

**World Bank-financed
Chengde Central Heating
Energy-Saving
Reconstruction Project**

Resettlement Action Plan for Chengde Central Heating Energy-Saving Reconstruction Project

Chengde Heating Group

August 2015

Contents

EXECUTIVE SUMMARY	1
A Introduction.....	1
B Project Impact	1
C Policy Framework and Entitlements	2
D Income Restoration Measures.....	2
E Rights and Interests of Vulnerable Groups and Women	4
F Public Participation and Information Disclosure	4
G Grievance Redress	4
H Organization	4
I Monitoring, Evaluation and Reporting	4
J Funding and Budget	4
1 Description of the Project.....	6
1.1 Project Background	6
1.2 Project profile	6
<i>1.2.1 Project Components and Resettlement Impacts</i>	<i>6</i>
<i>1.2.2 Project to benefit the region and affected areas.....</i>	<i>13</i>
<i>1.2.3 Social and Economic Significance of the Project.....</i>	<i>19</i>
1.3 Measures to Minimize Adverse Impacts	21
2 Project Impacts.....	22
2.1 Definition of Project Impacts.....	22
2.2 Project Impact Category	22
2.3 Survey Methods and Process	22
2.4 Social survey results	23
<i>2.4.1 State-owned land.....</i>	<i>23</i>
<i>2.4.2 Temporary land occupation impacts</i>	<i>23</i>
<i>2.4.3 House demolition</i>	<i>28</i>
<i>2.4.4 Affected person.....</i>	<i>28</i>
<i>2.4.5 Vulnerable Groups</i>	<i>29</i>
<i>2.4.6 Affected Women</i>	<i>29</i>
<i>2.4.7 Other Impacts and Mitigating Measures</i>	<i>29</i>
3 Assessment of Economic Characteristics and Society Impacts	30
3.1 Social economic of project area	30
3.2 Sample Survey of Affected People	31
4 Legal Framework and Policies.....	33
4.1 Laws, Regulations and Policies.....	33
4.2 PRC laws, regulations and relevant policies.....	33
4.3 The World Bank's Main Policy	34
<i>4.3.1 The Policy Objectives of the World Bank</i>	<i>34</i>
<i>4.3.2 The Measures Required.....</i>	<i>34</i>
4.4 The main difference between the World Bank policies and Chinese law	35
4.5 Project Compensation Principles.....	35
4.6 Compensation Standards of the Project	36

4.6.1	<i>The Compensation Standards of State-owned Land</i>	36
4.6.2	<i>Temporary Land Compensation Standards</i>	36
4.7	Project Cutoff date	36
4.8	Entitlement Matrix	37
5	Production and Livelihood Rehabilitation Plan	39
5.1	Livelihood Rehabilitation Target	39
5.2	Livelihood Rehabilitation Principles	39
5.2.1	<i>Minimize the impacts</i>	39
5.2.2	<i>Equivalent Compensation</i>	39
5.3	Temporary Land Occupation and Road Recovery	39
5.4	The rehabilitation measures for affected boiler workers	39
6	Public Participation	42
6.1	Public Participation Strategy	42
6.2	Public Opinion Surveys	43
6.3	Process of public participation and information disclosure plans	43
7	Grievance Redress	45
8	Implementation Organization	47
8.1	Institutional Arrangement	47
8.2	Organization Chart	47
8.3	Institutional Responsibilities	47
8.3.1	<i>Construction project leadership team of Chengde central heating energy-saving project</i>	47
8.3.2	<i>Construction project management office of Chengde central heating energy-saving project</i>	47
8.3.3	<i>Chengde Heating Group</i>	47
8.3.4	<i>Design and Research Institute</i>	47
8.3.5	<i>Project Monitoring and Evaluation Unit</i>	47
8.4	Qualifications and staffing of agency	48
8.5	Institutional Arrangements and Capacity Building	48
9	Project Schedule and Funding arrangements	49
9.1	The Schedule of project construction and resettlement	49
9.2	The key tasks of linked to temporary land occupation and income restoration	49
9.2	Related cost and schedule	49
10	Monitoring and Evaluation	50
10.1	Internal Monitoring	50
10.1.1	<i>Procedure</i>	50
10.1.2	<i>Monitoring Content</i>	50
10.1.3	<i>Internal Monitoring Report</i>	50
10.2	External Monitoring	51
10.2.1	<i>Independent monitoring agency</i>	51
10.2.2	<i>Steps and content of monitoring</i>	51
10.3	Monitoring indicators	51
10.4	After evaluation	51

Annex 1: National Power Chengde Thermal Power Co. (Luanhe Power Plant) Resettlement due diligence report.....	53
Annex 2: Associated project (Northeast suburb peak heat source) Resettlement due diligence report	54
Annex 3: Resettlement Information Booklet.....	58
Annex 4: Part of the proposed new station construction point of conventional heat exchangers status map	62
Annex 5: Part of the pipe network transformation affected by the current situation of road conditions.....	68
Annex 6: Free use of district heating set aside land for the new station's heat proof material	82

EXECUTIVE SUMMARY

A Introduction

In order to improve the quality of the atmosphere in Chengde City and the efficiency of the centralized heating system, Chengde City Heating Group Ltd. intends to apply for a World Bank loan to implement the Chengde Central Heating Energy-Saving Reconstruction Project. The proposed subproject is composed of two investment components:

1. Build added heating load network and heating station by advanced heating supply technology. Based on advance technologies such as building heat station, high efficiency heat network autonomous control, climate compensation and so on, achieve the goals of energy saving, improve security and stability of heating system. According demands of heat load development and layout of heat source, accomplish construction of main line and branch line of new heat load matched primary pipeline network, and construction of secondary pipeline network and heat exchange construction. Of which, the length of new-built primary pipeline network is 4,764 m, the style is DN400-80, built 20 normal heating exchange stations and 114 buildings heat exchange stations, increased 2.46 million square meters of heating area.

2. Energy saving reconstruction of old pipeline network and facilities. The reconstruction in Project involve old pipeline and facilities owned by the Chengde Heating Group. (1) Reconstruction will focus at primary heating pipeline network that used over 15 years, with serious potential accidents or once leaked. The length of DN500~DN80 primary pipeline network of reconstruction is 2743m. (2) To replace or retrofit valves in primary heating pipeline network that have been out of repaired for many years. In order guarantee the operation life of pipeline network, improve valves quality, this Project adopts imported welded valves with good quality and installs 64 DN1000~DN250 imported welded valves. (3) To replace or retrofit secondary heating pipeline that have been operated for long years, potential accidents and high thermal loos. Retrofit 56,972 m, the style is DN300~DN50 secondary heating pipeline network. (4) To install differential pressure flow balancing valve for secondary pipeline network that lack heating balance, which will involve 1.5 million square meters and install 753 DN80~DN32 differential pressure flow balancing valves.

The total investment of the subproject is CNY219.57 million Yuan including investment in project construction of CNY206.35 million. The investment is composed by the loans of from the World Bank of \$20 million, and the rest raised by Chengde Heating Group. The construction period is three years, starting in 2016, and completing in 2018 for entire project construction.

B Project Impact

The impacts of the project include permanent land occupation of 9.07 mu and temporary land occupation of 154.06 mu. For 9.07 mu permanent land occupation, they are all state owned reserved land areas in different housing estates for construction of heating facilities. For 154.06 mu temporary land occupation, all of

them are located along urban roads. Both of the affected land areas are located in the old urban area of Chengde City. These land occupation will not involve any house demolition.

A total of 19 male temporary boiler workers will be affected by the close down of 4 boiler houses due to the project and all of them were Han.

C Policy Framework and Entitlements

To avoid or reduce the negative effects caused by land occupation, the selection of project location was fully consulted with the affected people in feasibility studies phase. After that, it had chosen the best scheme through the comparison of different alternatives. schemes.

The RAP is prepared according to the PRC Land Administration Law (2004) and the related national, provincial and municipal policies and regulations, as well as in compliance with WB's policy on involuntary resettlement. On the basis of the above-mentioned regulatory and policy requirements and in consultation with local governments, the resettlement principles established for the project are: (i) land acquisition and involuntary resettlement should be avoided or minimized where feasible by developing and comparing a series of design alternatives; (ii) Pay compensation and provide other resettlement entitlements before physical or economic displacement. Compensation and entitlements provided must be adequate to allow those affected to at least maintain their pre-project standard of living, with the prospect of improvement; (iii) land temporarily occupied and the period for disruption are to be kept to a minimum; (iv) all affected persons, titled and non-titled, and renters/contractors are to be taken into consideration; (v) resettlement plan should be prepared and implemented in accordance with state land rehabilitation policy, national economic and social development plans and WB IR policy; (vi) all those affected will be adequately informed about eligibility, compensation rates and standards, livelihood and income restoration plans, and project timing; (vii) resettlement plan should be coordinated with regional development, economic development and environmental protection; (viii) practical and feasible measures should be formulated to restore the affected items; (ix) a preferential policy and assistance will be provided to vulnerable groups in such things as employment; and (x) close monitoring and timely actions will be carried out to identify and resolve any problems.

This project defines eligibility for compensation deadline in June 30, 2015. After that, any additional compensation only for the construction of buildings or trees planted is not counted.

D Income Restoration Measures

A total of 19 male temporary boiler workers were affected by the boiler room renovation project and all of them were Han. The 4 small boiler houses to be closed down belong to residential property management. The affected boiler workers are temporary workers, and they work in these boiler houses during heating season and had never signed a contract.

These boiler workers would not get same work when the 4 small boilers are closed. According to the survey in 2012, the temporary workers can earn 1000 to 1500 Yuan every month. Closure and removal of small boilers will be in the non-heating season. The boiler workers would be informed ahead of 6 months and have enough time to find a new job.

These temporary workers in the non-heating season also work in construction sector or transport sectors. They can earn about 2000 Yuan every month to cover their living.

In the field survey, almost all affected boiler workers were supportive of the project. They think the project could improve the local heating conditions, have a positive impact for the people's production and life. The boiler workers are temporary workers and they have other sources of income off heating season. Therefore, they are not that worry about their life in future. Nevertheless it is better to help them to get a job in heating season to replace the income due to boiler hose closure.

The boiler workers will lose part of their income sources due to the close down of the boiler rooms. In order to help them recovery better and find a long-term source of income for life, the Chengde Heating Group will provide some career guidance and employment information.

After further consultation with affected boiler workers, Chengde Heating Group has promised that they will provide these workers jobs of coal transport and slag removal in heating-season. The payment is CNY2000 to 2500 Yuan every month, which is higher than what they used to have. The coal transport and slag removal works are also temporary works. So it would not have any influence on their summer works. And the nature of the work is quite similar as the work they used to have. The detail of the rehabilitation plan based on consultation with the affected people and project units is presented in the following Table.

Table 1 Affected Boiler workers

NO.	Name of boilers	Number of people	Willing for new job	Resettlement plan
1	Water supply company	3	Most of them wish to find similar works in heating company during winter season.	Chengde Heating Group has promised that during heating season, these temporary workers will be provided coal transport and slag removal works on their existing boilers, with wage being around 2000-2500 Yuan / month..
2	Minzu middle school	10		
3	Weather bureau	3		
4	Telecommunications Bureau	3		

During project implementation, the social development specialist from Hebei Provincial PMO would conduct supervision and provide guidance on the process of reemployment for the affected people. External monitoring unit would follow up these affected people to ensure that their livelihood and income to be restored following

implementation of resettlement plan.

E Rights and Interests of Vulnerable Groups and Women

According to the preliminary socioeconomic survey, no vulnerable groups will be affected.

F Public Participation and Information Disclosure

Extensive information disclosure and public consultations have been undertaken during project preparation. This resettlement plan has incorporated the views, expectations, comments and suggestions of the key stakeholders, especially the affected persons. Further information disclosure and consultations will be undertaken during project implementation. Resettlement Action Plan draft has been disclosed in the project area. A copy of resettlement plan has been placed in the project office. The notice of such disclosure had been published in the "Chengde Daily" and on the website of Chengde local government in August 2015. Resettlement information booklet will be distributed to the affected persons prior to the project implementation. Complaint channels have been established. Agencies will be free to accept affected population grievances and appeals. Unforeseen expenses will be paid reasonable expenses incurred in this project.

G Grievance Redress

A grievance redress mechanism (GRM) has been formulated to resolve disputes that may arise during implementation of the RAP, targeting at speedy and transparent responses to affected persons' complaints. The affected persons may appeal for any aspects of resettlement activities.

H Organization

The Chengde municipal government (YMG) will take full responsibility for project resettlement activities for the approved Resettlement Action Plan. The Project Management Office is responsible for the leadership, organization, and coordination for Resettlement Action Plan implementation, internal monitoring and supervision. Chengde Heating Group is responsible for the implementation of the Resettlement Action Plan.

I Monitoring, Evaluation and Reporting

Internal and external monitoring of Resettlement Action Plan implementation will be carried out. The Project Management Office and Chengde Heating Group will lead the internal monitoring. They will provide a monitoring report of the World Bank every 6 months. Chengde City Heating Group will commission an independent monitoring agency conduct half-yearly external monitoring and evaluation and the fee is counted in unforeseen expenses.

J Funding and Budget

The resettlement budget totals 35.198 million Yuan. The fee of temporary land occupation which used in reconstruction the road is 35.28 million Yuan, accounting for 90.14% of the total budget. Resettlement planning and monitoring fee is 150000 Yuan, account for 0.76% of the total cost. Contingency fee is 3.558 million Yuan, accounting for 9.09% of the total resettlement budget.

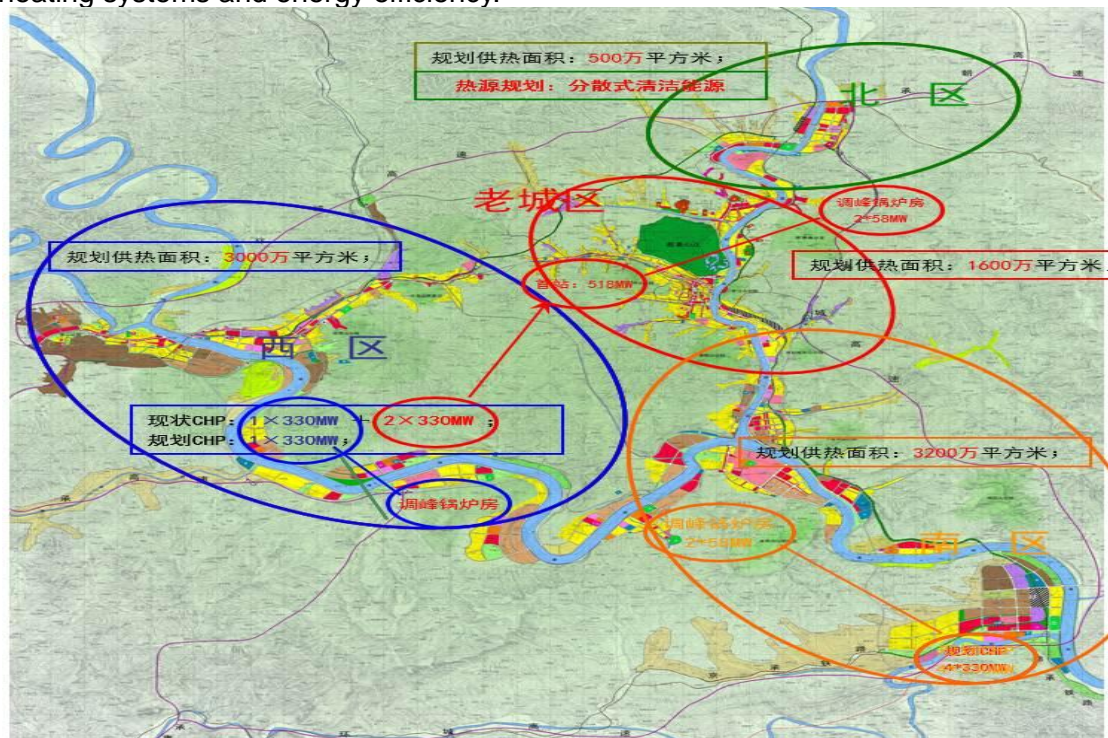
1 Description of the Project

1.1 Project Background

In order to improve the quality of the atmosphere in Chengde City and the efficiency of the centralized heating system, Chengde City Heating Group Ltd. intends to apply for a World Bank loan to implement the Chengde Central Heating Energy-Saving Reconstruction Project.

