



**Government of the Russian Federation and GEF/UNDP Project**

## **IMPLEMENTATION OF THE PROJECT**

### **“Capacity Building to Reduce Key Barriers to Energy Efficiency in Russian Residential Building and Heat Supply”**

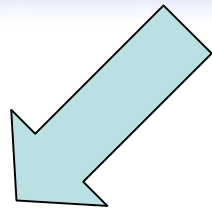
16th Session of the Energy Efficiency 21 Project (EE 21)  
Geneva, 29 June - 1 July 2005

**Boris F. Reutov**

**Deputy National Project Director**

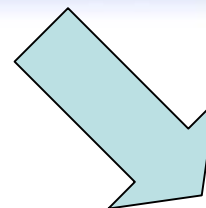
(Ministry of Education and Science of the Russian Federation,  
Federal Agency of Science and Innovations of the Russian Federation)

# Problems of Heat Supply in the Russian Federation



## subjective

- presence of command-administrative system
- hypertrophied centralization of heat supply
- “zero” cost of energy resources



## objective

- climatic conditions in the country



**Annual energy consumption  
in the Russian Federation – 980 mln.t. of equivalent fuel**

- heat consumption – 400 mln.t.e.f.**
- including housing sector – 280 mln.t.e.f.**

**Heat consumption market – 20 bln. US dollars**

**Energy-saving potential > 35-40 %**



# Housing sector characteristics



Housing stock of Russia

~2,8 bln. m<sup>2</sup>

Heat consumption for space heating

Moderate climate part of Russia

- brick buildings 280-400 kW\*h/m<sup>2</sup>\*year
- panel buildings 430-600 kW\*h/m<sup>2</sup>\*year
- private houses 500-700 kW\*h/m<sup>2</sup>\*year

Sweden

~140 kW\*h/m<sup>2</sup>\*year

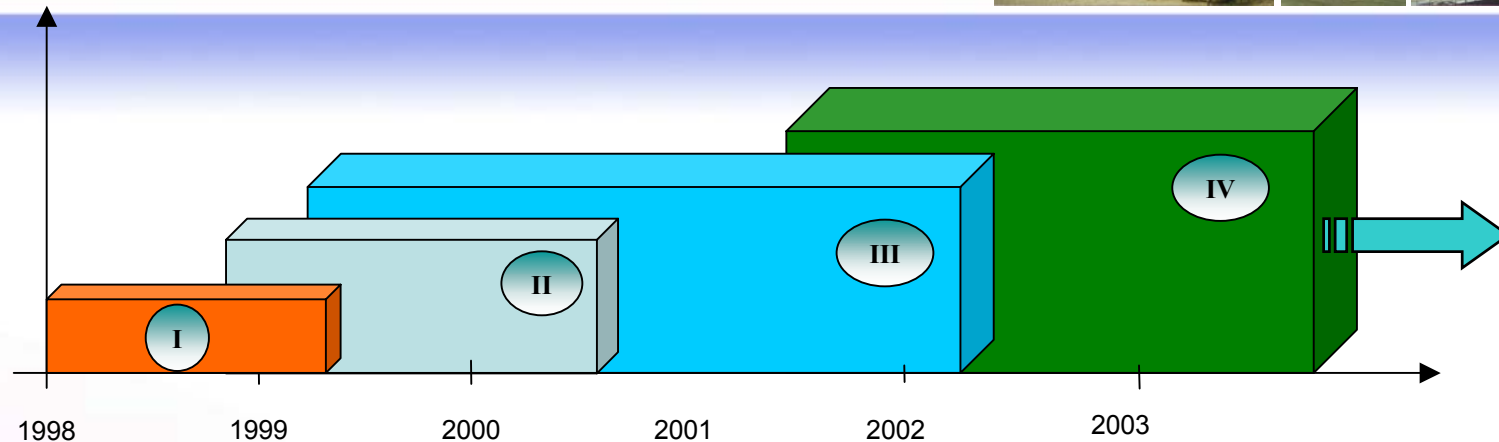
Finland

~140 kW\*h/m<sup>2</sup>\*year

Germany

~250 kW\*h/m<sup>2</sup>\*year

# Project implementation



- ✓ Formation of the Project Management System
- ✓ Formation of the Project Staff
- ✓ Capacity Building of the Project Staff and Development of Its Infrastructure



- ✓ Beginning of the Project Objectives Implementation
- ✓ Accumulation of Information and Methodological Basis in Accordance with the Project Sections
- ✓ **Development of Models of Autonomous Boiler Introduction in Municipal Heat Supply System**
- ✓ Summarizing of Project Intermediary Outputs and Development of the Final Strategy of Project Implementation

