311	311	
4	Net cashflow (after income tax)	8846	295	(1532)	(1172)	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	422	417	298	298	298	298	298	298	298	

No.	Financial indicator	Before tax	After tax
1	IRR	14.42%	14.00%
2	NPV (ic=10%)	944	850

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Cash outflow	5407	180	1532	1172	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	94	94	94	94	94	94	94	94	94
2.1	Fixed assets investment	2704	90	1532	1172																															
2.2	Circulating capital	0	0																																	
2.3	O&M costs	1705	57			57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	
2.4	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.5	Income tax	265	9			7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	12	12	12	12	12	12	12	12	12	
3	Net cashflow (before income tax)	6615	221	(1532)	(1172)	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311	311
4	Net cashflow (after income tax)	6351	212	(1532)	(1172)	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	298	298	298	298	298	298	298	298	298

No.	Financial indicator	Before tax	After tax
1	IRR	10.28%	10.00%
2	NPV (ic=10%)	59	0

O&M Cost when IRR=benchmark

Variation	
Investment	0.00%
O&M costs	-64.59%
Elec.tariff	0.00%
Elec.sales	0.00%

I . Investment

No.	Items	Amount (10 ³ CNY)
	Total Investment	3,014.3
1	Fixed assets	3,014.3
1.1	The first year	1,707.7
1.2	The second year	1,306.6
2	Circulating capital	0
Remarks	Construction years	2
	Operation years	30

II . Operation & Maintenance Costs

No.	Items	Unit	Unit Cost	Unit	Operatin Year	Remarks	
1	O&M costs			10 ³ CNY/year	21.3		
1.1	Repair costs		1.0%	10 ³ CNY/year	10.7	Fixed assets * repair cost rate	
1.2	Labor costs and pension	10 ³ CNY/year	1.1	10 ³ CNY/year	7.3	Number of staff	18
1.3	Material costs	CNY/kW	0	10 ³ CNY/year	0.0	Installed capacity (kW)	3,200
1.4	Maintenance fund for reservoir	CNY/AW.h	-	10 ³ CNY/year			
1.5	Fixed assets premium		0.00%	10 ³ CNY/year	0.0	Fixed assets * rate	
1.6	Water resource fee	CNY/AW.h	0.0010	10 ³ CNY/year	0.6		
1.7	Other costs	CNY/AW	24	10 ³ CNY/year	2.7		
2	CER costs			10 ³ CNY/year	16.8		
2.1	EB SOP-Admin	US\$/CER	0.1\0.2	10 ³ CNY/year	1.2	EB	
2.2	EBI SOP-Adapt		2%	10 ³ CNY/year	2.8	EBI	
2.3	Transaction costs by Chinese DNA		2%	10 ³ CNY/year	2.8	Chinese CDM Regulations	
2.4	Verification/Certification costs	10 ³ CNY/year	10.0	10 ³ CNY/year	10	Assumption	

III. Depreciation

No.	Items	Unit	Amount
1	Fixed assets	10 ³ CNY	3,014.3
2	Depreciation period	Year	20
3	Yearly depreciation value	10 ³ CNY/year	150.7
4	Residual value	10 ³ CNY	0

IV. Revenues

No.	Items	Unit	Operation Year	Remarks	
1	Electricity Revenues	10 ³ /year	392	Electricity Tariff (without VAT) (CNY/kWh)	0.246
2	Electricity generation	MWh/year	19,011	Annual operation hours (hrs)	5941
3	Electricity sales	MWh/year	15,932	Active power coefficient	88%
4	CER Quantity	tCO ₂ e/year	15,510	Transmission Loss	4%
5	Gross CER Revenues	10 ³ /year	141	Electricity consumption by the project	1%
6	Net CER Revenues	10 ³ /year	124	Active electricity (MWh/year)	16,780
				Exchange Rate (R/Y)	7.4
				CER Price (US\$/CER)	12
				Emission Factor of Central China Power Grid (tCO ₂ e/MWh)	0.9735

V. Tax

No.	Items	Rate
1	Value Added Tax	6%
2	City Construction and Maintenance Tax	1%
3	Educational Surcharge	3%
4	Income Tax	4.0%

