### **State Energy Agency under the Kyrgyz Government**



Partnership Program;Bishkek, August 17-22, 2003 G. Kasymova, Technical Expertise and External Relations Department, Chief Specialist

2003г., "Программа партнерство





## Main Functions of the Department

-Development of normative and technical documentation in the area of electrical and thermal energy as well as natural gas

-Resolution of disputable issues between the producer and the customer of electrical and thermal energy as well as natural gas

-Establishment of most acceptable tariffs for electrical and thermal energy as well as natural gas

-Development of fuel and energy balance of the Kyrgyz Republic

-Participation in developing and reviewing international agreements and programs in the area of electrical and thermal energy as well as natural gas



Development of normative and technical documentation in the area of electrical and thermal energy as well as natural gas

- 1. Contracts on Sales and Transfer of electrical and thermal energy and natural gas
- 2. Rules of utilizing electrical and thermal energy and natural gas
- 3. Agreements on cooperation between energy utilities and SEA
- 4. Guidelines on applying tariffs for thermal and electrical energy
- 5. Methodology of defining losses of electrical and thermal energy and natural gas
- 6. Methodology of defining needs in electrical and thermal energy in buildings

Development of normative and technical documentation in the area of electrical and thermal energy and natural gas

- Participation in the development of CDF for Kyrgyzstan, NEP of the KR, National Energy Strategy of KR, National Poverty Reduction Program in KR, International Year of Mountains, laws on "Oil and Natural Gas", international projects and agreements, work of joint working groups and commissions
- Dealing with requests of the deputies of both chambers of the Parliament and complaints submitted by the population

#### **Electrical Energy branch structure in Kyrgyzstan**



### **Technical Specs of JSC ES Utilities**

HES Name	<b><u>Quantity and Capacity</u></b> turbines boilers		(2001) Number of working	
	(pcs/th.kWh)	(pcs/t/hour)	Turbines	Boilers
Bishkek TEC	<b>11/ 678</b>	24/4250	1720	1602
Osh TEC	2/50	3/375	985	1232
Toktogul HES	4/1200		3989	
Kurpsai HES	4/800		4322	
Uch-Kurgan HES	<mark>4/180</mark>		5405	
Tash-Kumyr HES	3/450		4458	
Shamaldy-Sai HES	3/240		3813	
At-Bashi HES	4/40		3749	
Bystrovka HES	3/8.7		5360	
HES total :			4224	
TOTAL:	г.Бишк	ек ,17-22августа	3714	1572
	2003г.,"Про	рамма партнерство	1	

# Technical conditions of electrical networks 0,4-10kW that belong to JSC Kyrgyzenergo (01.01.2000)

	unit	total	good	sat	to be	restored
						%
ВЛ 6-10 кВ	KM	26959	12163	9779	5017	19%
ВЛ 0,4 кВ	KM	27940	9556	10164	8220	29%
КЛ 6-10 кВ	KM	1387	352	577	458	33%
КЛ 0,4 кВ	КМ	997	193	505	299	30%
total	КМ	57283	22264	21025	13994	24%
			39%	37%	24%	
ТП 6-10/0,4кВ	pcs	19047	7928	7835	3284	17%
			42%	41%	17%	

# Generation, supply, losses and efficient usage by energy company for the first half of 2003

Indicators	Unit	REK	JSC "NESK"	JSC «EN»	
E/e generation	Mln. kWh			7154,6	
Supply to networks	Mln. kWh	6995,4	6995,4		
Total losses:	Mln. kWh	2292,1	675,1	32,1	
	%	39,3	9,71	0,45	
Incl. technical	%	17,19	9,71	0,45	
commercial	%	22,11			
Efficient usage	Mln. kWh			6380,2	
export	Mln. kWh				

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2003г., "Программа партнерство"

#### Electrical energy production structure for 2003

Total supply - 13'208 mln. kWh					
incl. JSC "EN" -	12'948mln. kWh				
import	- 115 mln. kWh				
small HES	- 145 mln. kWh				

#### **Revenue structure from electricity sales** in 2003

**Total revenue generated on the base of electricity provided in accordance with current tariffs and normative loss level will** be 6'663 mln. Som in 2003



### Normative and actual losses compared (2002)



## **Electricity efficient usage dynamics by distribution company for 2002 – 2005**



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# **PHYSICAL ELEMENTS OF A TARIFF**

- Electricity generation (in bln kWh)

	2003	2004	2005
Total	13,2	13,4	13,5
TEC	1,3	1,3	1,3
HES	11,9	12,1	12,2

- electricity export under governmental agreements 1,7
- level of losses of the transmitting company 8,2 % of all the energy in the network
- level of losses of the distribution company 22 % in 2003, 20 % in 2004 and 19 % in 2005 of all the electricity in their network
- collection level 93 %