Considering the pace and the size of development in Chengde City, and according to the “Chengde City Urban Master Plan (2008-2020)”, the ability of existing heating system in the traditional region of Chengde City has lagged behind the pace of city development. In addition, the current heating system deficiencies not only affect the security and stability of heating supply, but also reduce the efficiency of energy use.

According to the “Chengde Central Region Heating Special planning (2010-2020)”, it is planning to re-layout the heating system in old urban area of Chengde City. After this, the problem of heating system can be solved and ensure the safe and stable operation of the heating system, raise the level of modernization of heating systems and energy efficiency.



Appendix 1: Maps of Chengde City

1.2 Project profile

1.2.1 Project Components and Resettlement Impacts

Chengde Energy Conservation Transformation Project of Centralized Heating System financed in part by the World Bank (WB) is composed of two investment components:

1. Build added heating load network and heating station by advanced heating supply technology

Based on advance technologies such as buildings station, high efficiency heat network autonomous control, climate compensation and so on, achieve the goals of energy saving, improve security and stability of heating system. According demands of heat load development and layout of heat source, accomplish construction of main line and branch line of new heat load matched primary pipeline network, and construction of secondary pipeline network and heat exchange construction. Of which, the length of new-built primary pipeline network is 4,764 m, built 20 normal heating exchange stations and 114 buildings heat exchange stations, increased 246.23×10^4

m² heating area.

2. Energy saving reconstruction of old pipeline network and facilities

The reconstruction in Project involve old pipeline and facilities under the Chengde Heating Group's property rights.

(1) Reconstruction targets at primary heating pipeline network that used over 15 years, with serious potential accidents or once leaked. The length of DN600~DN800 primary pipeline network of reconstruction is 2743m.

(2) To replace or retrofit valves in primary heating pipeline network that have been out of repaired for many years. In order guarantee the operation life of pipeline network, improve valves quality, this Project adopts imported welded valves with good quality and installs 64 DN1000~DN250 imported welded valves.

(3) To replace or retrofit secondary heating pipeline that have been operated for long years, potential accidents and high thermal loos. Retrofit 56,972 m DN300~DN50 secondary heating pipeline network.

(4) To install differential pressure flow balancing valve for secondary pipeline network that without heating balanced reconstruction, involve 150.09×10^4 m², install 753 DN80~DN32 differential pressure flow balancing valves.

The total investment of the project is CNY212.34 million including total project construction cost of CNY206.4 million. The investment is composed by the loans of World Bank \$20 million, and the rest will be raised by the Heating Group with CNY 89.34 million.

The construction period is three years, starting in 2016, and completed in 2018 for the construction of the entire project.

Impact of potential land occupation is mainly from construction of heat exchange stations and construction of heating network pipelines. Details see Table 1-1.

Table 1-1 Impacts of Resettlement and Prepared Documents

Name	Construction Unit	Name of Subproject	Construction Content of Subproject	Impacts	Impact category and needed Documents
Energy Conservation Transformation Project of Centralized Heating System in Chengde City	Chengde City Heating Group Ltd	Construction of the new heat load of pipeline and thermal stations by modern technology	Construction of a new heating pipe network 4764m (length). The style is DN400-80.	Together with a heating pipe network for change along the existing 20 State Road (5.3km) and (2.2km) the laying of Road area, a total of temporary cover an area of 17364.8 square meters, which is 26.06 mu, occupied for construction period of 3 months	<p>1, The project does not involve rural land acquisition , not involving rural or urban housing demolition</p> <p>2, impacts mainly caused by laying the pipe network and construction of heat exchange station</p> <p>3, Projects totaling occupied 9.07 mu of state-owned land permanently</p> <p>4, Temporary land occupation of 154.06 mu and was caused by pipe network project</p> <p>5, A total of 19 seasonal boiler operators will be affected by the heat transfer station construction</p> <p>6,. The social impacts of this project is limited. To better management and future monitoring, a brief resettlement action plan is prepared.</p> <p>7, According to Bureau of Chengde City Building and Housing the relevant</p>
			Building and reconstruction 20 conventional heat transfer station	All located within the existing built area, 4 of all are built in the original land of 1.87 mu. The rest of all are built in the national owned land of 7.2 mu. The affected person is 19 seasonal boiler operators.	
			Construction of 114 unit building heat transfer stations	Buildings have been built or placed in the basement , no covers or demolition	
		Energy Conservation Transformation of old pipeline	Replace the heating pipe network of running life of more than 15 years and	Along with the time of heating pipe network built along the existing 20 State Road (5.3km)	

Name	Construction Unit	Name of Subproject	Construction Content of Subproject	Impacts	Impact category and needed Documents
		networks and utilities	with serious accidents. A heating pipe network transformation of 2743m (length) and the style is DN500~DN80.	and (2.2km) the laying of Road area, a total of temporary covers an area of 17364 square meters, 26.06 mu, the construction period of 3 months of occupation	documents, roads built within five years are not allowed to break the road. As project scope of this project is in the old City of Chengde which was built more than ten years. Hence, it is not necessary for land acquisition and resettlement of the project affected by the road network to do due diligence, does not require the preparation of due diligence reports.
			In order to ensure the life of the pipe network system to improve quality of the valve, this project using optimum quality of imported welding valves. Installation of 64 sets imported welding valves and the style is DN1000~DN250.	In the above temporary covers an area of.	
			Replace the long running life, probably accidents pipe to and heat loss higher secondary heating network pipe. A secondary heating pipe network transformation of 56792m (length) and the style is DN300~DN50.	Both the area along state road pavement, the working face of 1.5 meters, a total of temporary covers an area of 85188 square meters, 128 mu, the construction period of 3 months of occupation	

Name	Construction Unit	Name of Subproject	Construction Content of Subproject	Impacts	Impact category and needed Documents
			For failure to implement the transformation of secondary thermal equilibrium heating pipe network pressure- balancing valves were installed , the area involved in the transformation of thermal equilibrium for 150.09 × 10 ⁴ square meters. Construction of 753 self-operated differential pressure controller and the style is DN80~DN32.	In the above temporary covers an area of.	

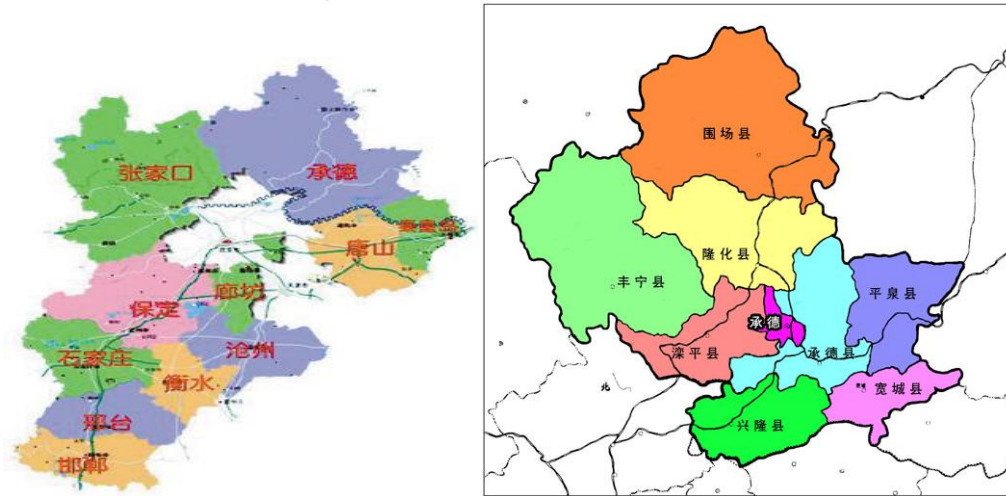
Table 1- 1 New Regular Heat Exchange Stations

No.	Name	State	Building Time	Street	Neighborhood Committee	Added Heat Supply Area (×10 ⁴ m ²)	Amount
1	Sainalanwan Building 2 Station	Under construction	2011	Toupailou	Yingfang	6	1
2	Shuixiehuadu Station	Established	2007	Shidongzi	Cui Bridge	2	1
3	Jinniushanzhuang Station	Under construction	2013	Niujuanzigou	Niujuanzigou	10	1
4	ToudonggoujiaYuan Building 1 Station	Under construction	2013	Toupailou	Meifeng	5	1
5	ToudaogoujiaYuan Building 2	Under construction	2013	Toupailou	Meifeng	5	1

No.	Name	State	Building Time	Street	Neighborhood Committee	Added Heat Supply Area ($\times 10^4$ m ²)	Amount
	Station						
6	HongfuyuYuan Building 1 Station	Under construction	2013	Toupailou	Yingfang	10	1
7	HongfuyuYuan 2 Station	Under construction	2013	Toupailou	Yingfang	10	1
8	Huilongshanzhuang Building 2 Station	Under construction	2013	Qiaodong	Huilongshan	15	1
9	Modern City Building 3 Station	Under construction	2013	Niujuanzigou	Niujuanzigou	10	1
10	DeshengMeidi(third stage) Station	Planned construction	/	Niujuanzigou	Xiaerdaohezi	15	1
11	NanYuanxiaonangou Station	Under construction	2012	Niujuanzigou	Yuanlin	10	1
12	Huishuiwan Building 2 Station	Under construction	2013	Shizigou	Erdaohezi	10	1
13	No.6 High School Station	Under construction	2012	/	/	15	1
14	266 Airforce Ground Service Station	Established	/	/	/	2	1
15	Puning Primary School Station	Under construction	/	/	/	1	1
16	Jinlong Royal Square Station	Planned construction	2011	Xi Avenue	Xiaoxigou	5	1
17	Lijinghuating (Second Stage) Station	Under construction	2014	Niujuanzigou	Xiaerdaohezi	8	1
18	Erxianju Station	/	/	/	/	5	1
19	Fuhuaxintiandi(Second Stage) Station	Under construction	/	Xinhua Road	Taoli Street	11	1
20	Ethnic Middle School Station	Established	1968	Panjiagou	Xiaotonggou	7	1
21	Xinguanglian Station	Established	/	Panjiagou	Xiaotonggou	1.2	1
22	Weather Bureau Station	Established	/	Panjiagou	Xiaotonggou	1.2	1
23	Water Plant Family Dormitory Buildings Station	Established	/	Panjiagou	Xiaotonggou	0.55	1
	Total					164.95	23

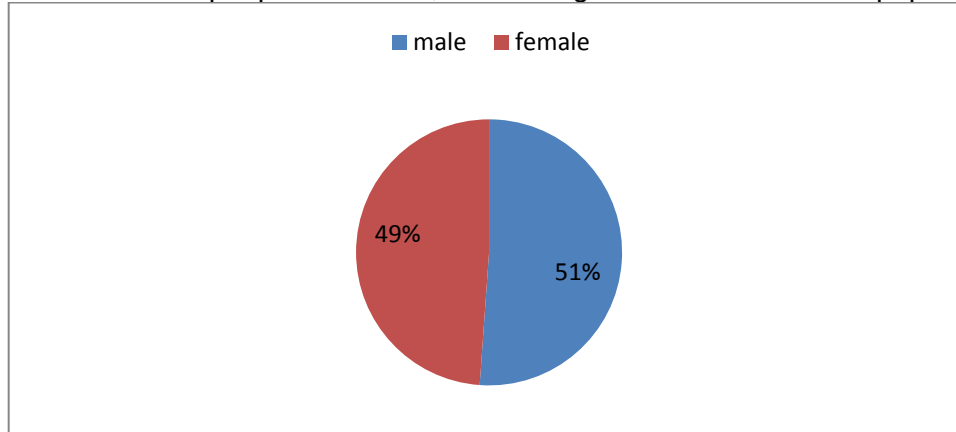
1.2.2 Project to benefit the region and affected areas

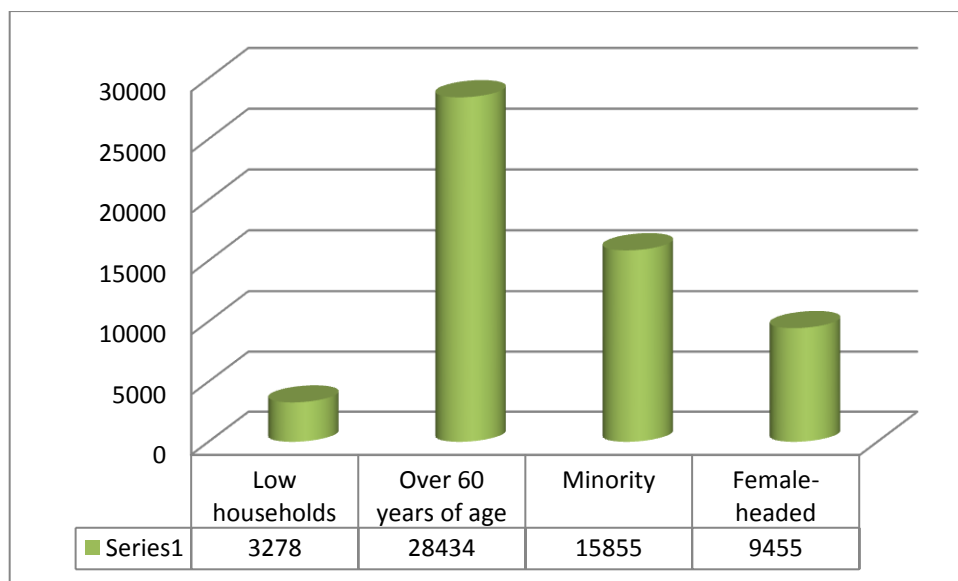
Directly benefit from the project area is for the old City of Chengde City, Hebei Province and the area is part of Shuangqiao District.



Appendix 2: Chengde City location map and administrative zoning map

According to demographic information provided by the various communities within the project area, total population in the project area is 214,389 people, accounting for about 58% of the total population in Shuangqiao District, of which 104,786 were women. They accounting for 48.88% of the total population. The number of low income people was 3278 people, accounting for 1.53% of the total population. The number of people over 60 years of age was 28,434 people, accounting for 13.26% of the total population. The number of ethnic minority people was 15,855, accounting, accounting for 7.40% of the total population. The number of female-headed people was 9455, accounting for 4.41% of the total population.





Appendix 3: Demographic profiles within the scope of the project

Table1-3 Basic Situation of Heating Supply and Population within the Project Scope

No.	Heating Supply Station	Contact Person	Tel	Street	Community Neighborhood Committee	Heating Supply	Population	Female	Vulnerable Groups			
									Low-income Family	Age>60 years old	Ethnic Minorities	Female Headed-hous
1	First Heat Network Station	WANG Xinqiang	18531408003	Qiaodong	Huilongshan	Central Heating	7210	3800	134	100	18	1150
2				Qiaodong	Beishan	Central Heating	6468	3300	65	55	16	1050
3				Qiaodong	Zhongjuzhai	Central Heating	5200	2560	28	160	76	880
4				Qiaodong	Hongshili	Central Heating	1200	420	1	10	210	172
5				Xinhua Road	Yuhua Road	Central Heating	2632	980	17	386	28	390
6				Qiaodong	ShijiCity(Secong Stage)	Central Heating	5800	2720	0	380	52	1010
7	Second Heat Network Station	WU Xiuqin	18631460991	Zhonghua Road	Yinshuiba	Central Heating	4080	1980	37	1600	100	30
8				Panjiagou	Jiucagou	Central Heating	6923	3564	103	1245	2744	685
9				Xi Avenue	Huoshen Temple	Central Heating	5054	2726	81	290	290	52
10				Xi Avenue	Changwangfu	Central Heating	2274	1128	71	275	275	100
11				Xi Avenue	Xiaoxigou	Central Heating	3072	2379	106	75	205	207
12				Zhonghua Road	Zhongulou	Central Heating	3200	1243	78	314	285	105
13				ZHonghua Road	Zhulin Temple	Central Heating	3512	1622	46	6	5	23
14	Third Heat Network	GUO Qiang	18531408065	Shidongzigou	Zhongyi Temple	Central Heating	8020	3986	47	953	115	9

