Qiaoxi District Central Heating

SUMMARY

The Qiaoxi District Central Heating project was procured as the second stage of a two-stage scheme to improve the heating supply in the Qiaoxi District of the Zhangjiakou municipality, Hebei Province of China. The first stage covered the majority of the construction required for the improvements, which included installing new boilers as well as decommissioning old boilers. This case study is focused on the second stage of this scheme, which comprises the PPP contract (described as a Transfer-Operate-Transfer contract) for the operation, maintenance and financing of the boilers, the associated hot water pipe network and the heat exchange stations, as well as the installation of two additional heating boilers during the contract period. The Finance Bureau of Qiaoxi District is the Procuring Authority, and Zhangjiakou Yuantong Huashen Heat Company Limited is the Project Company. The operations phase of the project started successfully at the end of October 2015.
SUMMARY LESSONS LEARNED

- It is important to focus on the needs and concerns of project employees, especially when staff are transferred to the Project Company.
- Opposition from local communities due to unexpected costs should be resolved appropriately, with such measures to be fully considered at the project planning stage.
- Detailed arrangements and adequate preparation in advance of the transition between financial close and operations is vital to ensure utility services are delivered as scheduled by the PPP contract.
- By government having an equity interest in the Project Company, it can typically appoint both a member of the board of directors and the head of the supervisory committee of the Project Company, giving it a greater level of monitoring and influence over the project.
- The experience of the private sector can help government staff to gain valuable skills and training in PPP contract management.

PROJECT INCEPTION

Goals and Objectives of the Partnership

Zhangjiakou has favourable conditions for central heating, as the municipality is relatively concentrated and much of the infrastructure is already in place. However, the management and operations of the services had historically been poor. A lack of maintenance and monitoring of the heating boilers led to increasing levels of sulphur dioxide pollution, and the operations of the service had become increasingly inefficient. Not only had the installation of boilers been poorly planned in the past, but local users had also independently installed their own small boilers. Zhangjiakou Hengfeng Heating Company (ZHH), the state-owned enterprise which had been operating the service for five years, had also accumulated significant debt, mainly due to uncollected pipeline installation fees and user charges.

In 2009, the regional government initiated a central heating improvement initiative, split into two stages. The first stage covered the majority of the construction works, which included the installation of eight new 70MW heating boilers, the supporting hot water pipe network, and the construction or transformation of 79 heat exchange stations. 290 small boilers in the district were also shut down. The second stage covered the operations, maintenance and financing of the outputs of the first stage, and is being delivered under the PPP contract, which is the focus of this case study.

In 2014, the Finance Bureau of Qiaoxi District initiated a competitive bidding process for the project. In 2015, Beijing Yuantong Heat Company Limited (BYHC), a private company specialising in heat supply and management, was selected as the preferred bidder and subsequently set up the Project Company. ZHH, acting as the representative of the government, signed the PPP contract with the Project Company. The arrangements under the PPP contract include the transfer of assets from ZHH to the Project Company, which is then responsible for operations and maintenance for a period of 25 years and, after that, the assets are transferred back with no cost to the government.

The ownership of the Project Company is 90% by BYHC and 10% by the Qiaoxi District government. Under the PPP contract, the Project Company will provide improved heat supply services with an extended coverage to new areas, undertake management and maintenance of the central heating facilities, and install two additional heating boilers during the contract period.

The Economic and Political Environment during Inception

In 2014 and 2015, the Ministry of Finance of China and the National Development and Reform Commission of China issued a series of guidelines to promote better cooperation between government and commercial entities. These emphasised that the involvement of commercial entities brings in expertise in managing risks throughout the project lifecycle, with additional improvements in technology and efficiency. There was a perception that there was a lack of competitive market pressure in infrastructure delivered by the government, as well as a lack of expertise within government organisations.

The use of the PPP model was chosen to strengthen management practices and improve project efficiency and its consequent profitability. Raising private finance from commercial entities would also help the government to free up capital for other utility projects. The involvement of commercial entities was intended to promote technology transfer and help improve the skills of government employees. This would also help the government improve management of future infrastructure projects.