VI. Total Cost

With CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ³ CNY/year)	638	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	
2	CER costs (10 ³ CNY/year)	353	12	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0
3	Depreciation (10 ³ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	0
4	Total costs (10 ³ CNY/year)	4006	134	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	38	21	21	21	21	21	21	21	21	21

Without CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ³ CNY/year)	638	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	
2	CER costs (10 ³ CNY/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	Depreciation (10 ³ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	
4	Total costs (10 ³ CNY/year)	3653	122	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	21	21	21	21	21	21	21	21	21	

VII. Profit and Loss

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Elec.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	
2	CER revenues	2953	98	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0	
3	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
4	Total costs	4006	134	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	38	21	21	21	21	21	21	21	21	21	
5	Gross profits	9971	332	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	470	346	346	346	346	346	346	346	346	346	
6	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	Income tax	399	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	19	14	14	14	14	14	14	14	14	14	14	
8	Profits after tax	9572	319	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	307	451	332	332	332	332	332	332	332	332	332	332

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	11758	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	
2	Taxes	734	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
3	Total costs	3653	122	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	21	21	21	21	21	21	21	21	21	
4	Gross profits	7372	246	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	346	346	346	346	346	346	346	346	346	346	
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Income tax	295	10	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	14	14	14	14	14	14	14	14	14	
7	Profits after tax	7077	236	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	332	332	332	332	332	332	332	332	332	332

Ⅶ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	14711	490			533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	533	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	CER revenues	2953	98			141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	5138	171	1708	1307																															
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital	0	0																																	
2.3	O&M costs	638	21			21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	
2.4	CER costs	353	12			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	
2.5	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.6	Income tax	399	13			13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	19	14	14	14	14	14	14	14	14	
3	Net cashflow (before income tax)	9971	332	(1708)	(1307)	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	346	346	346	346	346	346	346	346	
4	Net cashflow (after income tax)	9572	319	(1708)	(1307)	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	451	332	332	332	332	332	332	332	332	

No.	Financial indicator	Before tax	After tax
1	IRR	13.99%	13.59%
2	NPV (ic=10%)	950	849

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.1	Elec.revenues	11758	392			392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	4681	156	1708	1307	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	60	60	60	60	60	60	60	60	60	60	
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital																																			
2.3	O&M costs	638	21			21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21		
2.4	Sales tax	734	24			24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
2.5	Income tax	295	10			8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
3	Net cashflow (before income tax)	7372	246	(1708)	(1307)	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	
4	Net cashflow (after income tax)	7077	236	(1708)	(1307)	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	332	332	332	332	332	332	332	332	332	

No.	Financial indicator	Before tax	After tax
1	IRR	10.28%	10.00%
2	NPV (ic=10%)	65	-1

Elec. Tariff when IRR=benchmark

Variation	
Investment	0.00%
O&M costs	0.00%
Elec.tariff	10.50%
Elec.sales	0.00%

I . Investment

No.	Items	Amount (10^6CNY)
	Total Investment	3,014.3
1	Fixed assets	3,014.3
1.1	The first year	1,707.7
1.2	The second year	1,306.6
2	Circulating capital	0
Remarks	Construction years	2
	Operation years	30

II . Operation & Maintenance Costs

No.	Items	Unit	Unit Cost	Unit	Operatin Year	Remarks	
1	O&M costs			10^6CNY/year	59.9		
1.1	Repair costs		1.0%	10^6CNY/year	30.1	Fixed assets * repair cost rate	
1.2	Labor costs and pension	10^6CNY/year	1.1	10^6CNY/year	20.5	Number of staff	18
1.3	Material costs	CNY/kW	0	10^6CNY/year	0.0	Installed capacity (kW)	3,200
1.4	Maintenance fund for reservoir	CNY/AW.h	-	10^6CNY/year			
1.5	Fixed assets premium		0.00%	10^6CNY/year	0.0	Fixed assets * rate	
1.6	Water resource fee	CNY/AW.h	0.0010	10^6CNY/year	1.6		
1.7	Other costs	CNY/AW	24	10^6CNY/year	7.7		
2	CER costs			10^6CNY/year	16.8		
2.1	EB SOP-Admin	US\$/CER	0.1 \ 0.2	10^6CNY/year	1.2	EB	
2.2	EBI SOP-Adapt		2%	10^6CNY/year	2.8	EBI	
2.3	Transaction costs by Chinese DNA		2%	10^6CNY/year	2.8	Chinese CDM Regulations	
2.4	Verification/Certification costs	10^6CNY/year	10.0	10^6CNY/year	10	Assumption	