#### **Kyrgyz Thermal Energy Branch Structure**



#### Main provisions of heat supply strategy in the Kyrgyz Republic

The above strategy is being developed on the basis of:

**ECONOMIC ACCESSIBILITY ANALYSIS (revenues and losses of the population and anticipated changes in revenues)** 

EXPENSE AND PROFIT ANALYSIS ON THE BASE OF IMPLEMENTING DIFFERENT HEAT SUPPLY MODELS

**CONSEQUENCES OF DIFFERENT MODELS IMPLEMENTATION FOR THE ENVIRONMENT AND PEOPLE'S HEALTH** 

Assessment of hurdles on the way of commercial and private service provision in accordance with above models of heat supply as well as mechanisms of overcoming these hurdles

#### THE KYRGYZ GOVERNMENT AGREED TO:

FULLY COVER EXPENSES TO ENSURE CENTRALIZED HEAT SUPPLY THROUGH 2003

**CLEARLY AND COMREHENSIBLY DEFINE PROPERTY RIGHTS AND RESPONSIBILITIES** 

**PAYMENTS IN ACCORDANCE WITH CONSUMPTION 9Insstallation of meters in all buildings and apartments). Social protection of the poorest sectors of population.** 

**Topic: Establishing a system of heat accounting in microdistricts residential area of Bishkek (Microdistricts 11, 12** and Asanbai)

<u>Project Objectives:</u>: Creation of a effective demonstration zone in Bishkek residential microdistricts. Development of an investment project to attract investors into the area under consideration

TASKS:Current state of things in the area of thermal energy sector of the KR

Examination of the heat supply systems in Microdistricts 11, 12 and Asanbai, their technical and economic characteristics

Development of a business plan on the issue of establishing a system of heat accounting

Main conclusions

Recommendations

**Objectives** to be attained in the development of the investment project

 Bringing in conformity actually consumed amounts of heat for the purposes of heating and hot water supply
Reduction of heat consumption on the base of hot water supply accounting by apartment and general accounting of heat
Increase of budget funds usage efficiency to finance population's solvency to pay for heat
Reduction of non-production losses by means of efficient usage of heat by population. Losses through windows and doors.

### **Benefits of introducing this business plan**

Actual accounting of heat for the purposes of heating and hot water supply (hot water meters in apartments and common heat meters) Bringing payments for heat and hot water in conformity with calculated data BIdentification and accounting of technical losses in internal heat supply systems

Efficient hot water usage by consumers



Reduction of exploitation expenses while generating heat at Bishkek TEC (establishing tariffs)

### **Benefits of implementing this business-project**

There will be no cross subsidies (heat at the expense of electricity). Reduction of subsidies to maintain tariffs for heat

Reduction of the heat share that has never been paid **Example** for in the structure of expenses of an energy supply organization

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# **ECONOMIC BENEFITS OF THE PROJECT:**

Heating –a difference between actual need in heat and calculated load for the residential fund of the building

 Hot Water Supply – increase of hot water consumption norm for consumers who do not have meters in their apartments (at the expense of people who do live in these apartments)



**Analysis of current situation:** 

.End users have no heat meters (population, budget organizations)

.Tariffs for population are 45% lower than self-cost of generated thermal energy

.Payments for heating for population are executed on the basis of enlarged indicators in accordance with the existing methodology

. Payments for hot water supply (with the established norm of 160 l// per person/per day) are lower than its self-cost. The amount to be paid is calculated for officially registered tenants not for actual number of people living in an apartment

Technical characteristics of microdistricts residential fund (11,12,Asanbai)

**1.Heat Supply System – autonomous with open water** collector, double tube 2.Annual consumption of thermal energy -49, 546,331 **Gcal/year** 3.Number of residents – 16,645 4.Number of apartments – 7,953 **IT IS NECESSARY TO INSTALL:** 1.Collective heat meters of ultrasound type - 74 pcs 2.Hot water meters- 13,217 pcs

### **Estimate of Expenses**

<u>Grants (investments) required</u> –618,000 USD <u>COFINANCING</u> –at the expense of BISHKEKTEPLOSET 1. <u>CAPITAL EXPENSES :</u>

supply of equipment and tools -20,652.2 th. som

equipment installation - 1,313.9 th. som

materials and goods- 600.9 th.som 2. Exploitation Expenses:

salary fund –4,800 th.som

insurance payments -1,584.0 th.som

overhead expenses -713.0 th.som



### **Project implementation unit (PIU)**