MANAGEMENT OF THE PPP CONTRACT

Transition from financial close to operations

The main challenge the Project Company faced in the transition from financial close to operations was to ensure that the heating services continued uninterrupted. The risks involved were related to sudden weather changes, which had the potential to suddenly increase demand on heating services. The Project Company prepared itself for this by arranging for the storage of additional fuel, and by a number of BYHC’s experienced maintenance employees from other municipalities providing assistance in commissioning equipment and pipelines in advance, and this was all completed two weeks ahead of schedule.
The Procuring Authority saw the benefit of developing a detailed plan in advance to assist in the asset transfer to the Project Company at financial close. During the tender process for the project, bidders including BYHC and its competitors had prepared to employ the relevant technical, financial, and legal expertise to carry out its due diligence and investigate the condition of the existing assets. This allowed it to undertake important work before financial close and helped ensure that there was no interruption in the services during the transition.

Operations Phase
The first challenge that the project faced was the transition of staff who had previously been employed by ZHH prior to the transfer of responsibilities to the Project Company. The Project Company addressed the concerns of these staff in a number of ways, including by carrying out training and introducing a performance-based incentive scheme. This is described in further detail under the heading 'Key Events’ below.

The beginning of the operations phase was successful, with the Project Company able to provide central heating for a longer period of time than what was available in preceding years, and the number of user complaints regarding heat supply dropping by 80%. The indoor average temperature in the district increased from 19.3°C to 21.4 °C, and the percentage of users who paid their bills increased from 80% to 93%. The area covered by the central heating service has increased by 20% due to the construction of the additional boilers, and the Project Company is expected to meet its 2020 coverage goal. After one heating operation period in 2015-2016, coal, electricity and water consumption were 80%, 50% and 70% respectively of the equivalent consumption figures over the same period in 2014-2015. It is estimated that 20% of the Project Company’s revenue increase is due to cost savings as a result of reduced energy consumption.

Performance Monitoring and KPIs
The PPP contract states that the Project Company is fully responsible for maintaining a high standard of heat supply services, and that it must take any necessary actions if an emergency were to occur. The primary performance indicators are that the temperature of at least 98% of the relevant households should meet the relevant heating standard, and that user satisfaction should not drop below 98%. There are termination rights in certain circumstances for the Procuring Authority should the Project Company not meet these standards.

The government began planning for the first interim review in September 2017 to cover the first two years of operations. With well-designed assessment criteria, the interim review will be conducted by a third party and focus on the management of the Project Company.

Payment Mechanisms
The income of the Project Company comes from user tariffs for the heating supply, central heating pipeline connection fees, and other operational revenues. The level of tariffs as well as its adjustment is set by the Zhangjiakou Municipal Government, based on national, provincial and local regulations and policy.

Community and Stakeholder Engagement
Engaging with local communities has been an ongoing challenge for the project, particularly because users were required to remove their old and failing boilers. The users were unhappy about being required to bear all of the pipeline installation fees after this removal and put up significant resistance. Eventually this was resolved with the Project Company, the government and the users agreeing to share the expenses.

ROLE OF GOVERNMENT
In 2014, the Ministry of Finance of China listed the project as one of the first 30 projects of the national demonstration programme of PPP projects, which gained the attention of more competent heating companies than ever before, enhanced its bankability and drove more competition in the bidding process. The application for the project to be listed in the national demonstration programme had been initiated by the Financial Bureau of Qiaoxi District and then reviewed and submitted by the Financial Bureau of Zhangjiakou Municipality, and subsequently by the Financial Department of Hebei Province to the Ministry of Finance of China.

As the local government does not have the relevant technical and managerial expertise in improving district heating project’s efficiency and cost-savings, it relies on the ‘know-how’ and technical and managerial credentials of specialised market players in the respective field. The PPP contract management has been carried out smoothly at the time of writing the case study.

RELATIONSHIP BETWEEN THE PROCURING AUTHORITY AND PROJECT COMPANY
Team Set-Up and Staffing
The Procuring Authority exercises influence and monitoring by the virtue of its equity investment in the Project Company, and consequently its presence in the governance structure of the Project Company and its right to veto decisions on health and safety and environmental issues, as described below.

The Project Company governance structure consists of a shareholders’ committee, a board of directors and a supervisory committee. The State-owned Assets Operation and Management Centre of Qiaoxi District of Zhangjiakou
Municipality (authorised by the Qiaoxi District government) and BYHC form the shareholders’ committee, the highest authority of the Project Company that exercises the rights and responsibilities in accordance with the Company Law of China. The committee chooses the members of both the board of directors and the supervisory committee. Remuneration matters of members of both the board of directors and the supervisory committee also rest with the shareholders’ committee.