No.	Heating Supply Station	Contact Person	Tel	Street	Community Neighborhood Committee	Heating Supply	Population	Female	Vulnerable Groups			
									Low-income Family	Age>60 years old	Ethnic Minorities	Female Headed-hous
15	Station				Guangdian Road	Central Heating	4200	2087	30	540	32	2
16					Wenjiagou	Central Heating	5544	2756	70	431	12	11
17					Affiliated Hospital	Central Heating	2490	1238	6	458	1	0
18					Tagou	Central Heating	8175	4068	124	1230	52	23
19					Yongan Street	Central Heating	9934	4913	40	977	223	5
20					Fujiagou	Central Heating	3692	1835	45	148	25	2
21					Shidongzigou	Central Heating	3854	1916	34	352	78	5
22					BaiYuan	Central Heating	4946	2458	52	560	124	3
23	Fourth Heat Network Station	XUE Zhenhong	18531408065	Niujuanzigou	Yuanlin	Central Heating	3400	1652	45	859	75	6
24				Shidongzi	Yong'an Street	Central Heating	9934	4913	40	977	223	5
25				Niujuanzigou	Xiaerdaohezi	Central Heating	5742	2684	53	1541	241	16
26				Xinhua Road	Yunshan	Central Heating	4576	2574	65	785	56	15
27				Xinhua Road	Yinling	Central Heating	3265	785	18	358	147	34
28				Niujuanzigou	Banbishan	Central Heating	Around 5000	Around 2500	50	约 2000	58	68
29				Niujuanzigou	Banbishan	Without	2141	1010	45	348	123	79

No.	Heating Supply Station	Contact Person	Tel	Street	Community Neighborhood Committee	Heating Supply	Population	Female	Vulnerable Groups			
									Low-income Family	Age>60 years old	Ethnic Minorities	Female Headed-hous
						Central Heating						
30				Niujuanzigou	Xiaonangou	Central Heating	2568	1125	24	259	156	72
31				Xinhua Road	Xinhua	Central Heating	8400		15	358	147	15
32				Niujuanzigou	Tengda	Central Heating	3598	1687	21	687	28	34
33				Niujuanzigou	Tengda	Without Central Heating	2589	1254	1	1571	58	64
34				Xinhua Road	Taoli Street	Central Heating	5247	2568	24	425	159	35
35	Fifth Heat Network Station	TIAN Xiumei	13932434481	Panjiagou	Yujiagou	Central Heating	3950	约 1950	90	约 900	2100	14
36				Panjiagou	Tongwangfu	Central Heating	6150	2800	98	400	55	25
37				Toupailou	Wenmiao	Central Heating	2200	1050	98	330	60	22
38				Toupailou	Andingli	Central Heating	4000	1900	150	600	120	15
39				Toupailou	Toupailou	Central Heating	5000	2300	80	550	260	23
40				Toupailou	Yangguang	Central Heating	4383	2200	90	800	400	15
41				Panjiagou	Panjiagou	Central Heating	6096	3000	105	360	4090	16
42				Panjiagou	Shangxiying	Central Heating	3572	1520	100	480	1090	25

No.	Heating Supply Station	Contact Person	Tel	Street	Community Neighborhood Committee	Heating Supply	Population	Female	Vulnerable Groups			
									Low-income Family	Age>60 years old	Ethnic Minorities	Female Headed-hous
43	Heating Supply Company in North Zone	Li Haiyan	15231415387	Shizigou Township Government	WanshuYuan	Central Heating	2854	1438	88	649	835	195
44					Shizigou	Without Central Heating	2754	1315	168	717	33	520
45				Zhonghua Road	Shanzhuang	Central Heating	3765	1962	176	699	142	724
46				Lama Temple Township Givernment	Lami Temple	Central Heating	1545	667	5	333	109	300
47					Puning Temple	Central Heating	3014	1481	302	717	90	1001
48					Luohantang	Without Central Heating	1166	562	112	186	34	203

winter for the local residents. What's more, a considerable part of the secondary pipe network renovation was carried out without making heat balancing. The energy consumption of heating system is too high, which is not conducive to the economic development of enterprises.

Since 2003, Chengde City heating industry as a pilot City for many applications of new technologies at the forefront, who has been listed as one of the first batch of 12 heat metering reform demonstration cities, the one model City of World Bank Heat Reform.

Chengde City, although the level of heating technology is in the forefront of the country, but some are still using the traditional heating system mode. The status quo combined with some secondary heating pipe network has not yet implemented the transformation of heat balance, and there are some gaps in automation control, fine readjustment, and variable flow operation in the system. The project will use the cold-install without compensation, automatic control of heating network, building stations, climate compensation, variable flow regulation, and other advanced technologies. Implementation of the project will help to improve the heating system to adjust the operational level, improve the indoor heating effect, and create conditions for economic operation of the thermodynamic system.

The project in the design process is very concerned about the elderly, the disabled, women and other vulnerable groups with the need for the development of urban central heating. Implementation of the project will not only improve their heating conditions, and quality of life, but also help them to improve the conditions of their living and production.

1.2.3.2 Economic Significance of the Project

After full implementation of the project, reducing coal consumption will be reflected in two parts. The first part is through the implementation of the old pipe network transformation component, the coal consumption will be reduced from current 49 W/m² to 46 W /m² for 12.25 million square meters of housing areas. The second part is the removal of the existing four small boilers, improving heat efficiency, reducing coal consumption. Original decentralized heating area of 87,000 square meters will achieve cogeneration central heating. After full implementation, the project will achieve a form of central heating cogeneration by replacing small coal-fired boilers, which will contribute to the reduction of particulates in the atmosphere, SO₂, NO_x and effluent discharge volume and greatly improve the quality of the environment. Such improvement is reflected in the following aspects.

(1) The project will reduce 13,400 tons of standard coal, annual CO₂ emissions of 33,500 tons, a decrease of 31.89 tons of soot emissions, reduce SO₂ emissions in 432.82 tons, and reduce 216.41 tons NO_x emissions.

(2) Noise reduction. Due to the small boiler room area is generally dispersed in buildings, residents and office locations closer distance, noise and coal ash during vehicle operation boiler fans, pumps produced some extent interfere with life of residents.

(3) Occupied area reduction. Due to the cancellation and no new small boiler room, will greatly reduce the urban area, this part of the area can be used for the construction of urban environmental improvement.

(4) Eliminating the security risks, improve the heating efficiency and energy-saving efficiency.

This project uses a cold-install without compensation buried, building heat stations, climate compensation, variable flow regulation, and other advanced technologies. After the project implemented, it can significantly improve the operational level to adjust the heating system, to create conditions for achieving better economic performance of heat systems. The improved heat system will be able to meet the central heating needs for 2.46 million square meters of new buildings, but also achieve interoperability in the heat network, significantly improving system heating capacity and safety. At the same time through renovation

in the old pipeline network and the energy-saving facilities, the heating system will eliminate security risks and reduce energy consumption. After the implementation of this project, the heat loss of the network will be reduced by 5 %, water loss reduce by 30%, and annual heat saving will be 333467.26 GJ, and annual water saving will be 103 500 tons.

1.3 Measures to Minimize Adverse Impacts

During project planning and preparation, the following measures have been adopted by design institutes and project implementing units to minimize the adverse socioeconomic impacts: a) project alternatives have been compared and screened in order to avoid land acquisition and house demolition, and to minimize negative socioeconomic impacts; and b) one project site was dropped mainly because of major resettlement impacts; and c) optimize the project design to reduce the occupation of land and livelihood interruptions; and d) Avoid cultural landscape (including temples and other religious activities) and key units of cultural relics protection.

In fact, in the feasibility study stage, each proposed section had prepared two alternatives. Based on analysis of technical, environment and temporary land occupation impact of two alternatives, a proposed scheme is selected. Finally it is decided that pipeline construction will be based laying underground along the urban roads in order to reduce land occupation and investment and ensure smooth road traffic and urban aesthetics. All involved urban roads are existing roads, which will not involve any land acquisition and demolition. The construction will be arranged in such a way that urban traffic and pedestrian movement will not be affected. Heat exchange stations will mainly use the sites provided by housing real estate companies, or using existing old boiler rooms or in the basement of the existing buildings.

In the early stage of the project, the project proposed 23 heat stations. After the further study, the number of heat stations has been reduced to 20, reduce the land area by 900 m².

2 Project Impacts

2.1 Definition of Project Impacts

For the World Bank-funded projects, the borrowers shall take all necessary measures to mitigate the negative social impacts of the project. World Bank Policy on Involuntary Resettlement provides guidance necessary aspects of policy objectives and principles.

It is necessary to take all reasonable measures to avoid or minimize land acquisition and resettlement and reduce any negative impacts associated with the project. If the expropriation of land and the corresponding impact is inevitable, a Resettlement Action Plan needs to be prepared, to ensure all affected populations can obtain compensation for affected assets at replacement value, provided them with adequate opportunity, appropriate assistance and rehabilitation measures to improve or at least restore their income and living standards.

The impact survey of the project is based on the actual scope of the project by the design unit. It is the land area required for the construction of heat stations and pipeline network and facilities under the subproject. Any major changes in the project will be informed to the World Bank beforehand, and provide reasons for causing impact changes. If the number of affected has increased during the project implementation, the policy of this RAP applies equally to the increase of the population affected, the affected communities. Definition of project impacts as follows:

Resettlement is defined as caused by these programs: 1) it adversely affected the standard of living; and 2) any movable or immovable property expropriated or occupied temporarily or permanently; and 3) productive capital by temporary or lasting impact; and 4) its business, occupation, work or place of residence or habitat adversely affected; and those people who had no choice but to resettle their home.

"Permanent Land Occupation" refers to various types of land located within the scope of the project covers, permanently occupied.

"Temporary land Occupation" refers to the need for temporary occupation during construction, can be restored after construction of various types of land.

"Project Affected Population" refers to the project by permanent or temporary land area affected household and demographic composition of the population affected by the project.

"Rehabilitation" is the impact of staff to provide adequate opportunity for the affected person to restore productivity, income and living standards of the process.

"Deadline" is a cut-off date, the ownership or right to use before the establishment of the affected population is eligible for compensation or other assistance. The deadline in the Resettlement Action Plan identified generally by the census date of the affected population or cause specific civil demolition date is consistent with the public. It is not eligible for compensation or other assistance after the deadline for entering the project.

2.2 Project Impact Category

According to the physical investigation and analysis, the impact of the project includes the following several categories.

- 1) Permanent State-owned Land Occupation
- 2) Temporary State-owned land Occupation

2.3 Survey Methods and Process

- 1) Physical survey and report preparation process

On September 22 to 30 in 2014 and January in 2015, the team for Resettlement Action Plan conducted survey for the socio-economic situation in the affected area according to the new edition feasibility study report. The survey team also collected opinions from local government officials, local residents as well as the views of boiler workers. The team had investigated socio-economic background of the project area, and identified affected areas due to project construction. The survey includes

comprehensive survey of the affected population, land and quantity of physical impact survey, and a sample survey of the affected population, and their level of socio-economic development. Based on analysis and processing of above survey data, and in accordance with national law and World Bank resettlement policies, the team prepared Resettlement Action Plan for Energy Conservation Transformation Project of Centralized Heating System in Chengde City”.

2) Sources and methods of investigation

The project background information and basic data collection mainly consists of two aspects: A) documents, literature review and information gathering, project information and collected survey data and statistics related to local government departments and project implementation agencies; B) field measurements and data collection, complemented by holding group discussions with stakeholders as well as interviews to further verify the information and data.

Project Impact investigation of physical indicators could be further divided into (1) land use survey, and (2) the project affected population surveys.

“Land Occupation survey”: Within the scope of land areas to be affected by the Project defined by the feasibility study, the team investigate various occupied land areas in terms of their current usage, ownership, and land class type.

“Project Impact census”: The affected population sample survey, including ethnicity, age, educational level and employment status.

2.4 Social survey results

The impacts of the project include permanent land occupation of 9.07 mu and temporary land occupation of 154 mu. Both of the land is owned by the local government and located in the old urban area in Chengde City. It is free to occupy the land.

The project does not involve house demolition.

Boiler room close down by the project will have impact on a total of 19 temporary boiler workers. All of them are male and Han.

2.4.1 State-owned land

The impacts of the project include permanent land occupation of 9.07 mu, caused by the construction of new heat exchange stations. Among them, 16 new heat stations will cover 7.2 mu of state owned land areas, reserved by relevant housing estate companies for building heating facilities. This is based on estimate of 300 m² of land for each heat station, and total 4800 m² or 7.2 mu for 16 such heat stations. The remaining 4 heat stations will use the sites of 4 existing boiler rooms, covering 1.87 mu of land areas. The four original boiler rooms belong to Water supply company residential quarter, Minzu middle school, Weather bureau residential quarter and Telecommunications Bureau residential quarter. It does not involve land acquisition and house demolition. In total, the construction of 20 heat stations will occupy 9.07 mu of land areas. Both of the land is owned by the local government and located in the old urban area in Chengde City. It is free to occupy the land. The project does not involve house demolition.

Details of basic conditions of the new heat transfer stations see Table 2-1. The photos showing current conditions of proposed heat station sites are provided in Annex V.

2.4.2 Temporary land occupation impacts

The project involves an area of temporary land occupation caused by pipeline construction.

a) Construction of a new heating pipeline. This project aims to build a DN400 -DN80 4764m (heating pipe trench length). The pipeline will be laid along major urban road, with road opening being 1.8 - 3 meters. Renovation on heating pipeline with more than 15 years of life, which might involve serious accidents or leakage. The renovation will involve pipeline of DN500 - DN80 for 2743m. The method of construction is also to lay underground along main urban road with opening being

1.8-3 meters.

b) Secondary heating pipe network renovation. For secondary heating pipelines running long years, and having accidents and high heat loss, renovation will involve 56,792 meters heating pipelines with DN300 to DN50. Most secondary heating pipelines will be located along the area within the existing urban road buried, involving a total of 38 communities (see table 2-3), with a total of 85188 square meters or 128 mu of land areas to be occupied temporarily.

During the construction, the project with construction, renovation of primary heating pipelines and renovation secondary heat pipelines will occupy a total of 162,324 m² or 154.06 mu of land areas, see table 2-2. Among them, construction of new primary heat pipelines and renovation of primary heat pipelines will involve 26.06 mu of land areas. The renovation of secondary heat pipelines will involve 128 mu of land areas. All of them are state owned urban road areas. The temporary land occupation cover 47 urban roads in old city of Chengde City. See table 2-2. The photos of current situation of these urban roads are included in Annex six.

Table 2-2 details of temporary land occupation

category	Diameter	length (m)	width (m)	temporary land occupation		Impact
				m ²	mu	
Construction primary heating network	DN400~DN80	6374	1.8-3	17364.8 21875	26.06	Involving 20 urban roads (see 2-2) (see table 1-2).
Renovation of primary heating network	DN500~DN80	2743	1.8-3			
Transformation second-hand heating network	DN300~DN50	56792	1.5	85188	128	Involving urban roads in 16 housing communities, see table 2-3.
total		64299		102552.8	154.06	

TableError! No text of specified style in document.-1 Affected road network building and transformation Fact Sheet

Level	NO	Name of Road	Starting Point	Current State of Roads ⁱⁱⁱ	Road Length (m)	Road Width (m)	Intend s to Lay Pipe Length (m)	Intend s to Lay Pipe Width (m)	Paved Way	Face Width	Temporary Covers (㎡)	Temporary Covers (mu)	Temporary Occupied Period (month)	Temporary Land Compensation Standards	Temporary Impact		
															Shop	Company	Residential areas
Trunk Road	1	XiaYingFang Road	Motor Company-ShuiQuanKou Road	construction	1300	10	321	DN200	Along Motor Company-ShuiQuanKou Road direction on the left , do not take the sidewalk	2.2	706.2	1.06	2				
	2	TouDaoGou Road	ShuiQuanKou Road-TouDaoGou Tunnel	construction	700	10	150	DN200	Along ShuiQuanKou Road-TouDaoGou Tunnel direction in the middle , do not take the sidewalk	2.2	330	0.49	2				
	3	West Street	ShuiQuanKou Road-HuoShenMiao	construction	2800	7	21	DN250	Passed three ways, do not take the sidewalk	2.4	50.4	0.08	2				
	4	CuiQiao Road	CuiQiao-NanYuan Road	construction	820	10	10	DN250	Passed the CuiQiao west Road, do not take the sidewalk	2.4	24	0.04	2				
Sub-distributor	1	XiaoDongGou Road	NanYingZi Street-TongShan middle Road	construction	630	10	478	DN200	Along NanYingZi Street-TongShan middle Road direction in the middle , do not take the sidewalk	2.2	1051.6	1.58	2				

