

KYRGYZ REPUBLIC

Heat Supply Improvement Project (HSIP), financed by the World Bank (P157079)

Terms of References (TORs) Consultant for Billing System Automation

1. Project objective and activities

The Government of the Kyrgyz Republic has received a grant for the preparation of the Heat Supply Improvement Project (HSIP), expected to consist of USD 46 million IDA financing and to be approved in FY18. The objective of the HSIP is to improve the efficiency and quality of heating in selected project areas. To this end, the project includes 3 components and their sub-components. Open Joint Stock Company Bishkekteploset (BTS) is responsible for the preparation and implementation of Component 1 of the project, as further described below, for which the services of an experienced Consultant on Utility Billing System Automation are required. Components 2 and 3 will be implemented by entities other than BTS and are not referenced in this ToR.

Component 1: Improving supply reliability and efficiency of the District Heating (DH) system (estimated USD 31 million IDA financing). This component would support investment and technical assistance to improve the reliability and efficiency of the DH system operated by JSC Bishkekteploset (BTS), and includes 2 subcomponents:

Subcomponent 1.1: Investment program for DH rehabilitation. This Subcomponent will support the preparation and implementation of a priority investment program for the DH system operated by BTS, including related goods, works and consulting services. *The two priority investment packages supported under Subcomponent 1.1 include:*

- ***Package 1: Modernization of individual heat substations (IHS) at building-level.*** This package will support: (i) installation of new IHS in about 231 residential multi-apartment buildings; (ii) reparation and upgrade of existing IHS in about 1,700 residential multi-apartment buildings; (iii) **installation of about 4,000 building-level heat and hot water meters with remote reading functions ('smart meters');** and (iv) installation of a preventive maintenance information system for substations. Around 80% of BTS' residential customers (89,496 households) would benefit from the planned substation upgrade in 1,931 buildings and **switch to consumption-based billing for heat and hot water at building level (to date, heat is metered in only 179 buildings, all other buildings are billed based on norms).**
- ***Package 2: Replacement and reconstruction of the 'Vostok' transmission pipeline.*** This package will finance the replacement, rerouting and reconstruction of about 1.87 km (trench length) of the most dilapidated sections of one of the five main transmission pipelines ('Vostok' transmission pipeline) with pre-insulated underground and above-ground pipes. The line transmits heat to 450 apartment buildings (more than 70,000 households) and around 29 community facilities (school, kindergartens, hospitals) located in the South of the city.

Subcomponent 1.2: Operational capacity strengthening and Project implementation support for BTS (estimated USD 1 million IDA financing). This Subcomponent will finance activities aimed at strengthening BTS' technical, operational, fiduciary, customer orientation and corporate resource management functions, and ensure effective Project implementation. Specific activities to be supported include:

- ***Upgrading of BTS' billing system:*** BTS is currently improving its customer management database and started automating the billing system. This is an important step in modernizing the company's operations by eliminating manual entry points and increasing the effectiveness of data processing in accounting for revenues. Upgrading and automating the customer management and billing system is also expected to improve transparency and accuracy of bills for customers. Building on this ongoing effort, the Project will support the completion of the automated billing system (e.g. updating the existing accounting software and integrating it with the billing system) in order to ensure proper

revenue accounting, facilitate the transition to consumption-based billing and help strengthen customer orientation of the company;

- *Supporting improved management of corporate resources:* While the company's existing information management system covers the main corporate functions (accounting, finance, human resources, procurement, warehouses and logistics, IT, corporate planning), several of the related processes and activities are carried out manually (e.g. data are recorded on paper and manually transferred). In order to strengthen the transparency, accountability and efficiency of corporate processes and activities, the Project will support an assessment of BTS' existing system (e.g. processes and activities executed, existing functionalities of supporting information management tools, and effective use of these tools), a 'gap analysis' to compare the current situation with good practices in management of corporate resources, and the development of an action plan to improve current practices (e.g. reengineering of processes and activities, eventual adjustments in the organizational structure, upgrades of existing information systems and/or implementation of new Enterprise Resource Planning system). It may also provide support for an update of BTS' long-term Corporate Strategy.
- Other activities aimed at strengthening BTS' technical, operational, fiduciary, customer orientation and corporate resource management functions, including: (i) conducting information and awareness campaigns to households to strengthen customer support and understanding of planned investments in a transparent way; (ii) supporting the optimization of BTS' operating regime through improvements of temperature and variable flow parameters applied in BTS' network; (iii) enhancing BTS' technical and operational capacity – including fiduciary, technical, operational and customer orientation functions – through targeted training and technical assistance activities; and (iv) providing Project implementation support