There are five members of the board of directors, at least one of which must come from the government of the Qiaoxi District. Each member of the board of directors, including the Chairman, has one vote each when decisions need to be made. There are certain items, such as health, safety and environmental protection, where the government member has veto power. The supervisory committee consists of three members, one of whom must come from the government of the Qiaoxi District and act as the head of the supervisory committee. By the government of the Qiaoxi District having representatives on each committee and board, the Procuring Authority is able to monitor the performance of the Project Company, as well as play a role in making key decisions in relation to the project.

The training for the Procuring Authority staff is primarily ‘on the job’ training, with employees learning from the technical expertise of BYHC. This was emphasised as operations began, as it was an effective way to improve relations between the Procuring Authority and the management of BYHC. There is no structured training programme in place for Procuring Authority staff.

**Communications and Information Management**

The PPP contract states that the Project Company is obliged to provide information on its website, including a user safety manual, heating services and account information, as well as a complaint procedure. The Procuring Authority and Project Company staff are co-located and there are regular project meetings.

**KEY EVENTS**

**Transition to operations phase**

The most significant challenge that the project faced was the transition of staff who had previously been employed by ZHH prior to the transfer of responsibilities to the Project Company. The Project Company was required under the PPP contract to continue to employ all staff, and to ensure the employment conditions were compliant with national standards. Although this had been agreed, the ZHH staff were nonetheless anxious about the change. These concerns were related to differences in management style which they might not be able to adapt to, their long-term career development, as well as the pay and benefits they would receive.

The Project Company managed these concerns in a variety of ways. It focused on communication at management-level, as well as conducting training to enhance the employees’ relevant technical skills. In addition, the Project Company introduced an incentive scheme to strive for continuous improvement in service performance and enhance employee morale. This scheme consisted of, for example, measuring the water and energy consumption of each heat station and calculating the cost savings achieved by the reductions in its water and energy consumption over a period of time. Those cost savings were then shared with the staff at the relevant station. There were also bonuses paid to the staff of the station which achieved the greatest savings. In addition, it was agreed in the PPP contract that Project Company employees’ salaries should be higher than the average level of the whole central heating sector of the Zhangjiakou Municipality, and that employees protected by specific employment regulations, e.g. veterans, should be offered a long-term employment contract if they do not violate the rules of the Project Company.

**LESSONS LEARNED**

**It is important to focus on the needs and concerns of project employees, especially when staff are transferred to the Project Company.**

The PPP contract required that the Project Company retain the employees of the existing operators, who were understandably anxious about the change. The Project Company addressed staff concerns by introducing ‘on the job’ training, as well as an incentive-based performance regime. By focusing on the concerns of the staff, the Project Company was able to motivate them to continue providing a high-quality service.

**Opposition from local communities due to unexpected costs should be resolved appropriately, with such measures to be fully considered at the project planning stage.**

Small boilers, which had been installed by users over the preceding years, needed to be removed as they were inefficient and causing pollution. Initially, such users were expected to bear all the new pipeline installation fees, however after resistance, the government agreed to share the costs. Any unexpected costs are unlikely to be welcomed by the local community, and this must be taken into account when project planning takes place.
Detailed arrangements and adequate preparation in advance of the transition between financial close and operations is vital to ensure utility services are delivered as scheduled by the PPP contract.

The Project Company was required under the PPP contract to provide heating services no later than the regular date of commencement of heating in the district. Between this date and financial close being reached there was only about one month for the Project Company to prepare for the transition to operations, one third of the usual time required. By arranging for the storage of additional fuel, and by a number of BYHC’s experienced maintenance employees from other municipalities providing assistance in advance, the Project Company was able to carry out the transition without interruption to the services.

By government having an equity interest in the Project Company, it can typically appoint both a member of the board of directors and the head of the supervisory committee of the Project Company, giving it a greater level of monitoring and influence over the project.

There are five members of the board of directors, at least one of which must come from the government of the Qiaoxi District. Each member of the board of directors, including the Chairman, has one vote each when decisions need to be made. There are certain items, such as health, safety and environmental protection, over which the government member has veto power. The supervisory committee consists of three members, one of whom must come from the government of the Qiaoxi District and act as the head of the supervisory committee. With the government of the Qiaoxi District having representatives on each committee and board, it is able to monitor the performance of the Project Company, as well as play a role in making key decisions in relation to the project.

The experience of the private sector can help government staff gain valuable skills and training in PPP contract management.

The training for the Procuring Authority staff is primarily ‘on the job’ training, with employees learning from the technical staff of BYHC. This was emphasised as operations began, as it was an effective way to improve relations between the Procuring Authority and the management of BYHC. There is no structured training programme in place for Procuring Authority staff.