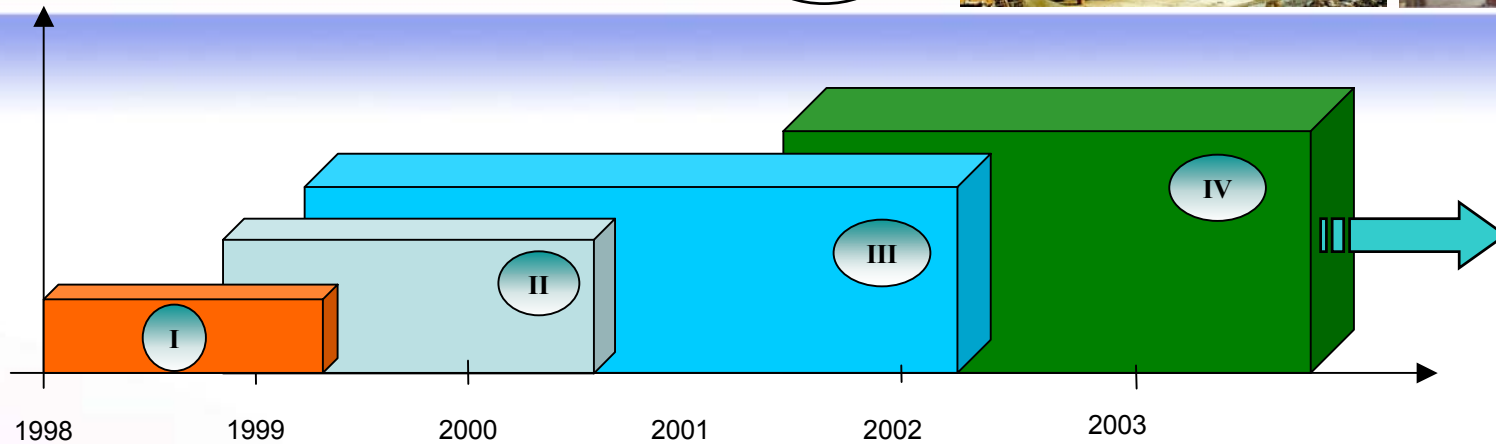
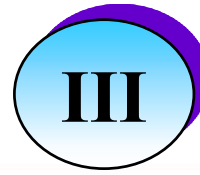
## Project implementation



## Project implementation

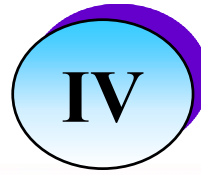


# Project implementation



- ✓ Establishment of a Model of International Project Implementation
- ✓ **Establishment of a Model of Business Regional and Municipal Infrastructure Development for Energy Efficiency Projects Elaboration and Implementation**
- ✓ **Establishment of a Model of Reasonable Combination of Urban Centralized and Autonomous Heat Supply**
- ✓ Establishment of a Model of Autonomous Boiler Introduction in Municipal Heat Supply
- ✓ Establishment of a Model of Certification and Development of the Existing Regional and Municipal Heat Supply Systems
- ✓ **Establishment of a Model of Municipal Heat Supply Monitoring Service Creation**
- ✓ Establishment of a Model of Project Achievements Dissemination

# Project implementation



- ✓ Dissemination of a model of regional and municipal business infrastructure preparation for development and implementation of energy efficiency projects in a form of training programmes, including development of projects utilizing the Kyoto Protocol mechanisms
- ✓ **Dissemination of principles for reasonable combination of district and autonomous municipal heat supply while developing a concept of heat supply improvement in Russia, including the communal energy**
- ✓ Development of economically and technologically acceptable models of autonomous heat sources promotion, including apartment-level heat supply systems
- ✓ Evaluation of anthropogenic emissions and effluents of municipal heat supply systems, evaluation of basic and actual level of emissions when autonomous heat supply systems are introduced and municipal metering and billing services are established, which results in decreased green house gases emission
- ✓ **Developing principles of national registration of projects for reforming municipal heating systems using Kyoto Protocol mechanisms**
- ✓ **Implementation of the informational system for Project achievements dissemination:**
  - conducting of workshops, conferences, training programmes
  - publication of books and brochures
  - operation of the Project web-site

## Project implementation



## Project implementation



## Project implementation



# Barriers to the Development of Russian Housing and Commune Sector and Heat Supply System



1. Lack of municipal programmes for efficiency improvement of heat supply, necessary for effective utilization of own resources, credits, investments and grants.
2. Lack of recommendations on economic feasibility of different stages of heat supply system modernization
3. Underdeveloped economic, legal and institutional conditions for creating new competitive forms of ownership that will contribute to establishing a service market
4. Lack of legal basis of regulating contract relations by the quality of rendered commune services and, as a result of this, the mechanism of economic regulation of the heat supply services quantity and quality
5. Lack of “revolver” financing mechanism for energy efficiency improvement and getting a profit to refund the credits.
6. Insufficient grounding level of administration officers, personnel of heat supplying and housing and communal organizations for execution of housing and communal sector reform
7. Insufficient information support of participants of all levels in the housing and commune sector pertaining to legal, institutional, financial and technological issues

Innovation projects of special national importance (Komi Energo, RAO "UES of Russia") city of Syktyvkar

"Improving heat supply systems" (Minenergo of the RF) city of Semyonov, Nizhegorodski district