To support the planned upgrade of BTS' billing system as described above, BTS plans to hire a consultant (individual) specialized in utility information management systems with relevant international experience in particular for billing system upgrades as referenced above.

2. Objective of the assignment:

The objective of the assignment is to provide qualified services to BTS in (a) assessing the functions of the current billing system, including its integration with other relevant company systems (e.g. customer management system and accounting system), its ability to adequately support the smart metering functions and the transition to consumption-based billing for a large part of BTS' customer base and the capacity of the BTS staff, relevant to the operation of the billing system, (b) identifying, evaluating and comparing different options to identify the best options to support efficient and sustainable execution of the revenue cycle (metering, billing, collection) and other commercial functions, and (c) developing the detailed Terms of References/ technical specifications for automation of the billing system based on identified and agreed options with BTS and the World Bank.

3. Scope of work and concrete tasks

The consultant should be an individual. His/her duties will be the following:

Task 1: Assessment of the existing billing system. As part of this task, the Consultant is expected to, inter alia, analyze the following aspects:

- Examine the existing functions of the billing system of BTS, its integration with other relevant company systems and the level of automation (or redundant manual entry points, respectively);
- Assess the current capacity and related processes of the personnel involved in the relevant structural units of the BTS - Sales Center (Customer Care Unit, Balance and Analysis Department, etc.) and the Information Technology Department;
- Identify the key functions and modalities of the billing system (automated system for monitoring the consumption of thermal energy and customers' billing payment status), which includes (but is not limited to):
 - formation of a database (see Annex 1 for details);
 - remote metering at the building-level;
 - allocation and calculation of consumption of heat energy and hot water to customers (as per BTS' customer categories), including (but not limited to) apartments and commercial enterprises;

- conducting recalculations in accordance with the relevant norms of the legislation (in the event of the failure of intra-apartment meters, complaints about air temperature and hot water inside the building, etc.); the Consultant should note that the cost-allocation methodology for heat and hot water tariffs is planned to be updated by the sector regulator by end of 2017;
- balance of thermal energy at the building level, pumping station and CHPP-1
- printing of payment documents for apartments and owners of non-residential premises;
- receipt and recording of payments, sending payments to the account of the counterparty at the time of receipt of payment;
- ensuring efficient and sustainable execution of the revenue cycle (metering, billing, collection) and other commercial functions
- Prepare an interim report summarizing the key findings of Task 1 and highlighting the key gaps of the current billing system and processes with a 'vision' to reduce manual entry points, ensure proper revenue accounting, facilitate the transition to consumption-based billing and help strengthen customer orientation of the company. The Consultant is expected to present the draft report to BTS staff and management in-country in the form of a Roundtable to gather feedback on the findings.

Task 2: Evaluation of options to improve BTS' billing system. As part of this task, the Consultant is expected to:

- Identify, evaluate and compare different IT options to upgrade/ improve BTS billing system in order to close the key gaps identified under Task 1. This will also include a comparison between options that can be developed in-house, adding of modules and/or upgrading of the full system; the ultimate objective is to identify the best options to support efficient and sustainable execution of the revenue cycle (metering, billing, collection) and other commercial functions;
- Prepare an interim report summarizing the key recommendation of Task 2, and discuss with BTS staff and management the recommended options to be pursued by BTS and supported under the HSIP.