III. Depreciation

No.	Items	Unit	Amount
1	Fixed assets	10^6CNY	3,014.3
2	Depreciation period	Year	20
3	Yearly depreciation value	10^6CNY/year	150.7
4	Residual value	10^6CNY	0

IV. Revenues

No.	Items	Unit	Operation Year	Remarks	
1	Electricity Revenues	10^6/year	433	Electricity Tariff (without VAT) (CNY/kWh)	0.272
2	Electricity generation	MWh/year	19,011	Annual operation hours (hrs)	5941
3	Electricity sales	MWh/year	15,932	Active power coefficient	88%
4	CER Quantity	tCO2e/year	15,510	Transmission Loss	4%
5	Gross CER Revenues	10^6/year	141	Electricity consumption by the project	1%
6	Net CER Revenues	10^6/year	124	Active electricity (MWh/year)	16,780
				Exchange Rate (R/Y)	7.4
				CER Price (US\$/CER)	12
				Emission Factor of Central China Power Grid (tCO2e/MWh)	0.9735

V. Tax

No.	Items	Rate
1	Value Added Tax	6%
2	City Construction and Maintenance Tax	1%
3	Educational Surcharge	3%
4	Income Tax	4.0%

VI. Total Cost

With CERs																																	
No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ⁶ CNY/year)	1798	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
2	CER costs (10 ⁶ CNY/year)	353	12	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0
3	Depreciation (10 ⁶ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	0
4	Total costs (10 ⁶ CNY/year)	5165	172	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	77	60	60	60	60	60	60	60	60	60

Without CERs																																	
No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ⁶ CNY/year)	1798	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2	CER costs (10 ⁶ CNY/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	Depreciation (10 ⁶ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	
4	Total costs (10 ⁶ CNY/year)	4812	160	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	60	60	60	60	60	60	60	60	60	

VII. Profit and Loss

With CER																																		
No.	Items	Total (10 ⁶ CNY)	Average (10 ⁶ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Elec.revenues	12993	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	
2	CER revenues	2953	98	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0	
3	Taxes	811	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
4	Total costs	5165	172	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	77	60	60	60	60	60	60	60	60	
5	Gross profits	9969	332	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	470	346	346	346	346	346	346	346	346	
6	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	Income tax	399	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	19	14	14	14	14	14	14	14	14	14	
8	Profits after tax	9570	319	306	306	306	306	306	306	306	306	306	306	306	306	306	306	306	306	306	306	306	306	451	332	332	332	332	332	332	332	332	332	332

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	12993	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	
2	Taxes	811	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
3	Total costs	4812	160	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	60	60	60	60	60	60	60	60	60	
4	Gross profits	7369	246	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	346	346	346	346	346	346	346	346	346	
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Income tax	295	10	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	14	14	14	14	14	14	14	14	14	
7	Profits after tax	7075	236	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	332	332	332	332	332	332	332	332	332	332

Ⅷ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																																
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
1	Cash inflow	15945	532			574	574	574	574	574	574	574	574	574	574	574	574	574	574	574	574	574	574	574	574	574	574	433	433	433	433	433	433	433	433	433	433	
1.1	Elec.revenues	12993	433			433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433
1.2	CER revenues	2953	98			141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	141	0	0	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	6375	212	1708	1307	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	123	101	101	101	101	101	101	101	101	101	
2.1	Fixed assets investment	3014	100	1708	1307																																	
2.2	Circulating capital	0	0																																			
2.3	O&M costs	1798	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60		
2.4	CER costs	353	12			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	0	0	0	0	0	0	0	0	0	0	
2.5	Sales tax	811	27			27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
2.6	Income tax	399	13			13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	19	14	14	14	14	14	14	14	14	14	
3	Net cashflow (before income tax)	9969	332	(1708)	(1307)	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	470	346	346	346	346	346	346	346	346	346	
4	Net cashflow (after income tax)	9570	319	(1708)	(1307)	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	457	451	332	332	332	332	332	332	332	332	332	

