"GREEN SUBSIDY"

TO MODERNIZE THE BOILER STATION IN THE QUARTER IN KARAGANDY

Series of publications on energy service initiatives, supported by UNDP-GEF within the Project "Sustainable cities for low-carbon development"

Brief description of the Project:

Boiler in the microdistrict in Karaganda, year of commissioning – **1960**;
Provides heat supply for 5 buildings/constructions of area **26 935 sq. m.**;
Equipment depreciation by begin of 2017 – **90%**;
Actually generated capacity – **21 672 Gкcal/season**;
Annual current extra costs to maintain the facility's operation – **45,6 mln tenge**

BEFORE MODERNIZATION

AFTER MODERNIZATION

Analysis of current situation

№	Title	Current condition	In case of modernization	Effect from modernization
1.0	**Technical parameters**			
1.1	Capacity of the boiler station	10 MW (operational) 10 MW (reserved) 10 MW (non-operational)	2,5 MW (operational) 2,5 MW (operational) 2,5 MW (reserved)	Reduction of capacity by **62,5%**
1.2	Length of heating nets	980 m	700 m	Reduction of energy losses by **28,5%**
1.3	Energy consumption, coal	7 287 t.	4 410 t.	Saving of **39,5%**
1.4	Energy consumption, electricity	908 250 kW	756 000 kW	Saving of **17%**
1.5	Energy consumption, water	5 492 m^3	1 470 m^3	Saving of **83,2%**
1.6	Coefficient of efficiency	28%	70%	Increase in **2,5** times
2.0	**Economic parameters:**	**49 800**	**22 200**	**Saving of 75%**
2.1	Energy resources consumption	29 000	19 500	Reduction of costs by **32.5%**
2.2	Costs for repair and maintenance servicing	20 000	600	Reduction of costs by **97%**
2.3	Removal of burnout and slags, other payments	800	2 100	Increase of costs by **262%**
3.0	**Parameters of people's comfortable stay**			
3.1	Average seasonal temperature in the premises\rooms	16 °C	19 °C	Increase of temperature by **19%**
4.0	**GHG emissions, tons of CO_2**	**7 510,5**	**4 506**	**3 004,2**

Cost of investment into modernization of quarter's boiler

№	Title	UoM	Amount of the investment	Incl. the credit in STB
1	Purchase of boiler equipment	*thou. Tenge*	145 000	130 000
2	**Total:**	*thou. Tenge*	**145 000**	**130 000**

Financial support with loan banking – **130 000 thous. Tenge**

№	Title	Ед. изм.	1-season	2-season	3-season	4-season	5-season	6-season
1.0	Saving with modernization	*thous. Tenge*	27 600	29 532	31 599	33 811	36 178	38 710
2.0	Loan disbursement to the Bank	*thous. Tenge*	37 396	34 557	31 719	28 881	26 042	23 204
2.1	*Incl. % rates by loan*	*thous. Tenge*	*15 729*	*12 891*	*10 052*	*7 214*	*4 376*	*1 537*
3.0	Economic opportunity *(p.1.0 – p. 2.0)*	*thous. Tenge*	-9 796	-5 025	-120	4 930	10 136	15 506
4.0	Subsidy by DAMU-UNDP-GEF	*thous. Tenge*	12 007	9 840	7 674	-	-	-
5.0	**Economic opportunity with support of DAMU-UNDP-GEF** *(p.3.0 + p.4.0)*	*thous. Tenge*	**2 211**	**4 815**	**7 554**	**4 930**	**10 136**	**15 506**

SCHEME OF PROJECT IMPLEMENTATION ON MODERNIZATION OF BOILER STATION IN THE MICRODISTRICT

SECOND-TIER BANK

DAMU-UNDP-GEF

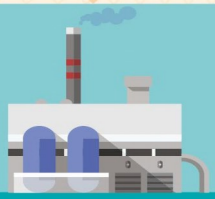
1. Issue of guarantee;
2. Subsidy disbursements on reduction of bank rate

APPLICATION FOR ISSUE OF FINANCIAL SUPPORT:

1. Guarantee to the bank to receive the loan in 11% from loan amount;
2. Subsidy of bank loan in 10% from bank

Bank loan – credit 130 000 thous. Tenge

Evidence of experience and competence



KarNed LLP (owner of the boiler station)

1. Equipment supply contract;
2. Guarantee of energy resources saving not less than 39,5%;
3. Maintenance service within the credit disbursement period;
4. Responsibility if the resource saving is not reached

Equipment supplier – Vashkevich tehnology LLP

MARCH - APRIL	MARCH - APRIL	JUNE	JULY	JULY
Analysis of current situation, selection of applicable technologies, decision making	Preparation of documents to apply for issuance of financial support	Consideration of submitted application by the Technical Partner of UNDP-GEF Project	Collegiate body – SC resolved for issue of financial support in case of receiving the loan by STB	Preparation of documents to apply to the STB for loan
AUGUST	**AUGUST**	**SEPTEMBER-OCTOBER**	**OCTOBER**	**OCTOBER**
DAMU-UNDP-GEF issued the guarantee to STB for loan	Approval by STB to issue the loan	Construction and installation works, installation of boiler equipment	DAMU-UNDP-GEF makes payment on reduction of STB's rate	Commissioning

SUMMARY:

1. **Implementation of the Project allowed the Owner of the boiler station to:**
   - Save energy/financial resources by **27 600 thous. Tenge/season;**
   - Reduce CO_2 emissions into city atmosphere by **3 004,2 tons/season;**
   - Improve the conditions of comfortable stay of **660** employees in the premises\rooms and **1,6 mln.** visitors/year;
   - Minimize the accident situations at boiler stations
2. **Support of DAMU-UNDP-GEF provided:**
   - The opportunity to implement the Project;
   - The opportunity to settle with the Bank due to saving received without additional costs
3. **Subsidy efficiency:**
   - 1 Tenge of subsidy has attracted 8 Tenge of resources from all financing sources;
   - 1 Tenge of subsidy has reduced **0,14 kg of CO_2** or **2,7 kg CO_2** over the life cycle of the boiler station

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