Task 3: Develop the ToR/ technical specifications for the selected upgrade of the billing system

- Develop TOR for introduction of a billing system (planned for implementation under a separate assignment), with technical specifications for the software and technical component (hardware), as well as training needs and description of the personnel who will have to operate the system in the future being on the focus in the approval of TOR;
- Draft TOR of the billing system should cover all technical aspects of working with customers, which is currently being carried out: household customers, industrial customers, a unified water metering base, a loss balance, interaction with Automated Power Supply Monitoring and Control System (ASKUE). In addition, the proposed billing system should build on current development projects (integration), implemented in the BTS at present time.
- All components of the proposed system should be complementary and based on modern software tools to provide extensibility and technical support in the future.
- Prepare documents on the system design and technical descriptions.

4. Duration of the assignment and schedule of work

The approximate input for the assignment implementation is about 40 days (intermittent, part time input and including in-country presence). The approximate duration of the assignment is December 2017 through April 2018. Duration of the assignment may be extended subject to extension of the grant implementation period. The selected consultant is expected to spend sufficient time in-country working with BTS, in particular for Task 1.

Approximate timeframe for the specific deliverables (please note that the timeline below specifies timing of draft outputs, which will be discussed with BTS and revised within 5 days after receipt of comments from BTS):

1	Inception Mission and report	Start 2-3 weeks after contract signing
2	Draft Task 1 Report	5 weeks after contract signing
3	Draft Task 2 Report	8 weeks after contract signing
4	Draft Task 3 outputs	12 weeks after contract signing

5. Reporting

The Consultant will report to the Project Coordinator, appointed by BTS. He/she will prepare the draft versions of the above defined reports/ outputs for comments by BTS (and review by the World Bank) and address comments provided by BTS when finalizing the reports/ outputs for each task. All reports are expected to be prepared either in English or in Russian. The consultant will be able to build his/her work on detailed guidance and input to be provided by the Bank team, and is expected to work closely with BTS and the Bank team throughout the assignment.

6. Consultant selection process and qualifications required

The Consultant for Billing System Automation should be an individual and will be selected on the basis of his/her qualifications for the assignment. The selected Consultant should be capable of carrying out the assignment in full. In addition, the Consultant must provide evidence of his/her competence in the form of presentations and / or publications on the experience with similar projects. The Consultant should have:

- at least 5 year of experience in utility information management systems, including automation of billing systems, ideally as part of World Bank or other donor financed projects; experience in utility information systems in other CIS countries is considered an asset.
- an advanced university degree in a relevant field (e.g. system automation, IT, district heating, engineering etc.);
- must be fluent in English, knowledge of Russian language is considered an asset.

7. Payment

The Client will conclude a lump-sum contract with the Consultant against each deliverable. For the completed tasks, the Consultant will be paid:

1. 40% of the amount upon approval of Task 1 Report;
2. 20% upon approval of Task 2 Report;
3. 40% upon approval of Task 3 Outputs.

Annex 1

The database includes the data listed below:

#	Description
1	Temperature recalculation (Act_GVS)
2	Table - Dop_ras
3	History of devices (Hist_pribor)
4	History of deleting from the Database Kontr_pr (Kontr_del)
5	Customers details (Kontr_pr)
6	Errors - (Mistake)
7	Settings (Nastr)
8	Domestic Hot Water (DHW) Recalculation (Per_GVS)
9	Readings (Pokaz)
10	Readings Average (Pokaz_SR)
11	General Readings (PokObz)
12	Table - PotrGVS
13	Table - Predst_pr
14	Installation of a new device (Prib_Abon)
15	Device details (Pribor1)
16	Table - Proc_Dom
17	Table - Quickly
18	Table - Ras_Act
19	Calculation (Raschet)
20	Calculation houses (Raschet_dom)
21	Calculation apartments (Raschet_kv)
22	Table - Spr_Temp
23	Address book (SprAdres)
24	Directory VGD (SprVGD)
25	Directory of Tariffs (Tarif)
1	Directory of BTS districts;
2	Directory of city districts;
3	Directory of template connection schemes;
4	Directory of device types;
5	Directory of units of measurement;
6	Formula Handbook;
7	Directory of devices switching off;
8	Directory of serviced organizations