No.	Financial indicator	Before tax	After tax
1	IRR	13.99%	13.59%
2	NPV (ic=10%)	949	848

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	12993	433			433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433
1.1	Elec.revenues	12993	433			433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	5918	197	1708	1307	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	101	101	101	101	101	101	101	101	
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital																																			
2.3	O&M costs	1798	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2.4	Sales tax	811	27			27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
2.5	Income tax	295	10			8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	14	14	14	14	14	14	14	14	
3	Net cashflow (before income tax)	7369	246	(1708)	(1307)	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	
4	Net cashflow (after income tax)	7075	236	(1708)	(1307)	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	332	332	332	332	332	332	332	332	332

No.	Financial indicator	Before tax	After tax
1	IRR	10.27%	10.00%
2	NPV (ic=10%)	64	-1

Elec. Sales when IRR=benchmark

Variation	
Investment	0.00%
O&M costs	0.00%
Elec.tariff	0.00%
Elec.sales	10.60%

I . Investment

No.	Items	Amount (10^3CNY)
Total Investment		3,014.3
1	Fixed assets	3,014.3
1.1	The first year	1,707.7
1.2	The second year	1,306.6
2	Circulating capital	0
Remarks	Construction years	2
	Operation years	30

II . Operation & Maintenance Costs

No.	Items	Unit	Unit Cost	Unit	Operatin Year	Remarks	
1	O&M costs			10^3CNY/year	60.1		
1.1	Repair costs		1.0%	10^3CNY/year	30.1	Fixed assets * repair cost rate	
1.2	Labor costs and pension	10^3CNY/year	1.1	10^3CNY/year	20.5	Number of staff	18
1.3	Material costs	CNY/kW	0	10^3CNY/year	0.0	Installed capacity (kW)	3,200
1.4	Maintenance fund for reservoir	CNY/AW.h	-	10^3CNY/year			
1.5	Fixed assets premium		0.00%	10^3CNY/year	0.0	Fixed assets * rate	
1.6	Water resource fee	CNY/AW.h	0.0010	10^3CNY/year	1.8		
1.7	Other costs	CNY/AW	24	10^3CNY/year	7.7		
2	CER costs			10^3CNY/year	17.6		
2.1	EB SOP-Admin	US\$/CER	0.1 \ 0.2	10^3CNY/year	1.4	EB	
2.2	EBI SOP-Adapt		2%	10^3CNY/year	3.1	EBI	
2.3	Transaction costs by Chinese DNA		2%	10^3CNY/year	3.1	Chinese CDM Regulations	
2.4	Verification/Certification costs	10^3CNY/year	10.0	10^3CNY/year	10	Assumption	

III. Depreciation

No.	Items	Unit	Amount
1	Fixed assets	10^3CNY	3,014.3
2	Depreciation period	Year	20
3	Yearly depreciation value	10^3CNY/year	150.7
4	Residual value	10^3CNY	0

IV. Revenues

No.	Items	Unit	Operation Year	Remarks	
1	Electricity Revenues	10^3/year	433	Electricity Tariff (without VAT) (CNY/kWh)	0.246
2	Electricity generation	MWh/year	21,026	Annual operation hours (hrs)	5941
3	Electricity sales	MWh/year	17,621	Active power coefficient	88%
4	CER Quantity	tCO2e/year	17,154	Transmission Loss	4%
5	Gross CER Revenues	10^3/year	156	Electricity consumption by the project	1%
6	Net CER Revenues	10^3/year	138	Active electricity (MWh/year)	18,503
				Exchange Rate (R/Y)	7.4
				CER Price (US\$/CER)	12
				Emission Factor of Central China Power Grid (tCO2e/MWh)	0.9735