Level	NO	Name of Road	Starting Point	Current State of Roads ⁱⁱⁱ	Road Length (m)	Road Width (m)	Intend s to Lay Pipe Length (m)	Intend s to Lay Pipe Width (m)	Paved Way	Face Width	Temporary Covers (m²)	Temporary Covers (mu)	Temporary Occupied Period (month)	Temporary Land Compensation Standards	Temporary Impact		
															Shop	Company	Residential areas
	2	TongShan East Road	ShiDongZiGou Road-ShanXiYing	construction	2200	8	194	DN400	Along ShiDongZiGou Road-ShanXiYing direction in the middle , do not take the sidewalk	2.8	543.2	0.81	2				
	3	DaBeiGou Road	West Street-City Hospital	construction	390	6	40	DN250	Along West Street-City Hospital direction on the left , take the sidewalk	2.4	96	0.14	2				
	4	LuShanZiGou Road	West Street-City Hospital	construction	970	8	71	DN250	Along West Street-City Hospital direction on the left ,do not take the sidewalk	2.4	170.4	0.26	2				
	5	XiaoLaoHuGou Road	Eastern coal plants - Detention Center	construction	730	8	257	DN250	Along the eastern coal plants - Detention Center direction on the left , do not take the sidewalk	2.4	616.8	0.93	2				
	6	ZhuLinSi Road	East Street-Wulie Road	construction	1500	10	477	DN450	Along East Street-Wulie Road direction on the left , take the sidewalk	3	1431	2.15	2				

Level	NO.	Name of Road	Starting Point	Current State of Roads ⁱⁱⁱ	Road Length (m)	Road Width (m)	Intends to Lay Pipe Length (m)	Intends to Lay Pipe Width (m)	Paved Way	Face Width	Temporary Covers (m ²)	Temporary Covers (mu)	Temporary Occupied Period (month)	Temporary Land Compensation Standards	Temporary Impact		
															Shop	Company	Residential areas
	7	HanHe Road	NanYingZi Road-ShuiQuanGou	construction	4200	10	20	DN250	Along NanYingZi Road-ShuiQuanGou direction on the left ,do not take the sidewalk	2.4	48	0.07	2				
	8	ShiYouNan Road	NiuJuanZiGouKou Highway	construction	2900	10	136	DN200	Along NiuJuanZiGouKou Highway direction on the left ,do not take the sidewalk	2.2	299.2	0.45	2				
	9	CuiQiao West Road	CuiQiao Road -FuJiaGou Road	construction	800	8	277	DN250	Along CuiQiao Road -FuJiaGou Road direction on the right ,do not take the sidewalk	2.4	664.8	1.00	2				

Table 2-3 The old pipe network transformation of the region two

Residential quarters	Number	Heat exchange station	Residential quarters	Number	Heat exchange station
The central road, railway, the headlines	1	Railway station	The cattle circle groove, Peach Street, South Park	20	Low vacuum station
	2	Zhongxing Road Station		21	Chief f Park Station
	3	Headlines station		22	Amethyst station
The fire temple, wood grain in the field	4	Hill Station	The cattle circle groove, Peach Street, South Park	23	Build a station
	5	The military sub station		24	The oil station
	6	The meaning of Taixing station		25	College stations
	7	Gulou station		26	Cattle circle Ditch Station
	8	A small Creek Station		27	Tengda station
	9	Vulcan Temple Station	Shaanxi camp, Down camp	28	Shaanxi camp
	10	Liang Shi station		29	In home station
	11	Small north ditch stand		30	Wanhua station A
	12	The power station		31	Shuangliu station
Cave ditch, nanyingzi Street	13	Wen Jia Gou station		32	Fu Station
	14	The National People's Congress period	North Xinglong road	33	Sunshine station
	15	Tracy station		34	Sunshine station
	16	China Construction Bank station		35	The court station
	17	Real estate station		36	Bus stop
	18	Two station		37	The two six six station
	19	Network station		38	Xinglong Street Station

2.4.3 House demolition

The project does not involve the demolition of buildings.

2.4.4 Affected person

A total of 19 male temporary boiler workers were affected by the boiler room renovation project and all of them were Han. Details see Table 2-4.

Table 2-4 information of affected boiler workers

No.	Name of boiler room	Number of employees	Education level		Age		Monthly payment (RMB/month)			Will to Re-employment
			Primary and lower education levels	High school, college or higher education level and	<45	45-59	Monthly payment(seasonal worker)	Non-wage sources of income	Non-wage income level	
1	Water supply company	3	1	2	0	3	1000-1500	Steel worker	1800-2000	Porter

2	Minzu middle school	10	2	8	4	6	1000-1500	Porter	2000	Porter
3	Weather bureau	3	0	3	0	3	1000-1500	Porter	2000	Porter
4	Telecommunications Bureau	3	2	1	1	2	1000-1500	builder	1800-2200	Porter
total		19	5	14	5	14				

2.4.5 Vulnerable Groups

The project does not involve vulnerable groups.

2.4.6 Affected Women

In the survey of the affected population, there is no woman.

2.4.7 Other Social Impacts and Mitigating Measures

- Unemployment of boiler workers

Due to closure of small boiler houses during project, 19 temporary positions will no longer be available after the project. They will lose part of the source of income due to the closure of the boiler rooms.

- Construction impacts to the residents and stores nearby

The pipeline construction may bring some impacts to the residents and stores nearby and cause inconvenience in their daily life and work. In particular, this will affect the customer flow of some nearby stores.

Mitigating Measures to mitigate these impacts include:

- Assistance measures for unemployment of boiler workers

Chengde Heating Group has promised that at minimum during heating season, these temporary workers will be provided coal transport and slag removal works on their existing boilers, and their wages will be around 2000-2500 Yuan / month, higher than their current level. These boiler related works are also temporary positions in winter season, which will not affect their other works in spring and summer. And the nature of the work is quite similar as they used to have with no technical difficulty for them. Chengde Heating Group as large enterprises has strict security system and work practices processes, work safety and comfort working environment are better than the original small boiler houses.

- Mitigating measures for construction impacts

In order to minimize negative impacts of construction, the construction agency will take the following measures: conducting construction in stages and in a semi-enclosed manner to allow for the passage of pedestrians, bicycles and vehicles, erecting access roads and bridges, taking safety measures, indicating construction sites visually, preventing flying dust by sprinkling and coverage, storing construction materials orderly and removing waste materials timely to reduce land occupation, and restoring the occupied land to the original condition timely after the completion of construction.

3 Assessment of Economic Characteristics and Society Impacts

3.1 Social economic of project area

Chengde is located in the northeast of Hebei Province and near the confluence of Luanhe River and Wulie River. Its southwest is 230 kilometers away from Beijing and 540 kilometers away from the provincial capital Shijiazhuang. It is between latitude 40 ° 11 ' ~ 42 ° 40' and longitude 115 ° 55 ' ~ 119 ° 15'. It borders with Inner Mongolia Autonomous Region to the north, Liaoning Province to the east, Zhangjiakou to the west, Beijing and Tianjin to the southwest, and Qinhuangdao and Tangshan to the southeast. Chengde is municipality directly under administration of Hebei Province. It has 3 urban districts such as Shuangqiao, Shuangluan, and Yingshouying Mining District, 5 counties as Chengde, Xinglong, Pingquan, Luanping, and Longhua, 3 autonomous counties Fengning Manchu Autonomous County, Kuancheng Manchu Autonomous County, Weichang Manchu and Mongolian Autonomous County. Chengde has 153 townships, 80 towns, 10 urban sub-districts, 163 urban residential committees, and 2,516 villages. Its total area is 39,513 square kilometers of which the urban area is 708 square kilometers.

The GDP of Chengde in 2013 reached 127.209 billion Yuan. According to comparable prices, it has increased 9.3% over the previous year, 1.6 percentage points higher than the national growth rate, 1.1 percentage points higher than the Hebei provincial average and ranking the second in the province. Among different sectors, the primary industry added value of 21.381 billion Yuan with an increase of 6.2%, 2.2 percent higher than the national growth rate and 2.7 percent higher than the Hebei provincial growth rate, ranking first in the province. The secondary industry added value of 65.004 billion Yuan with an increase of 10.5%, 2.7 percent higher than the national growth rate and 1.5 percent higher than the Hebei provincial growth rate, ranking third in the province. The tertiary industry added value of 40.825 billion Yuan with an increase of 8.8%, 0.5 percent higher than the national growth rate and 0.4 percent higher than the Hebei provincial growth rate, ranking fourth in the province. The revenue of Chengde was 19.2 billion Yuan in 2013. It increased 9.4% over the previous year, the growth rate is 4.7 percentage points higher than the national 4.7% and 0.7 percentage points lower than the Hebei provincial 10.1%.

At the end of 2012, the population of Chengde was 3.77 million, including 587,800 from municipal districts and 3.18 million all counties.

Table 3-1 social economic situation table of Chengde (Year 2010 to 2012)

NO.	Index	Unit	Year 2010	Year 2011	Year 2012
1	Total population	Ten thousand people	372.96	374.31	376.92
	Non-agricultural population	Ten thousand people	112.42	113.21	114.04
2	region's GDP	One hundred million Yuan	888.96	1104.2	1181.92
2.1	Primary Industry	One hundred million Yuan	139.41	165.55	185.16
2.2	Secondary industry	One hundred million Yuan	453.7	605.43	625.4
2.3	Tertiary Industry	One hundred million Yuan	295.85	333.22	371.37
3	Total investment in fixed assets	One hundred million Yuan	751.29	830.02	1022.13
4	Income of main industrial business	One hundred million Yuan	1232.0	1559.9	1629.5
5	Total retail sales of social consumer goods	One hundred million Yuan	254.6	303.88	349.72
6	Actual use of foreign capital	Ten thousand dollars	10080	5695	13043

NO.	Index	Unit	Year 2010	Year 2011	Year 2012
7	All revenue	One hundred million Yuan	113.99	153.4	175.5
8	Per capita disposable income of urban residents (Chengde)	Yuan	13212	15037.6	16832.2
9	Per capita disposable income of urban residents (urban)	Yuan	14668	16637.6	18706
10	Per capita net income of rural residents	Yuan	4382	4935	5546.2

Source From: Statistical Yearbook of Chengde

3.2 Sample Survey of Affected People

The total affected population is 19. They are all seasonal boiler workers, all male and all belong to Han nationality. They will be affected by close down of boiler houses. The project will not involve with house demolition and resettlement. The impacted people of the project are detailed in table 2-2. In order to verify the specific impact of the project and basic information of the affected so that the project resettlement policy based on true and accurate data, the project implementing agencies and the staffs working on Resettlement Action Plan preparation conducted survey among these affected people.

In this project four affected coal-fired small boiler houses are all under management by four enterprises or institutions, which include water supply company residential quarter, Meteorological Bureau residential quarter, Xinguanglian Networks, and Minzu Middle Schools. A total 19 boiler workers will be directly affected due to close down of these boiler houses. They are temporary workers working in these boiler houses and have no formal labor contracts with the workplace. Their work is seasonal and work on boiler operation during the heating period from early November to middle March. They all have other temporary works for the non-heating months. Investigation team has visited all four coal-fired boiler rooms and interviewed 8 workers. Based on the survey they found that they share some common characteristics:

1. Low educational level and limited skill. Among 8 persons interviewed, one is illiterate, five have primary education level, and only two people have the junior high school level education. No one has the professional skills certificate and they just do simple physical labor in the boiler houses during heating period.

2. Relative long working time and old age. Among persons interviewed, seven people's working time is more than 5 years with one of them having worked there for more than 10 years. One of them engaged in this work just from 2014. The average age among them is 48.5 years old with the oldest being 59 years old and the youngest being 39 years old.

3. Their personal income accounted for a higher proportion of household income, and is the main family breadwinner. Their monthly income ranges from 1501 to 2000 Yuan. Their average income is 1875 Yuan per month and personal income accounted for more than 60% of their total family income. And their spouses are mostly housewives with no fixed income sources and some of them need long-term medication due to chronic disease which brings great economic pressure to the family.

The surveyed boiler workers recognized the importance of the project to improve the air environment of Chengde and all expressed understanding and support for the project. But they also have their own needs based on the above characteristics:

- 1 The respondents under 50 years old have a stronger demand for vocational skills training. Five respondents under 50 years old recognize that once the boiler rooms closed they will face certain difficulty to look for a new job due to low educational level and single skill. The boiler workers can hardly engaged in the construction, quarrying, etc. like spring, summer because no physical work can be

found outdoors due to the low winter temperatures in the north. They hope that relevant government departments can provide suitable occupation skill training to increase their competitiveness to look for jobs or provide useful employment information. At the same time, if the condition allows, they also hope to be provided with similar jobs by the relevant government departments. Overall, they have positive attitude to find a new job.

2 Respondents aged over 50 prefer Chengde Heating Group or the original employers can arrange jobs for them. Three respondents aged over 50 expressed that they hope Heating Group or original employers could arrange jobs for them such as the new daily maintenance of the heat exchange stations, security or guard. Overall, this group respondents do not have much confidence to find new jobs on their own and rely on assistance from the government departments.

4 Legal Framework and Policies

4.1 Laws, Regulations and Policies

The basic purpose of the Resettlement Action Plan (RAP) is to ensure the plan and implementation is in line with World Bank operational policies OP4.12. At the same time, for any resettlement activities in this project will comply with a series laws and regulations of Country, Hebei, Chengde, specifically in Table 4-1.

Table 4-1 1 Policy Framework

Level	Regulations and Policy Documents	Effective Time
State and Central Ministries	<i>Land Administration Law of the People's Republic of China</i>	January 1,1987; Second revised on August 28,2004
	<i>The Implementation of the Land Administration Law of the People's Republic of China</i>	December 27,1998
Hebei Province and Chengde	<i>Hebei Province Land Management Ordinance</i>	Fifth revised on May 27,2005
	<i>Hebei Province Urban State-owned Land Use Right Transfer and Sell Implementation Measures</i>	September 24,2002
The World Bank	Operational policies OP4.12 <i>Involuntary Resettlement</i> and its annexes	January 1,2002
	Operational procedures BP4.12 <i>Involuntary Resettlement</i> and its annexes	January 1,2002

4.2 PRC laws, regulations and relevant policies

The Key provisions of *Land Administration Law*:

Article 57 of the PRC Land Administration Law requires that the project construction and geological survey which require temporary use of state-owned or rural collective-owned land, should be approved by the relevant land administration departments of people's governments above the county level. Among them, when use the temporary land area of urban planning, it shall be agreed by the City planning department before the approval.

Temporary land user shall use the land for temporary use of land contract purposes, and should not build permanent structures. Duration of the temporary use of the land shall generally not exceed two years.

The Key provisions of *Hebei Province Land Management Ordinance*:

Article 57 of Hebei Province Land Management Ordinance requires that the temporary user of the land should apply to the municipal and county land administrative departments in accordance with legal procedures and approval authority upon approval of the following:

(A) When temporary use the land for less than two hectares, the user should make approval to the county (municipal) land administrative departments;

(B) The temporary use of land over two hectares and less than four hectares, as well as urban areas in the City districts less than two hectares should approved by the municipal administrative department of districts;

(C) The temporary land use for more than four hectares should approved by provincial land administrative departments.

When the duration of the temporary use of the land is more than two years, it should re-apply for temporary land use procedures.

The approach of Hebei Province implement Urban State-owned Land Use Right Transfer and Sell Interim Regulations of People's Republic of China:

Article 48 of it requires that transfer, lease and mortgage the allocated land use right must re-submit the land use right transfer procedures to the municipal and county people's government land administration department in advance. The approval process is as follows:

(A) Land users should hold the state-owned land use permit and ground

buildings and other fixtures ownership certificates and other legal documents to submit a written application to the municipal and county people's government land administration departments;

(B) The land use right transfer contract must be signed after the municipal and county people's government land administration department in consultation with the applicant;

(C) The land user should deliver the land use right transfer fee and handle the land use right transfer registration to the municipal and county governments land administration department within thirty days from the date of the contract signed;

(D) The land use right transfer, lease and mortgage parties signed a contract of the land use right transfer of the lease and mortgage;

(E) The land user shall handle the land use right and the ground buildings and other fixtures registration respectively to the City and county people's government land management and real estate management department within fifteen days from signing date transfer, lease and mortgage contract.

Article 49 requires that the land use right transfer fee of allocated land use right transfer, lease or mortgage should be charged a percentage of land standard price, but not less than 30% of the land pricing. Lease land use rights can also paid the land use right transfer fee to the land administration department monthly or annual, specific payment measures is determined by municipal or county government, and submitted to the provincial Bureau of Land Management for the record.

Article 50 requires that transfer, lease, mortgage of the land use rights, buildings on the ground and other fixtures ownership, when land use rights expired, the municipal and county governments can free to recover the land use rights; its ground buildings and other fixtures should be given appropriate compensation according to the actual situation when the municipal and county governments recover.

Article 51 requires that the municipal and county governments can free to recover the allocated land use rights according to the requirements of urban development and urban planning, and may assign it in accordance with the provisions of this approach.