Government of the Russian Federation  
GEF/UNDP  
City of Vladimir

"Improving heat supply systems" World Bank loan (Gosstroj of the RF) city of Nerungri, city of Dubna

"Improving heat supply systems" (EHDP Project) World Bank loan (Mineconomrazvitiya of the RF) City of Vladimir

**Reforming heat supply system of Russia**

Federal level

- federal programmes
- projects of special national importance
- subsidies to regions

Regional level

- regional programmes
- regional projects
- subsidies to municipalities
- regional structures for reforming municipal housing sector

Private industry

- structures of GAZPROM
- RKS (RAO "UES of Russia")
- regional ESKO
- plants, enterprises, research and production companies

International level

- World Bank loans
- GEF/UNDP programmes
- UN ECE programmes
- UNF/UNFIP programmes
- NEFCO foundation
- country programmes

# Project results replication programme



A complex Project results replication system is being implemented :

Promulgation of Project results  
(holding thematic seminars,  
Publications in periodicals)

Publishing series of brochures  
describing project implementation  
And its achievements

Using advanced information  
technologies  
(Information system for the  
replication of results)

[www.environment.da.ru](http://www.environment.da.ru)  
[www.energy-exhibition.com](http://www.energy-exhibition.com)

# Project results replication programme



Generalization of experience gained in the course of Project implementation allowed to prepare a report “Heat supply in the Russian Federation. Ways of surmounting the crisis” which consists of eight books and two albums presenting major conclusions and recommendations on reforming municipal heat supply systems:

- ✓ Book 1 "The reform of heat supply and heat consumption in the Russian Federation"
- ✓ Book 2 "Recommendations for development of regional and municipal programs of heat supply development"
- ✓ Book 3 "Methodical recommendations on design, construction and putting into operation of autonomous boiler-rooms"
- ✓ Book 4 "Methodical guidelines to put into operation basement-based autonomous gas boiler-room"
- ✓ **Book 4 part 2 "Summarized experience of a private company in exploitation of autonomous boiler-rooms (financial, technical, organizational, methodical, institutional and legal issues)"**
- ✓ Book 5 "Monitoring and evaluation of efficiency of modernization of municipal systems of heat supply"
- ✓ Book 6 "The state and perspectives of reform of system of calculation of consumption and payment of heat energy in housing and communal services sector in Vladimir city"
- ✓ **Book 7 "Encouraging green house gases emissions reductions as a mechanism of energy saving and energy efficiency in the Russian housing services and heat supply"**
- ✓ **Book "Fundamentals of forming the carbon market in Russia"**
- ✓ The album of engineering solutions of energy efficiency systems of heat supply
- ✓ The album of energy efficiency systems of energy resources saving of housing and communal services objects

# Project results replication programme

Министерство образования и науки Российской Федерации  
Федеральное Агентство по науке и инновациям Российской Федерации  
Глобальный Экологический Фонд  
Программа развития ООН



Национальный доклад

«Теплоснабжение Российской Федерации. Пути выхода из кризиса»

Книга 4  
Часть 2

«Обобщенный опыт работы частной фирмы по эксплуатации автономных котельных (финансовых, технических, организационных, методических, институциональных и правовых)»



Министерство образования и науки Российской Федерации  
Федеральное Агентство по науке и инновациям (РОСНАУКА)  
Глобальный Экологический Фонд  
Программа развития ООН



Национальный доклад



«Теплоснабжение Российской Федерации. Пути выхода из кризиса»

Книга 7


«Стимулирование сокращения выбросов парниковых газов, как механизм энергосбережения и энергоэффективности в Российском жилищном хозяйстве и теплоснабжении»



Министерство образования и науки Российской Федерации  
Федеральное Агентство по науке и инновациям Российской Федерации  
Глобальный Экологический Фонд  
Программа развития ООН



Основы формирования углеродного рынка России



# Project results replication programme



Information system for project results replication was implemented and is being maintained:

- ✓ Project information channel is operating [www.environment.da.ru](http://www.environment.da.ru).
- ✓ Interactive communication and exchange of experience is carried out between Project participants and other regions representatives by holding virtual conferences.
- ✓ Information exchange system of Russian demonstration zones of high energy efficiency is used for experience dissemination and Project results replication.
- ✓ Project materials are presented on the virtual exhibition of energy efficient technologies, materials and services [www.energy-exhibition.com](http://www.energy-exhibition.com)

# Conclusions

1. Projects related to the heat supply system reform are of great importance and have a big social, economic and environmental impact.
2. The GEF/UNDP Project *Capacity Building to Reduce Key Barriers to Energy Efficiency in Russian Residential Building and Heat Supply* was established under a complex co-financing of the government, municipality and analogous international project
3. The Project has established sustainable models widely utilized in the development of the new legal framework and in implementation of the similar projects.
4. The Project identifies key barriers to implementation of projects in the heat supply system reform
5. The Project made an attempt to create a model of climate impact utilization as a mechanism for financing the heat supply projects