V. Tax

No.	Items	Rate
1	Value Added Tax	6%
2	City Construction and Maintenance Tax	1%
3	Educational Surcharge	3%
4	Income Tax	4.0%

VI. Total Cost

With CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ³ CNY/year)	1803	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2	CER costs (10 ³ CNY/year)	371	12	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0	0	0	0	0
3	Depreciation (10 ³ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	0
4	Total costs (10 ³ CNY/year)	5188	173	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	78	60	60	60	60	60	60	60	60	60

Without CERs

No.	Items	Total	Average	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	O&M costs (10 ³ CNY/year)	1803	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2	CER costs (10 ³ CNY/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	Depreciation (10 ³ CNY/year)	3014	100	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	151	0	0	0	0	0	0	0	0	0	
4	Total costs (10 ³ CNY/year)	4817	161	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	60	60	60	60	60	60	60	60	60	

VII. Profit and Loss

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	13004	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433
2	CER revenues	3266	109	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	0	0	0	0	0	0	0	0	0
3	Taxes	811	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
4	Total costs	5188	173	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	228	78	60	60	60	60	60	60	60	60
5	Gross profits	10270	342	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	484	346	346	346	346	346	346	346	346
6	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	Income tax	411	14	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	19	14	14	14	14	14	14	14	14	
8	Profits after tax	9859	329	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	320	465	332	332	332	332	332	332	332	332	332

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Elec.revenues	13004	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433
2	Taxes	811	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
3	Total costs	4817	161	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	60	60	60	60	60	60	60	60	60	60
4	Gross profits	7375	246	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196	196	346	346	346	346	346	346	346	346	346	346	346
5	Making up losses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	Income tax	295	10	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	14	14	14	14	14	14	14	14	14	14
7	Profits after tax	7080	236	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	188	332	332	332	332	332	332	332	332	332	332

Ⅷ. Cash Flow

With CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																															
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
1	Cash inflow	16270	542			589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	433	433	433	433	433	433	433	433	433	
1.1	Elec.revenues	13004	433			433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433
1.2	CER revenues	3266	109			156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	0	0	0	0	0	0	0	0	0
1.3	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.4	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	6410	214	1708	1307	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	118	124	101	101	101	101	101	101	101	101	101	101	
2.1	Fixed assets investment	3014	100	1708	1307																																
2.2	Circulating capital	0	0																																		
2.3	O&M costs	1803	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
2.4	CER costs	371	12			18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0	0	0	0	0	0	
2.5	Sales tax	811	27			27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
2.6	Income tax	411	14			13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	19	14	14	14	14	14	14	14	14	14	14	
3	Net cashflow (before income tax)	10270	342	(1708)	(1307)	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	346	346	346	346	346	346	346	346	346	346	
4	Net cashflow (after income tax)	9859	329	(1708)	(1307)	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	471	465	332	332	332	332	332	332	332	332	332	

No.	Financial indicator	Before tax	After tax
1	IRR	14.41%	14.00%
2	NPV (ic=10%)	1051	946

Without CER

No.	Items	Total (10 ³ CNY)	Average (10 ³ CNY)	Construction period		Operation period																														
				1	2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	Cash inflow	13004	433			433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433
1.1	Elec.revenues	13004	433			433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433	433
1.2	Recovered fixed assets residual value	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1.3	Recovered circulating capital	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Cash outflow	5924	197	1708	1307	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	101	101	101	101	101	101	101	101	101	
2.1	Fixed assets investment	3014	100	1708	1307																															
2.2	Circulating capital																																			
2.3	O&M costs	1803	60			60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60		
2.4	Sales tax	811	27			27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
2.5	Income tax	295	10			8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	14	14	14	14	14	14	14	14	
3	Net cashflow (before income tax)	7375	246	(1708)	(1307)	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	346	
4	Net cashflow (after income tax)	7080	236	(1708)	(1307)	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	338	332	332	332	332	332	332	332	332	332

No.	Financial indicator	Before tax	After tax
1	IRR	10.28%	10.00%
2	NPV (ic=10%)	66	0