When recovering the allocated land use rights unpaid, the municipal and county governments should give adequate compensation to its above-ground buildings and other fixtures in accordance with the actual situation.

4.3 The World Bank's Main Policy

The resettlement policy of the World Bank includes the World Bank operational policies OP4.12 "Involuntary Resettlement" and its annexes (January 1, 2002) and the World Bank operational procedures BP4.12 "Involuntary Resettlement" and its annexes (January 1, 2002).

4.3.1 The Policy Objectives of the World Bank

- Exploring all viable alternative project designs to avoid or minimize involuntary resettlement.
- If involuntary resettlement is unavoidable, resettlement activities as sustainable development programs should be conceived and executed.
- Providing adequate funds to allow resettlement to share benefits of the project.
- The involuntary resettlement should be carefully negotiated so that they have the opportunity to participate in the planning and implementation of the resettlement program.
- Make sure the involuntary resettlement should strive to improve their livelihoods and living standards, at least to restore them to a higher level before the relocation or before the start of the project.

4.3.2 The Measures Required

The World Bank requires that the borrower should prepare a resettlement plan or resettlement policy framework, which covers the following contents: The resettlement plan or resettlement policy framework includes measures to ensure that

the involuntary resettlements were told their choose rights on the issue of resettlement and other rights; Understand technically and economically feasible options on participating in the negotiation, and enjoy the opportunity to choose; Make prompt and effective compensation to offset the direct property loss caused by the project at full replacement cost. If the impacts include physical relocation, the resettlement plan or resettlement policy framework should take appropriate measures to ensure that resettlement during relocation assistance (such as moving allowances); access to housing or homestead, or access to agricultural production sites as required. Production potential of agricultural production sites, location advantages, and other factors is at least favorable conditions for the old site.

In order to achieve the policy objectives, the resettlement plan or resettlement policy framework should also take appropriate measures when necessary to ensure that after the relocation, estimate the reasonable transition period according to the time to restore their livelihood and standards of living that may be required , and support help during this transitional period ; in addition, they can also get others such as land preparation, credit facilities, training or employment development assistance.

4.4 The main difference between the World Bank policies and Chinese law

Consultation and publication

Difference: The World Bank policies require the affected people can fully informed and consult with them as soon as possible. China has improved the transparency provisions of the notification and compensation. However, the role of the project affected people in decision-making is not strong, the publication period is too short typically.

Solution: The consultation and negotiation has begun early in project preparation. PMO agrees to disclose the Resettlement Action Plan to the relevant affected personnel in accordance with the requirements of the World Bank.

Resettlement monitoring, evaluation and reporting

Difference: The World Bank requires internal and external resettlement monitoring. However, in addition to reservoir projects there is no such requirement according to China's laws.

Solution: All World Bank projects have established internal and external resettlement monitoring systems, which are written in the Resettlement Action Plan. The requirements of internal and external reporting are specified in the Resettlement Action Plan.

4.5 Project Compensation Principles

Developing the project' compensation and equity principles according to the Chinese government and the World Bank's policy requirements, which aims to ensure that resettlement get enough compensation and assistance measures, at least restore their the production and living standards to the original levels. Resettlement principles are shown in Table 4-2.

Table 4-2 Resettlement Principles

Principles	
1	If feasible, avoid involuntary resettlement as much as possible.
2	The compensation and rights of the affected people get can at least be able to maintain standard of living before "no project" or may be increased.
3	Regardless of whether the rights of the affected people is legitimate they will receive resettlement compensation and assistance.
4	The affected people have a full understanding of qualifications, compensation and standards, livelihood and income restoration plan and the project schedule, and participate in the implementation of the Resettlement Action Plan.

5	Implementing agencies and independent / third party will monitor compensation and resettlement operation.
6	The vulnerable groups should receive special assistance or treatment to ensure that they can live better, all the affected people should have the opportunity to benefit from the project. Each of immigrant families have two family members to obtain skills training and of which at least one is woman.
7	The resettlement program consistent with the overall planning of the project affected city (district and county) and towns.
8	The resettlement costs will be full and comprehensive coverage of all affected parties.

4.6 Compensation Standards of the Project

4.6.1 The Compensation Standards of State-owned Land

State-owned land occupied by the project are located in residential areas, and are reserved to the heat, do not need to be compensated.

4.6.2 Temporary Land Compensation Standards

Currently, Chengde City road recover compensation fund has no specific policy. The affected road will be restored by Chengde Transportation Bureau and the restoration cost will be undertaken by Chengde Heating Group. Before the pipeline construction, Chengde Heating Group will submit a pipeline construction application to Chengde Construction Bureau. After approval and pipeline construction, Chengde Transportation Bureau will restore the affected road and after the road restoration, Chengde Transportation Bureau will provide an actual budget to Chengde Heating Group and Chengde Heating Group pay for it. Referring the related provincial policy¹ and recent similar projects, the compensation rate for urban road recovery is about 554 yuan/m². The total road rehabilitation cost of this project is about 35.28 million yuan.

4.7 Project Cutoff date

The cutoff date for this project is June 30, 2015.

¹ Hebei Urban Road Excavation and Repair Charges, issued in July 21, 2015

4.8 Entitlement Matrix

Types of Impact	Degree of influence	Affected people	Compensation and Resettlement Policy	Compensation Standards and Implementation
Permanent occupation of state land	9.07 mu	None	Public projects and occupied for residential vacant land	Free use
Road	Pipeline construction needs to occupy 154.06 mu of state-owned roads	Chengde Transportation Bureau	Roads and services in a timely manner to eliminate the adverse effects of the local community and compensated timely, the professional sector will responsible for make the affected road back to the original state., 554 yuan/m2	A total of 35.28 million Yuan, has been included in project costs
Affected boiler workers	19 seasonal boiler workers in 4 boiler houses will lose jobs due to close of boiler houses	19 seasonal boiler workers in 4 boiler houses	1.They will be given high priority to be employed in new heat exchange stations; 2.The relevant departments will provide employment information to boiler workers who are looking for other work and give them priority to participate in the skills training program; 3.The enterprise and institutions used to operate original boiler rooms will provide temporary jobs to boiler workers in the logistics sector priority. 4. Chengde Heat Group ensure similar positions will be provided to these workers with same wages to work on coal transport and slag removal.	N/A
The affected shops or enterprises surrounding roads	Temporary impact during construction of pipe network	The affected shops or enterprises surrounding roads	1.The construction will be divided into segments, to avoid spread across large areas; 2.Enclosure of construction site should be confined to a manageable area and reserve space for traffic; 3.Once the section of construction is completed, clean up should be followed right away including removal of enclosure and restore traffic; 4.Strengthen information dissemination and release transportation guide timely; 5.Make reasonable arrangements for the construction of each section and try to control the construction period; 6.Try to exclude the enclosure under the premise of ensuring safety, once construction is completed, immediately dismantle enclosure; 7. To leave spaces for shops or business to transport goods, and set aside	N/A

Types of Impact	Degree of influence	Affected people	Compensation and Resettlement Policy	Compensation Standards and Implementation
			adequate space for vehicles to facilitate business travel; 8.Allowing shops, businesses to mark the enterprise and store operations information in the enclosure wall; 9.Try to carry out the construction section enclosure, promptly repaired the damage around the retaining wall; 10.Strengthen the construction site management, keep the construction materials neatly and promptly clean up the garbage; 11. Cleared up or cover exposed dirt promptly; 12.Try to use processes and technologies to take control of high decibel noise generated in construction process; 13.Ban noisy construction work before 8:00am in the morning until after 21:00pm ; 14.Construct temporary noise walls and take other measures to mitigate the impact on the surrounding residents; 15. Compensated for the surrounding residents who were affected by noise severely appropriately ; 16.If the street shops or business enterprises or appendages have losses due to construction ,they need a reasonable compensation	
Appeal	Compensation standards, compensation payments and resettlement measures	All affected persons	The resettlement issues raised by affected people involve a variety of fees and management fees, these fees should be exempted and reasonable expenses will incurred in unforeseen expenses of this project	/

5 Production and Livelihood Rehabilitation Plan

5.1 Livelihood Rehabilitation Target

Ensure that the affected people can be compensated for all their losses and reasonable place their livelihoods so that they can share the benefits of the project, and provide them assistance for reducing temporary difficulties, so that their income levels and living standards improved or at least restore to the level before the project.

5.2 Livelihood Rehabilitation Principles

5.2.1 Minimize the impacts

Use the characteristics of construction, appropriate change and optimize the design in order to minimize the affected area and minimize the impact of resettlement.

5.2.2 Equivalent Compensation

To ensure that resettlement' (including affected boiler workers) living standard does not decline due to the project and implement the equivalence principle of compensation. It includes two aspects: Firstly, compensate the property according to the replacement cost; secondly, other losses are compensated by according to the degree of losses that means compensate as much as the resettlement loss.

(1) Restore shops' or businesses' existing business environment affected by the temporary land occupation on urban roads.

(2) Public facilities will be fully restored, and its' function will at least not less than the original level in order to maintain a normal life of the surrounding residents.

(3) The resettlement who are temporary affected by the project and resettlement who loss part of their property will get the equivalent compensation.

5.3 Temporary Land Occupation and Road Recovery

The project temporary land occupation is caused by construction of heat pipelines by laying pipeline underground.

The broken road fee for primary heat pipeline construction was negotiation between Chengde Heating Group and the local government. The selection of price for breaking road along path of primary heat pipeline alignment is based on the average cost involved by Chengde Heat Group in the recent year of similar construction.

The road broken fee for secondary heat pipeline refers to road spaces between the area of heat exchange station to the individual buildings, which was negotiation between Chengde Heating Group and individual residential estates. The selection of the cost for breaking and restoring the road spaces along the secondary network path is based on similar experience in recent years by Chengde Heating Group.

The road restoration will be carried out by qualified municipal engineering companies to implement, and Chengde Heating Group is responsible for providing funds for the restoration.

During the period of temporary land occupation, the contractors will build temporary traffic channel and traffic logo to minimize construction impacts on shops or enterprise in the project area.

During construction process, if the property of nearby shops and businesses are damaged due to improper management of the construction sites, the project sponsor and contractors will provide equivalent compensation based on assessment of the company, and negotiation with affected parties.

5.4 The rehabilitation measures for affected boiler workers

Due to closure of small boiler houses during project, 19 temporary positions will no longer be available after the project. According to survey of 2014, the monthly average wage of temporary workers is between 1500 Yuan to 2000 Yuan. Closure and removal of small boiler will be conducted in none-heating season. Heating companies will inform related situation to the temporary workers six months in advance so that they have enough time to look for work.

These temporary workers in the non-heating season also work as manual labors

in other sectors, their income is about 2000 Yuan / month or so and can maintain their basic living.

In the field survey, almost all affected boiler workers support the project; the affected people think that after this project can improve the local heating conditions and have a positive impact for the people's production and life. The affected Boiler workers are all temporary workers, they also have work in the non-heating season so they do not worry about their production and life, and they only hope that this project will help them find some temporary work in winter.

These temporary boiler workers will lose part of the source of income due to the closure of the boiler rooms. In order to ensure that they will restore income and livelihood in a timely manner, and find long-term and stable sources of income, Chengde Heating Group coordinate with local government agencies to take positive and effective measures to them, which include providing career guidance and employment information to help them increase their skill and capacity for better opportunities, and offering similar jobs during winter seasons. It is hoped that through such measures their income and livelihood would be restored. Related expenses will be paid from the contingency cost in the resettlement program.

Chengde Heating Group has promised that at minimum during heating season, these temporary workers will be provided coal transport and slag removal works on their existing boilers, and their wages will be around 2000-2500 Yuan / month, higher than their current level. These boiler related works are also temporary positions in winter season, which will not affect their other works in spring and summer. And the nature of the work is quite similar as they used to have with no technical difficulty for them. Chengde Heating Group as large enterprises has strict security system and work practices processes, work safety and comfort working environment are better than the original small boiler houses.

After consultation with the affected people and project units, the affected boiler workers resettlement program is shown in Table 5-1.

Table 5-1 the Livelihood Rehabilitation Program of Affected Boiler workers

NO.	The name of Boiler room	Number of employees	Personal Reemployment wishes	Resettlement program
1	Boiler room of water family wings	3	Most of them wish to have similar jobs in the heating company during winter seasons.	Chengde Heating Group has promised that at minimum during heating season, these temporary workers will be provided coal transport and slag removal works on their existing boilers, and their wages will be around 2000-2500 Yuan / month, higher than their income in small boiler houses.
2	Nationality Middle School boiler room	10		
3	Meteorological Bureau Family wings of boiler room	3		
4	Xin Guang lian boiler room	3		
Totally		19		

After the implementation of the project, Hebei PMO and social development expert of project implementation phase will give supervision and guidance to the whole re-employment placement process of affected workers, and respond to the problem of affected workers, enterprises and units proposed, and solve related problems on behalf of Chengde municipal government. External monitoring unit (Resettlement and social monitoring) will track the livelihood recovery issues of these affected people to ensure that they will not cut wage because of the project.

6 Public Participation

6.1 Public Participation Strategy

This project will attach great importance to carry out participation and consultation with affected people, listen to their opinions and suggestion during the period of resettlement policy formulation, planning and implementation stages.

Chengde Heating Group has repeatedly sought suggestions and comments on the project resettlement issues during the preparation of resettlement plan and feasibility study from

Chengde municipal government, the NPC and CPPCC, mass organizations, the project area residents, enterprises and others since Sept. 2014. At the same time, they also carried out the investigation of social economic background of affected people, public opinion, attitudes to the project, and suggestions on rehabilitation options. These activities laid foundation for the preparation of the resettlement action plan.

In the future, the Chengde Heating Group will also take the following procedures and methods to encourage public participation and consultation:

(1) Resettlement representatives will participate in the resettlement work

Resettlement and the affected units elected representatives according to the proportion, to solicit the opinions of the masses of resettlement requirements, listen to the rationalization proposal and regular communication with the relevant departments. Reply to their questions and give careful consideration to their opinions and suggestions.

(2) People affected by the project consult with the users to determined resettlement mode.

Make the people affected by project and users of consult more and communicate more in many aspects to put forward reasonable settlement suggestions through public participation in the work.

(3) Convene a Consultative Conference

Convene project stakeholders to participate in the forum (where female representation should be more than 30%), Focuses on the situation and continue to listen to their opinions and suggestions. Record their advice and opinions and give consideration and attention during the project in the future.

(4) Held a mass meeting

Continue to extensively explain relevant policies, laws and regulations, resettlement programs to the masses a month before the implementation of the project so that the masses know early and arranged early. The purpose is to accordance with the World Bank's policy and national policy in strict to implement projects combine the local actual situation and the comments and suggestions of the masses.

(5) Propaganda and report relevant policy by radio, television, newspapers, Internet and other media.

(6) Publish project announcement

The main contents of the notice is general situation, the implementation of the project scope, the resettlement policy (including the standard of compensation, resettlement) responsible institutions, resettlement rights and obligations, complaints and appeals, monitoring and evaluation, etc.

(7) Disclosure of the resettlement action plan

The Chengde Heating Company will place a copy of Resettlement Action Plan in the project office and inform the public through broadcast on radio, television, municipal web page, and major local newspaper to ensure their access to the public.

(8) Resettlement Information Booklet

The project office will compile a resettlement information booklet with key points of resettlement action plan, which will be distributed to the hands of affected people before the project implementation. The main contents of the information booklet are:

project overview, project impacts, compensation policies, implementing agencies, the complaint channels and contacts and contact information. The affected people could understand the whole content of the project by reading the resettlement information booklet, and put forward reasonable suggestions of the project problems to the project office.

6.2 Public Opinion Surveys

Between November 24, and November 28 of 2014 the group conducted the public opinion survey. The survey includes the affected boiler workers, community residents for total 208 people. The results of the survey show that:

In the recovery 190 valid questionnaires (including 182 general population survey, a questionnaire containing eight boiler workers) 82 percent of respondents did not know the project and 18 percent of respondents had ever heard. All the respondents agree that the construction of the project and think it is beneficial to the country. Beneficial to the community and the individual all accounted for 100 percent. 33.33 percent of respondents believe that the construction of this project will improve their living environment. 38.09 percent of respondents believe the project will improve the living conditions of winter. 33.33 percent of respondents believe the project improve the investment environment. 47.6 percent of respondents believe the project will provide convenience for the life; 85.71 percent of respondents believe that the construction of the project has no adverse impact on them and the remaining part think that may bring traffic inconvenience influence. 85.71 percent of respondents know the policy for heating. And 80.95 percent of which know how to complaint when the legitimate rights and interests are violated during the project implementation. When asked the boiler workers' compensation will, most of the boiler workers expressed the hope to receive technical training or provide employment information in the future.

In the survey, majority of residents know the construction of this project and think the construction of the project will help to improve the heating status and improve the living level. This reflects the public's right to know and also help to solve the problems may be encountered in the construction and operation during the project.

6.3. Process of public participation and information disclosure plans

Negotiation and consultation with the affected people is needed so that all problems can be solved before implementation in order to deal with the affected people's problems timely and appropriately. Resettlement Implementation mechanism will arrange reasonable for public participation in the meeting so that each affected boiler workers satisfaction.

Table 6-1 Process and Plan of Public Participation of the Affected People

Time	Address	Participants	Content	Note	Status
September 2014	Central heating energy-saving project office of Chengde; the location of the affected boiler room	Relevant staff of Chengde Heating Group; affected Boiler workers; the project team	Social economy investigation of resettlement; the scope of the impact and physical survey	Project influence of socioeconomic survey	Implemented
October 2014	Central heating energy-saving project office of Chengde; the location of the affected boiler room	Relevant staff of Chengde Heating Group; affected Boiler workers; the project team	Compensation and resettlement policy and initial resettlement program	Preliminary discussions on compensation policy when preparing resettlement	Implemented

Time	Address	Participants	Content	Note	Status
				action plan	
March 2015	Central heating energy-saving project office of Chengde; the location of the affected boiler room	Relevant staff of Chengde Heating Group; affected Boiler workers; the project team	Compensation and resettlement policy and initial resettlement program	Further consultations on the compensation policies and recovery plans when modifying the resettlement action plan	Implemented
April 2015	Central heating energy-saving project office of Chengde;; Chengde Land Bureau; location of the affected people	Relevant staff of Chengde Heating Group; Chengde Land Bureau; affected people	Individual issues of resettlement policies and programs	Supplementary consultation on individual issues when finalizing the resettlement action plan	Implemented

Table 6-2 Process of the Project Information Disclosure

Document	Language and disclosure method	Disclosure date	Responsible units	Disclosure address
Introduction concerning the project	Chinese, Municipal website	April 2015	Project Office	Municipal website, affected community
General introduction of resettlement information	Chinese, Municipal website	15 th , April 2015	Project Office	Municipal website, affected community
Compensation policy of the project	Chinese, Municipal website	15 th , April 2015	Project Office, Land Resources Bureau	Municipal website, affected community
Public notice of the resettlement action plan	Chinese, Chengde Evening News	15 th , April 2015	Project Office	Municipal website, Chengde Evening News affected community
Information booklet of the resettlement	Chinese, issued to resettlement	After reviewed by the World Bank	Project Office	Affected community
Report of the resettlement action plan	Chinese, English	August 27, 2015	World Bank, Project Office, affected community	World Bank website; Municipal website; affected community
Public information of temporary occupation time, section etc.	Chinese	A month before implementation	Project Office	Newspapers, websites, television and sections of the affected

Document	Language and disclosure method	Disclosure date	Responsible units	Disclosure address
				people

7 Grievance Redress

In the process of the preparation and implementation of resettlement action plan, public participation is encouraged. Hence, huge controversy may not appear. But the whole process will have some unforeseen problems occur. In order to effectively solve the problem, ensure the implementation of the project construction and resettlement, the project has established transparent and effective channels for complaints and appeals. In the preparation and implementation of resettlement action plan, an appeal mechanism is established to provide the affected person. The sequential steps are as follows.

Step1. If resettlement are dissatisfied with the resettlement measures, they can focus to the Chengde city heating energy saving renovation project office made verbal or written complaint; if it is an oral complaint, will have to be determined by the project office to handle and a written record. The project office should be resolved within 2 weeks.

Step2. If resettlement to the decision stage 1 is still not satisfied, can be in receipt of the decision on the leading group of energy-saving projects in Chengde city heating to appeal; project leading group shall make a decision within 2 weeks.

Step3. If they are still unsatisfied with the decision in Step 2, they should appeal to the Hebei provincial PMO, and provincial PMO should make a decision within 60 days.

Step4. If they are still unsatisfied with the arbitration decision, they should prosecute to civil court according to the PRC Law on Civil Procedures.

The affected persons should appeal on any aspect of resettlement activity. The affected persons have been informed the above appeal steps through public meetings and other forms, so that they will be conscious of their legal right of appealing. While the use of the media for publicity, and the parties face resettlement advice and recommendations compiled into messages, by resettlement agencies treatment.

The resettlement agency will organize all the comments and suggestions on resettlement action into information brief, and send it to relevant resettlement agencies for review and action. All the agencies will accept grievance and complain of affected persons at free of charge. The resettlement of complaint calls to Table 7-1.

Table 7-1 Chengde central heating energy-saving projects hotlines

Agency	Contact person	Telephone	comment
Chengde central heating energy-saving project office	Mr. Ren	0314-2157080	
Chengde central heating leading group of energy-saving projects	Mr. Zhang	0314-2050955	
Hebei Clean Energy Project Management Office	Mr. Wu	0311-66651598	

All grievances, actions and results will be logged, by use of the grievance action. They will be reported in the project progress report and semiannual resettlement monitoring report of the corresponding period. The grievance action forms will also be made available to the complainants, key stakeholders and responsible agencies.

For a complete record of the affected population and complain about the handling of issues related to the project management office to develop the affected

people deal with complaints and appeals registration form, see Table 7-2.

Table 7-2 World Bank Loan Project Registration Form complaints and appeals

Accepted Agency		Time		Place	
The complainant's name	The complaint	Require solutions		Proposed solutions	Practical solutions
The complainant signature				Record Signature	
<p>Remark: 1、Records should faithfully record the complaint and the complainant's request; 2、Appeal process should not be subject to any interference and obstacles; 3、The proposed solution should reply to the complainant within the prescribed time</p>					

In addition, the complaint and channels to complain about the project affected people will be publicly released in the form of promotional material sent to the public every affected person.

8 Implementation Organization

8.1 Institutional Arrangement

Construction project leadership team of Chengde central heating energy-saving project

Construction project management office of Chengde central heating energy-saving project

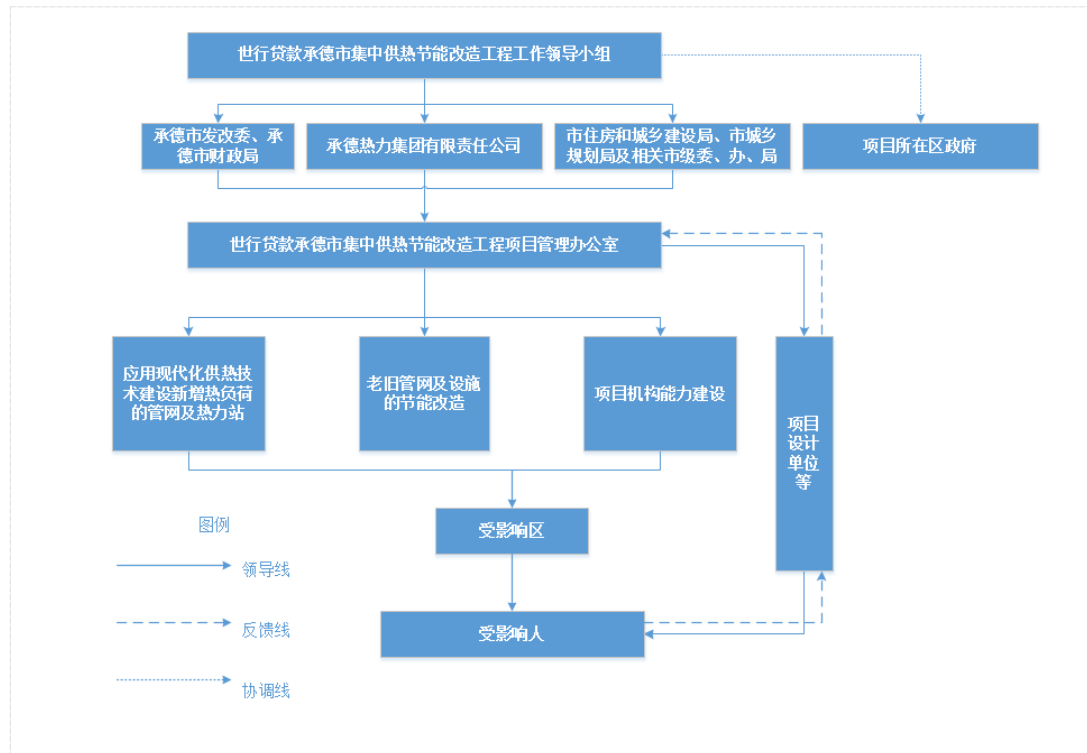
Chengde Heating Group

Chengde Development and Reform Commission Bureau

Design and Research Institute

Project Monitoring and Evaluation Unit

8.2 Organization Chart



8.3 Institutional Responsibilities

8.3.1 Construction project leadership team of Chengde central heating energy-saving project

Construction project leadership team of Chengde central heating energy-saving project: responsible for the entire project leadership and coordination of social management

8.3.2 Construction project management office of Chengde central heating energy-saving project

Construction project management office of Chengde central heating energy-saving project: implementing social management and capacity building training accordance with the requirements of the World Bank.

8.3.3 Chengde Heating Group

Chengde Heating Group: responsible for concrete implementation of social management plan and organizing training in terms of WB related policy.

8.3.4 Design and Research Institute

Design and Research Institute: reduce the impact of the project by optimizing the design of resettlement and determine the scope of the project impact.

8.3.5 Project Monitoring and Evaluation Unit

Project Monitoring and Evaluation Unit: investigation and assessment of the social management plan implementation of the project, proposing issues and recommendations to the Provincial Project Office and the World Bank to submit monitoring and evaluation reports.

8.4 Qualifications and staffing of agency

Construction project management office of Chengde central heating energy-saving project is specifically responsible for the development of the Resettlement Action Plan and resettlement implementation. Members of the office has a wealth of experience, has previously organized a similar resettlement in resettlement has accumulated a wealth of experience. Projects with government departments at all levels and to maintain good communication channels, in resettlement work can play a good role in the organization and coordination. Other agencies involved in the implementation of the City by having a composition rich experience in construction project management staff.

Resettlement agency staff equipped, high-quality, full-time staff of seven people, including three women, the vast majority of professional and technical personnel, who have good technical qualities. Staff peak of a total of 13 people, from the bottom with a smooth information channel. This is for the implementation of the preparation and implementation of the Resettlement Action Plan has played a very important role.

8.5 Institutional Arrangements and Capacity Building

According to the survey, institutional capacity, working conditions and equipment configuration of the project is more complete, professional staff's quality level is high; they have preparation for similar project, construction and operation of the national experience. Give the project belongs to the World Bank loan project, the relevant personnel need to be familiarity with the mode of operation for World Bank projects, especially in relation to social and security requirements and adequately compare with domestic experience, so they need further study and training for relevant business policy requirements.

9 Project Schedule and Funding arrangements

9.1 The Schedule of project construction and resettlement

According to the progress of the project implementation schedule, the project proposed to be constructed in 2016, and accomplished in 2018, which lasted 3 years. Resettlement schedule should be connected with each sub-project construction schedule, consider the characteristics of the project, the resettlement schedule as the same as construction schedule, *i.e.* from 2016 to 2018.

9.2 The key tasks of linked to temporary land occupation and income restoration

The key task compensation of the temporary land occupation including: 1) with the original land users sign contracts for temporary use; 2) signed a temporary land use and urban roads department in charge of the contract ; 3) works occupy land within the contract period ; 4) after use , the road management department commissioned the construction unit for recovery.

The key task of affected boiler workers including: 1) information disclosure, resettlement programs in consultation with the affected people; 2) information or provide employment related training; 3) tracking affected livelihoods recovery.

9.2 Related cost and schedule

Chengde Heating Group is responsible for the cost listed below and income restoration of the affected boilers.

An estimated cost for road recovery and social monitoring is listed in table 9-1. .

Table 9-1 Estimated Road Recovery Investment and other Cost

NO.	Name of the expense	Cost (Ten thousand Yuan)	Proportion %	Annual use of funds
1	State-owned land occupation fee	0	0	
2	Compensation for road rehabilitation	3528	90.14%	2016-2018
3	Early planning fees	15	0.38%	2014-2015
4	Social monitoring fee	15	0.38%	2016-2018
Total of 1-4		3558	90.915	
5	Unforeseen fee	355.8	9.09%	2016-2018
6	Total investment	3519.8	100.00%	

10 Monitoring and Evaluation

In order to guarantee the smooth implementation of the Resettlement Action Plan, to achieve the goal of proper resettlement. The project by the World Bank Operational Policy OP4.12 "Involuntary Resettlement" and "The World Bank Loan Project Resettlement Monitoring and Evaluation China Business Guide" requirements, will conduct regular monitoring and evaluation of the implementation of the resettlement activities. Monitoring of resettlement agencies are divided into internal monitoring and external independent monitoring of two parts.

Internal monitoring by the Construction project management office of Chengde central heating energy-saving project to perform , in order to ensure compliance with the principles and timetable for the unit responsible for the Resettlement Action Plan to implement resettlement. Internal monitoring is aimed at the implementation of the resettlement process, to maintain a good body functions.

Independent monitoring by an independent evaluation to resettlement in resettlement implementing agency of the project, a comprehensive, long-term perspective check all implementation activities. The independent monitoring organization will follow the resettlement activities to evaluate whether the resettlement implementation of the relevant laws of the country of resettlement ; meets World Bank operational policies OP4.12 " involuntary resettlement" ; whether resettlement living standard has improved or at least maintain no project level. Independent monitoring agency will make recommendations to the implementation of the monitoring unit according to the problem found, so that the process of resettlement implementation problems to be resolved in a timely manner.

10.1 Internal Monitoring

Project Office implements an internal monitoring mechanism to supervise the resettlement activities. Resettlement Project Office establishes a basic database and use its action plan development and resettlement of all displaced households and affected units to monitor, on the whole process of resettlement preparation and implementation of internal supervision and inspection.

10.1.1 Procedure

During the implementation, Construction project management office of Chengde central heating energy-saving project and project implementation unit should collect and record the information then provide it to the office of the Province and the City, in order to maintain a continuous monitoring on implementation. Superior project office will inspect implementation regularly.

In the monitoring mechanism in the development of the information specified in table format, in order to realize the project implementation unit to the continuous flow of information from the project office in the Province.

10.1.2 Monitoring Content

- Compensation of temporary land occupation
- Survey the main problems existing in the process of resettlement and implementing agencies resettlement implementation, coordination and advice
- Income recovery level of the affected boiler workers
- During resettlement implementation participation and consultation of affected people
- Affected persons and effects of training
- Local resettlement office work organization, training, working time and efficiency

10.1.3 Internal Monitoring Report

Every six months by the Chengde City Central Heating Project Office will prepare an internal monitoring report submitted to Chengde City Central Heating Project Office and Project Office Province. Provincial Project Office at the end of the

summary reported to the World Bank once a year.

10.2 External Monitoring

10.2.1 Independent monitoring agency

Project Office will hire an independent monitoring agency to carry out resettlement and social external monitoring. Regular independent monitoring and evaluation unit of the resettlement implementation activities and the project of gender and social development plan for tracking monitoring and evaluation of resettlement, gender and social development-related progress, quality, financial monitoring, and advice. It is going to provide the monitoring and evaluation reports to the Province, Chengde City Central Heating Project Office and the World Bank.

10.2.2 Steps and content of monitoring

- 1) To prepare working outline for M&E;
- 2) Resettlement monitoring and evaluation information database development;
- 3) To prepare survey outline, questionnaire forms, and recording cards of affected persons, typical units;
- 4) To design sampling investigation scheme;
- 5) To conduct a baseline survey: A baseline survey will be carried out on the resettlement affected by the project, so as to obtain basic data about their living standards (including living, business and income).
- 6) Establishment of monitoring and evaluation information system;
- 7) To conduct M&E survey: a) evaluation of resettlement implementation; b) overseeing on resettlement progress; c) analysis of the impact of land adjustment; d) tracking survey and evaluation on income level of affected persons; e) public consultation including public participation activities of the affected persons during the period of the Resettlement Action Plan implementation, and the effectiveness of public participation; and f) grievance redress of affected persons including the registration, handling and resolution of affected persons' complaints.
- 8) Monitoring collating information, the establishment of a database;
- 9) To conduct livelihood/income comparison analysis;
- 10) To prepare M&E report
- 11) Specific monitoring and evaluation reporting period are as follows:
- 12) September 2015 the first phase of monitoring and evaluation report (baseline survey);
- 13) September 2016 the second phase of monitoring and evaluation report
- 14) September 2017 the third phase of monitoring and evaluation report
- 15) December 2018 Completion Report

10.3 Monitoring indicators

Socio-economic indicators: per capita income, GDP, employment rate

Agency indicators: staff composition, quality of personnel, rules and regulations, equipment to handle the transaction completion rate

Temporary land occupation case: Compensation funds rate, the recovery of the affected roads

Gender and Social Development Plan, there are relevant indicators

10.4 After evaluation

After the project is completed, if the requirements of the World Bank, it would take on the basis of monitoring and evaluation on the use of project post-evaluation theory and methods after resettlement activities were evaluated. The successful experience of resettlement as well as other aspects of the lessons would be learned for future resettlement. After evaluation would be commissioned external independent monitoring and evaluation agency. After evaluation unit should prepare

the index system. It is necessary to do the analysis of socio-economic survey and prepare the report “Chengde central heating energy-saving project resettlement and social development after evaluation report”.

Annex 1: National Power Chengde Thermal Power Co. (Luanhe Power Plant) Resettlement due diligence report

National Power Chengde Thermal Power Co. (Luanhe Power Plant) was founded in 1958, is the largest thermal power plant capacity Chengde and is the main point of the power supply and the main heat source supply point. It had changed its' name Chengde Heating Group in 2006. The company has been in operation for many years, no resettlement legacy.

Annex 2: Associated project (Northeast suburb peak heat source) Resettlement due diligence report

Chengde Heating Group was built a power source plant (including access roads) in Erdaohezi village, Shizigou town in 2005. The totally land acquisition was 46.96 mu and compensation was 2536729.25 Yuan. The case of land acquisition has been completed in April 2005, the farmers have received compensation and are properly placed, no problems left over and the contracts shown below.

Figure 1 land acquisition compensation contract

北区调峰供热工程
征地补偿合同

甲方：上二道河子村民委员会

乙方：承德热力集团有限责任公司

根据承德市计委承计投(2003)435号文件和承德市发改委承发改投资(2004)1号文件精神，批准热力集团有限责任公司在狮子沟镇上二道河子村东豁梁沟内建设调峰热源厂一座。

经过甲、乙双方协商，达成如下土地转让合同：

一、征用土地范围

1、乙方建设厂区用地为承隆铁路东豁梁沟内主沟，具体界址以市规划局核位红线和双桥区国土资源局勘测为准（详见红线图）。

2、进入厂区道路用地为承围公路武烈河东至豁梁沟口承隆铁路涵洞，具体界址以市规划局核位红线和双桥区国土资源局勘测为准（详见红线图）。

3、在武烈河东沿新修道路铺设供热管道400米，自新桥桥头沿武烈河东岸护坝、窑沟道路铺设自来水管道800米。

二、征用土地面积及补偿价格

1、厂区建设用地经双桥区国土资源局勘测为39.65（叁拾玖点陆伍）亩，单价40000.00元（肆万元）每亩，总价1586000.00元（壹佰伍拾捌万陆仟元）。

2、道路建设用地经双桥区国土资源局勘测为7.31（柒点叁壹）亩，单价67000.00元（陆万柒仟元）每亩，总价489770.00元（肆拾捌万玖仟柒佰柒拾元）。

3、厂区、道路建设用地地表附着物经双桥区国土资源局委托承德市恒义公证处调查，总计补偿金额为164544.70元（壹拾陆万肆仟伍佰肆拾肆元柒角）。详细情况见双桥区国土资源局土地补偿方案，（附后）。

4、在武烈河东铺设供热管道400米，自来水管道800米，施工中临时占用土

地按每亩 2600 元一次性补偿乙方占地费用，并按双方约定价格对井室、支架进行补偿（井室 1500 元、支架 1000 元），作为对管道占地 30 年的使用权租金支付村委会 40000 元。总计补偿金额为 83195.00 元，（捌万叁仟壹佰玖拾伍元）（详细情况另附清单和协议条款）。

5、道路改迁占地及地表附着物补偿 161842.05 元（壹拾陆万壹仟捌佰肆拾肆元零伍分），（详细情况附清单）。

6、路桥征地外河道淹没区面积 615.29 平方米，根据土地现有状况，按双方协商的征地价格 67000 元每亩的 75% 即 50250 元每亩计算，总计补偿甲方 46377.50 元（肆万陆仟叁佰柒拾柒元贰角伍分）（详细情况另附清单）。

7、乙方施工过程中使用甲方原有道路，经双方协商一次性给予甲方道路维修维护费 5000.00 元（伍仟元）。

三、付费时间和方式

1、合同总价款 2536729.25 元（贰佰伍拾叁万陆仟柒佰贰拾玖元贰角伍分），经双方签字生效后 30 日内，乙方须向甲方缴付征用土地补偿费总额的 50% 计 126.80 万元人民币，作为履行合同定金，合同履行完毕，定金抵作转让金。

2、乙方应在土地转让手续办理完毕前，支付全部土地转让金。

四、本合同约定的双方责任：

（一）、甲方权力和义务

- 1、按双桥区国土资源局土地转让公告公布的转让费标准收取乙方补偿费。
- 2、负责乙方施工过程和生产过程有关需要甲方支持和配合的工作，其中包括协调村民的工作。
- 3、于本合同签字生效之前，终止与塑钢窗厂和村民龚志强的土地租用协议。
- 4、负责与狮子沟林场协调处理豁梁沟内地权界址及林木损失补偿关系。

（二）、乙方权力和义务

- 1、乙方应依据双桥区国土资源局土地转让公告按时支付甲方土地转让费。

2、负责合理赔偿狮子沟林场林木损失补偿费（具体事宜与林场协商）。

3、合理补偿塑钢窗厂及民宅拆迁损失。

五、 本合同约定的其它有关事宜。

（一）、甲方提出可能因燃煤和灰渣运输造成道路两旁庄稼受污染问题，如将来现实存在，双方商议解决。

（二）、甲方提出今后甲方的新村建设供热入网配套费一事要求乙方给予照顾问题，具体照顾数额双方根据当时情况商定。

（三）、附属工程施工在同等条件下优先由村工程队施工。

（四）、新建桥梁、道路及进山道路甲方有使用权，新建道路必须合理设置下道口，以便村民行走；工程施工期间，乙方有权使用全部村、组所属现有的道路、桥梁。

（五）、热源厂招工，照顾占地户用工。

六、本合同未尽事宜，可由双方约定后作为合同附件。合同附件与本合同具有同等法律效力，本合同中列举的红线图、补偿清单、另附协议条款作为本合同附件与本合同具有同等法律效力。

七、本合同一式六份，甲乙双方各执叁份。

八、本合同自双方签字之日起正式生效。

甲方：上二道河子村民委员会

乙方：承德热力集团有限责任公司

法定代表人：

法定代表人：

2005年 7月 14日

2005年 7月 14日

Annex 3: Resettlement Information Booklet

A Background

In order to improve the quality of the atmosphere in Chengde City and the efficiency of the centralized heating system, Chengde City Heating Group Ltd. intends World Bank loan. Chengde Central Heating Energy-Saving Reconstruction Project financed in part by the World Bank (WB) is composed of two investment components:

1. Build added heating load network and heating station by advanced heating supply technology

Based on advance technologies such as buildings station, high efficiency heat network autonomous control, climate compensation and so on, achieve the goals of energy saving, improve security and stability of heating system. According demands of heat load development and layout of heat source, accomplish construction of main line and branch line of new heat load matched primary pipeline network, and construction of secondary pipeline network and heat exchange construction. Of which, the length of new-built primary pipeline network is 4,764 m, the style is DN400-80, built 20 normal heating exchange stations and 114 buildings heat exchange stations, increased $246.23 \times 10^4 \text{ m}^2$ heating area.

2. Energy saving reconstruction of old pipeline network and facilities

The reconstruction in Project involve old pipeline and facilities under the Chengde Heating Group's property rights.

(1) Reconstruction targets at primary heating pipeline network that used over 15 years, with serious potential accidents or once leaked. The length of DN500~DN80 primary pipeline network of reconstruction is 2743m.

(2) To replace or retrofit valves in primary heating pipeline network that have been out of repaired for many years. In order guarantee the operation life of pipeline network, improve valves quality, this Project adopts imported welded valves with good quality and installs 64 DN1000~DN250 imported welded valves.

(3) To replace or retrofit secondary heating pipeline that have been operated for long years, potential accidents and high thermal loos. Retrofit 56,972 m, the style is DN300~DN50 secondary heating pipeline network.

(4) To install differential pressure flow balancing valve for secondary pipeline network that without heating balanced reconstruction, involve $150.09 \times 10^4 \text{ m}^2$, install 753 DN80~DN32 differential pressure flow balancing valves.

The project is with a total investment of 219.5663 million Yuan including investment in construction project 206.35 million Yuan. The investment is composed by the loans of World Bank \$20 million, and the rest raised by the Heating Group.

The construction period is three years, starting in 2016, and completed the construction of the entire project in 2018.

B Project Impact

The impacts of the project include permanent land occupation of 9.07 mu and temporary land occupation of 154.06 mu. Both of the land is owned by the local government and located in the traditional area in Chengde City. It is free to occupy and use the land.

The impact of the project was not involved in house demolition.

A total of 19 male temporary boiler workers were affected by the boiler room renovation project and all of them were Han.

C Policies and Entitlements

The basic purpose of the Resettlement Action Plan (RAP) is to ensure the plan and implementation is in line with World Bank operational policies OP4.12. At the same time, for any resettlement activities in this project will comply with a series laws and regulations of Country, Hebei, Chengde, specifically in Table.

Level	Regulations and Policy Documents	Effective Time
State and Central Ministries	<i>Land Administration Law of the People's Republic of China</i>	January 1,1987; Second revised on August 28,2004
	<i>The Implementation of the Land Administration Law of the People's Republic of China</i>	December 27,1998
Hebei Province and Chengde	<i>Hebei Province Land Management Ordinance</i>	Fifth revised on May 27,2005
	<i>Hebei Province Urban State-owned Land Use Right Transfer and Sell Implementation Measures</i>	September 24,2002
The World Bank	Operational policies OP4.12 <i>Involuntary Resettlement</i> and its annexes	January 1,2002
	Operational procedures BP4.12 <i>Involuntary Resettlement</i> and its annexes	January 1,2002

The RAP is prepared according to the PRC Land Administration Law (2004) and the related national, provincial and municipal policies and regulations, as well as in compliance with WB's Safeguard Policy Statement. On the basis of the above-mentioned regulatory and policy requirements and in consultation with local governments, the resettlement principles established for the project are: (i) land acquisition and involuntary resettlement should be avoided or minimized where feasible by developing and comparing a series of design alternatives; (ii) Pay compensation and provide other resettlement entitlements before physical or economic displacement. Compensation and entitlements provided must be adequate to allow those affected to at least maintain their pre-project standard of living, with the prospect of improvement; (iii) land temporarily occupied and the period for disruption are to be kept to a minimum; (iv) all affected persons, titled and non-titled, and renters/contractors are to be taken into consideration; (v) resettlement plan should be prepared and implemented in accordance with state land rehabilitation policy, national economic and social development plans and WB SPS; (vi) all those affected will be adequately informed about eligibility, compensation rates and standards, livelihood and income restoration plans, and project timing; (vii) resettlement plan should be coordinated with regional development, economic development and environmental protection; (viii) practical and feasible measures should be formulated to restore the affected items; (ix) a preferential policy and assistance will be provided to vulnerable groups in such things as employment; and (x) close monitoring and timely actions will be carried out to identify and resolve any problems.

This project defines eligibility for compensation deadline in June 30, 2015. After that, any additional compensation only for the construction of buildings or trees planted is not counted.

D Resettlement Measures

A total of 19 male temporary boiler workers were affected by the boiler room renovation project and all of them were Han. The 4 small boilers were closed down are belong to residential property management. Boiler workers were temporary worked there in heating season and had never signed a contract.

The boiler workers would not get a work after the 4 small boilers were closed. According to the survey in 2013, the temporary workers can earn 1000 to 1500 Yuan every month. Closure and removal of small boilers will be in the non-heating season. The boiler workers would be informed ahead of 6 months and have enough time to find a new job.

These temporary workers in the non-heating season were also worked as builder and porter. They can earn about 2000 Yuan every month to cover their living.

In the field survey, almost all affected boiler workers were supportive of the project. They think the project could improve the local heating conditions, have a positive impact for the people's production and life. The boiler workers have

confidence with their life in future. It is better to help them to get a job in heating season.

Temporary boiler workers lost due to the transformation of the boiler room part of the production source of livelihood. In order to help them recovery better and find a long-term source of income for life, the Heating Group would provide some career guidance and employment information.

Chengde Heating Group has promise that they would provide jobs such as coal mining workers for the boiler workers in heating-season. The payment is 2000 to 2500 Yuan every month. The coal mining works are also temporary works. So it would not have a bad influence of their summery works. Also, the two jobs are same in technology.

After consultation with the affected people and project units, the resettlement plan was as follows. Details see Table.

Table 1 Affected Boiler workers

NO.	Name of boilers	Number of people	Willing for new job	Resettlement plan
1	Water supply company	3	Most them wish to find similar works in heating company during winter season.	Chengde Heating Group has promise that they would provide jobs such as coal transport and slag removal works for these boiler workers in heating-season. The wage is 2000 to 2500 Yuan every month, higher than that in the small boiler houses.
2	Minzu middle school	10		
3	Weather bureau	3		
4	Telecommunications Bureau	3		

After implementation of the project, the Social development specialist from the office of Hebei Province would offer supervision and guidance to the affected people and their Re-employment. External monitoring unit would track these affected the livelihood recovery issues and guarantee their quality of life.

E Rights and Interests of Vulnerable Groups and Women

According to the preliminary socioeconomic survey, no vulnerable groups will be affected.

F Public Participation and Information Disclosure

Extensive information disclosure and public consultations have been undertaken during project preparation. This resettlement plan has incorporated the views, expectations, comments and suggestions of the key stakeholders, especially the affected persons. Further information disclosure and consultations will be undertaken during project implementation. Resettlement Action Plan draft would be printed in the "Chengde Daily" on April 15, 2015 and on the website of Chengde local government. Resettlement information booklet and Resettlement Action Plan will be distributed to the affected persons at the end of April 2015. Resettlement Action Plan will be posted on the Bank website before the end of May 2015. Complaint channels have been established. Agencies will be free to accept affected population grievances and appeals. Unforeseen expenses will be paid reasonable expenses incurred in this project.

G Organization

The Chengde municipal government (YMG) will take full responsibility for project resettlement activities for the approved Resettlement Action Plan. The Project Management Office is responsible for the leadership, organization, and coordination for Resettlement Action Plan implementation, internal monitoring and supervision. Chengde Heating Group is responsible for the implementation of the Resettlement Action Plan.

H Grievance Redress

In the process of the preparation and implementation of resettlement action plan, public participation is encouraged. Hence, huge controversy may not appear. But the

whole process will have some unforeseen problems occur. In order to effectively solve the problem, ensure the implementation of the project construction and resettlement, the project has established transparent and effective channels for complaints and appeals. In the preparation and implementation of resettlement action plan, an appeal mechanism is established to provide the affected person. The sequential steps are as follows.

Step1. If resettlement are dissatisfied with the resettlement measures, they can focus to the Chengde city heating energy saving renovation project office made verbal or written complaint; if it is an oral complaint, will have to be determined by the project office to handle and a written record. The project office should be resolved within 2 weeks.

Step2. If resettlement to the decision stage 1 is still not satisfied, can be in receipt of the decision on the leading group of energy-saving projects in Chengde city heating to appeal; project leading group shall make a decision within 2 weeks.

Step3. If they are still unsatisfied with the decision in Step 2, they should appeal to the administrative authorities, such as Jiangsu Provincial Land Administration Bureau, with jurisdiction for arbitration according to the PRC Administrative Procedure Law.

Step4. If they are still unsatisfied with the arbitration decision, they should prosecute to civil court according to the PRC Law on Civil Procedures.



The affected persons should appeal on any aspect of resettlement activity. The affected persons have been informed the above appeal steps through public meetings and other forms, so that they will be conscious of their legal right of appealing. While the use of the media for publicity, and the parties face resettlement advice and recommendations compiled into messages, by resettlement agencies treatment.



The resettlement agency will organize all the comments and suggestions on resettlement action into information brief, and send it to relevant resettlement agencies for review and action. All the agencies will accept grievance and complain of affected persons at free of charge. The resettlement of complaint calls to Table 7-1.



Table 7-1 Chengde central heating energy-saving projects hotlines

Agency	Contact person	Telephone	comment
Chengde central heating energy-saving project office	Mr. Ren	0314-2157080	
Chengde central heating leading group of energy-saving projects	Mr. Zhang	0314-2050955	
Hebei Clean Energy Project Management Office	Mr. Wu	0311-66651598	

Annex 4: Part of the proposed new station construction point of conventional heat exchangers status map

Location and Name	Situation Photos
Sainalanwan Building 2 Station	
Jinniushan zhuang Station	

Location and Name	Situation Photos
Toudongg oujiayuan	
Toudongg oujiayuan	

Location and Name	Situation Photos
Hongfuyuan Building 1 Station	
Hongfuyuan Building 2 Station	

Location and Name	Situation Photos
Modern City Building 3 Station	
Lijinghuating (Second Stage) Station	

Location and Name	Situation Photos
Ethnic Middle School Station	
Xinguangli an Station	

Location and Name	Situation Photos
Weather Bureau Station	
Water Plant Family Dormitory Buildings Station	

Annex 5: Part of the pipe network transformation affected by the current situation of road conditions

Name of Road	Photos
Under the real road (car company - Spring Valley)	
(Chen Jia tou Dao Gou tunnel - Mizoguchi) + cave ditch Lu (Chen Mizoguchi - Cui Bridge Road (water) + tou Dao Gou Mizoguchi - the channel tunnel)	

<p>West Street Road (Spring Valley - fire temples) 03</p>	
<p>Tsui Road (jade bridge - South Road) 01</p>	
<p>Station Road (Chengde bridge - Railway Primary School) 02</p>	

<p>Puning Temple Road (the Lion Ditch Bridge, Temple)</p>	
<p>Tong Shan Dong Lu (cave Ditch Road - Shaanxi camp) 02</p>	
<p>Wen Jia Gou Lu (nanying zi Street - the old landfill)</p>	

Nanyingz
i Street
(fire
temple,
jade
bridge)
02



Oil Road
(cattle
circle
Mizoguc
hi -
Road)



Yingbin
Avenue
(Chengd
e double
cave) 02



Airport Road
(Railway
Primary
School -
red Luan
Mizoguc
hi)



The big
tiger
ditch
(Tourism
bridge -
Municipa
l Chu Jia
Shu Lou)
02



The East
Ring
Road
(Anyuan
Temple
Bridge
South
Bridge -)



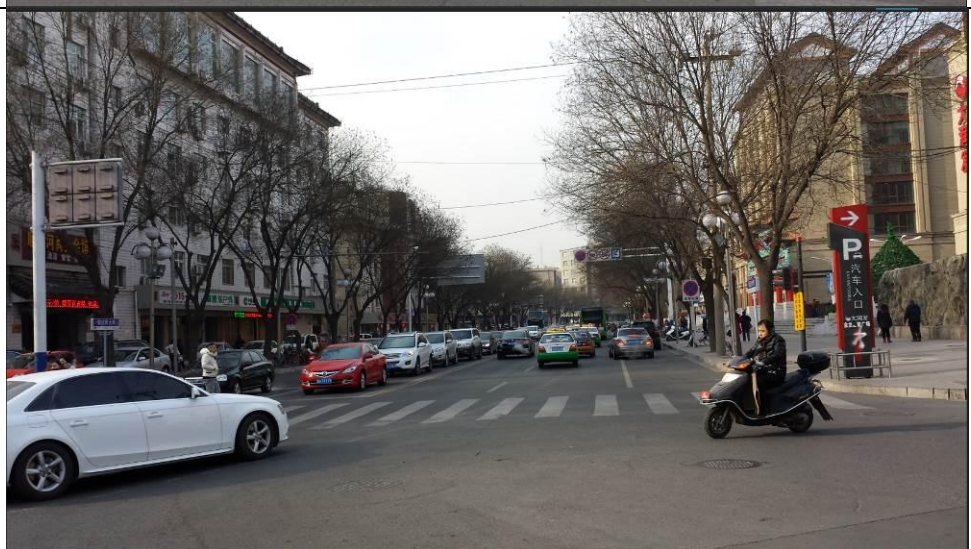
The little tiger Valley (East Coal - detention center)



Xinhua Road (jade bridge - Chengde bridge)



The bamboo grove Temple Street (East Street, WuLie Road)



WuLie Road
(Ying dams -
Chengde
bridge)



Hills Road
(Ying dams -
the Lion
Ditch Bridge)



On two
River Road
(temple,
two River
Road)



<p>The Lion Ditch Road (North) (Anyuan temple bridge and tunnel)</p>	
<p>Shuiqua n Ditch Road (West Street - wind tunnel)</p>	
<p>Bifeng Gate Road (small hazelnut -ditch bridge)</p>	

The Dabeigou Road (West Street, the city hospital building)






A small Creek Road (the main entrance doors - Bi Feng Road)



Li Front Gate Street (fire temples - Ying dams) 02



<p>Water Ditch Road (nanying zi street, Zhulin Temple)</p>	
<p>Tong Shan North Road (Shaanxi Road (cAMP) - nanyingzi Street four channel)</p>	
<p>Five alley (nanying zi Street - Dongxin g Road)</p>	

Da Tong
Gou Lu
(nanying
zi Street
- Tong
mountain
road)



Two alley
(nanying
zi Street
Bridge -
Wu Yun)
02



Zhongxin
g Road
(two lane
road -
the main
entrance
)



The new road (Wu Yun Bridge - Xinhua Road) 03



Yuhua Road (nanying zi Street - the new road)



The new road (Wu Yun Bridge - Xinhua Road) 01



<p>Strong military road (Chengde bridge, South Bridge) 02</p>	
<p>Cattle circle road ditch (Stadium Road - pharmaceutical factory)</p>	
<p>Strong military road (Chengde bridge, South Bridge) 01</p>	

<p>South Road (Tsui Road south strong road)</p>	
<p>Deer gate Ditch Road (West Street - the municipa l office building) 01</p>	
<p>Gaomiao (Guangr en Road Tunnel - car company)</p>	

Annex 6: Free use of district heating set aside land for the new station's heat proof material

供 热 入 网 合 同

编号 201308

甲方：承德天和房地产开发有限公司

乙方：承德热力集团有限责任公司

承德天和房地产开发有限公司（以下称甲方）开发建设的天和家园，申请接入承德热力集团有限责任公司（以下称乙方）集中供热管网，为明确甲乙双方的权利和义务，根据《中华人民共和国合同法》等有关法律法规和规章，经双方共同协商，订立本合同。

第一条 入网建筑物名称、地址及建筑面积

1 名称：天和家园

2 地址：石洞子沟西口

3 预计入网建筑面积：12700m²（阁楼 车库 地下室等，实际入网面积以双方最终核实确认的建筑面积为准）

第二条 入网工程建设费用及付款方式

1 入网工程建设费用：根据市物价局文件（承价字[2004]24号）确定的入网工程建设价格及甲方预计入网建筑面积，甲方应按 85 元/m² 向乙方交纳集中供热入网工程建设费¥1,079,500.00 元（费用暂按预计入网建筑面积计算，待工程竣工后，以双方核实确认的实际入网建筑面积为准，多退少补）

2 付款方式：甲方于合同签订后三日内一次性付清入网工程建设费

第三条 产权界定

甲乙双方产权分界点设在单元热力入口井室内靠近入网建筑物一侧的阀门法兰处，分界点至用户室内的供用热设施归甲方所有，由甲方负责保养维护和更新改造；分界点以外的供用热设施归乙方所有，由乙方负责保养维护和更新改造。

第四条 甲方须提交的相关资料

1 供热入网合同签订前，须提交入网申请表、入网建筑规划许可证、总平面图（含电子版）、经建设局有关部门审核确认后的单体建筑物土建、立剖面图、采暖平面图、系统图及建筑节能设计审查备案登记表等相关技术资料，并确保资料准确无误。

2 甲方采暖系统与乙方供暖系统对接并网前,须提交室内采暖系统验收申请 用热系统自验报告单 入网建筑项目监理公司出具的用热系统水压试验报告单及相关部门依据《建筑节能工程施工质量验收规范》(GB50411-2007)出具的入网建筑物符合国家三步节能标准的验收报告单

3 供热调试前1个月,提交房产测绘中心出具的并加盖甲方公章的《商品房 新建房屋面积计(预)算成果书》及《分层(幢)房屋面积表》最终版,同时提交电子版

第五条 建筑节能和供热计量

1 根据国家节能减排和供热计量相关政策要求,甲方入网建筑物的设计 施工,必须符合《建筑节能工程施工质量验收规范》(GB50411-2007),入网建筑物房间内的热指标应符合国家三步节能标准

2 甲方入网建筑物采暖系统的设计 施工,必须符合承市建技[2004]20号 承市建技[2006]12号文件及《承德热力集团有限责任公司入网技术要求》(2012版)等规范要求

3 甲方供热系统设计须经乙方进行技术审核,并出具《入网工程图纸审核报告》甲方管道井尺寸 热表安装位置 热计量配套设施等应严格按照规定进行设计 安装 施工对不符合技术规范要求的,甲方须按乙方提出的整改意见予以更正,并按更正方案施工

4 甲方采暖系统安装使用的热计量装置 温控阀 远程通讯 锁闭阀 除污器等装置,是供热运行管理过程中专业性很强的重要器具,须购进乙方指定的品牌产品,以确保长期良好的售后服务及统一规范管理 甲方须在供热入网合同签订的同时,签订热计量装置及远传通讯系统购销合同,并于乙方进场开展供热入网施工前向乙方提交购销合同

5 乙方有权对甲方所属的供热用热设施进行供热调控,对供热管道锁闭阀 热计量表 调节阀拥有管理权 乙方有权向甲方提出更新改造 校验方案,若甲方无正当理由拒绝实施方案,乙方有权停止供热

第六条 供热入网施工

1 甲方负责入网建筑室内段的采暖系统及将管网安装至热力入口井室内,并承担全部费用

2 甲方负责供热管网施工的路由破除路面 障碍物清除等协调工作

3 甲方应于2013年7月30日前为乙方提供室外供热管网的施工条件

4 甲方负责标识出楼内采暖系统出户供热管路供回水走向,并确保准确无误

5 乙方负责入网建筑外热力入口井室土建 工艺安装施工及井室以外二次管网换热站 一次管网等供热设施的施工

6 乙方供热入网施工周期为当年4月1日至10月30日,最短绝对工期不少于三个月 如因相关管理部门审批或甲方协调不畅等原因导致工期延误,乙方将依次顺延施工工期和供热调试时间 因甲方原因造成需10月30日之后继续施工的,在乙方同意的前提下,甲方须另行向乙方支付由于冬季施工 抢工增加的相关费用(双方另行签订施工协议),但冬季施工最晚不超过12月15日

7 在敷设管网过程中如需开山 凿岩等特殊施工由甲方负责出资解决开山 凿岩等相关问题

第七条 换热站建设及技术要求

1 根据甲方入网建筑规模 用热需求及乙方供热入网技术规范要求,甲方负责为乙方建设换热站用房一座,建筑面积约84m²,乙方按建筑面积1000元/m²与甲方结算,换热站产权归乙方所有 换热站用地归甲方所有,由乙方长期无偿使用

2 甲方应按《承德热力集团有限责任公司入网技术要求》(2012版)及国家有关规范标准进行换热站用房土建设计施工,换热站设计施工图须经乙方审核后方可施工,房心回填必须满足乙方供热设备运行技术要求 竣工后,由甲方提供换热站建设全套图纸及建管部门出具的验收报告,并开具发票 经乙方验收合格后,由乙方向甲方支付换热站用房建设费用

3 甲方按《承德热力集团有限责任公司入网技术要求》(2012版)保证乙方换热站正常运行所需的水 电 排水 防盗门窗 照明用电线路

等配套设施齐全，道路畅通，并于 2013 年 7 月 30 日前土建工程全面竣工，站内工艺安装进场前具备如下条件：

(1) 甲方将自来水接至换热站墙内 0.5 米处的指定位置，负责向自来水公司报装立户，并协助乙方办理过户手续；甲方将污水管道接至换热站墙内 0.5 米处与城市污水主管网接通，并能正常使用，所发生的费用由甲方承担

(2) 甲方在高压配电室内提供给乙方换热站供电用独立高压开关柜，并在高压开关柜下口引出高压电缆，接入换热站内专用变压器高压端（用电类别为非普工业 10kv），所发生的费用由甲方承担

(3) 甲方在办理用电手续的同时，协助乙方办理换热站送电手续

4 甲方在该换热站用房设计建设过程中必须对供热生产运行中可能产生的噪音震动等扰民问题给予充分考虑，进行技术处理，最大程度的消除震动降低噪音传播，并委托环保部门出据噪音检测报告今后由于换热站产生噪音震动遮光等问题引起上访投诉要求赔偿等事件或法律纠纷，甲方承担全部责任

第八条 供热并网调试

1 乙方于甲方入网建筑用热当年的 11 月 15 日前进行供热调试

2 甲方应于供热调试前 1 个月，向乙方提出书面调试申请，并与乙方签订《供用热协议书》，提交监理单位出具的建筑采暖系统水压实验报告，向乙方移交管道井全套门锁钥匙及锁闭阀开启工具、锁帽。

3 乙方根据《承德热力集团有限责任公司入网技术要求》（2012 年版）及图纸审核报告等规范要求，对甲方入网建筑采暖系统及甲方负责建设的供热设施等并网调试条件进行核查，如有不符合条件的甲方须进行完善整改，合格后方可并网调试

4 并网调试前，甲方需对所属入网建筑产权内采暖系统按国家有关规范进行冲洗，且须经乙方核查进行合格确认甲方也可出资委托乙方专业冲洗，需另行签订协议

5 对已售出的房屋，甲方在交钥匙前须组织热用户与供热公司

签订《供用热合同》并办理供热相关手续 如房屋售出未履行上述手续或房屋未售出,其取暖费由甲方承担

6 为确保供用热设施长期安全稳定运行以及用户室内供热温度达标,甲方所入网建筑首年并网供热面积必须达到 100%

第九条 违约责任

1 因甲方设计变更,或提供图纸 面积测绘 热力入口供回水管道方向等技术资料有误,给乙方造成损失的,由甲方承担

2 如甲方延期支付入网工程建设费,乙方将按延期支付金额,每日加收万分之五的滞纳金,并将工期顺延或延期向甲方供热

3 乙方应确保在双方约定的工期内完成供热入网工程,并按时进行供热调试 如因乙方责任不能按时供热,给甲方造成损失的,由乙方承担责任

4 如因甲方提供进场施工时间延误,或因相关职能部门(单位)审批拖延 路径协调不畅等致使工期延误,乙方不承担由此造成的任何责任

5 换热站土建工程涉及乙方供热系统总体安排,如甲方未按期完成换热站建设,未按时将电源自来水 污水接入站内,由甲方承担由此造成的一切损失,并承担乙方因使用临时电源而增加的电费支出

6 如因甲方入网建筑未达到国家节能标准 采暖系统设计安装存在缺陷,或施工质量等原因,造成供热温室不达标的,由甲方负责整改,并由甲方按不达标期间乙方所减收取暖费的三倍承担损失

7 如因甲方未将锁闭阀开启工具全部移交给乙方,或使开启工具外流,给乙方造成损失的,由甲方承担

8 甲乙双方须严格按本合同约定履行各项条款,如有违约由违约方承担全部违约责任

第十条 争议解决及合同变更

1 甲方应在合同约定的时间 地点 数量 范围内用热;如有违反,乙方有权终止供热 若甲方扩建新增用热负荷,须另行向乙方申请办理供热入网手续

2 本合同所附的《承德热力集团有限责任公司入网技术要求》(2012年版)及《网工程图纸审核报告》与本合同具有同等法律效力

3 本合同在履行过程中发生争议,由双方当事人协商解决,协商不成的按下列第(2)种方式解决

(1) 提交承德仲裁委员会解决

(2) 依法向人民法院起诉

4 本合同一式六份,甲乙双方各执三份,自签字盖章之日起生效

附:《承德热力集团有限责任公司入网技术要求》(2012版)

甲方(盖章):承德天和房地产开发有限公司

法定代表人:
代理人:

吴连印

乙方(盖章):承德热力集团有限责任公司

法定代表人:
代理人:

刘建群

2013年8月7日