

Heat Subsidy Shift

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Major Problems of Heat Supply: Boilers



- **Lack of financing and low fuel stocks**
- **Shortened heat supply season and lowered temperatures**
- **Absence of fuel and heat metering**
- **Shortage of qualified boiler personnel**

Major Problems of Heat Supply: Networks

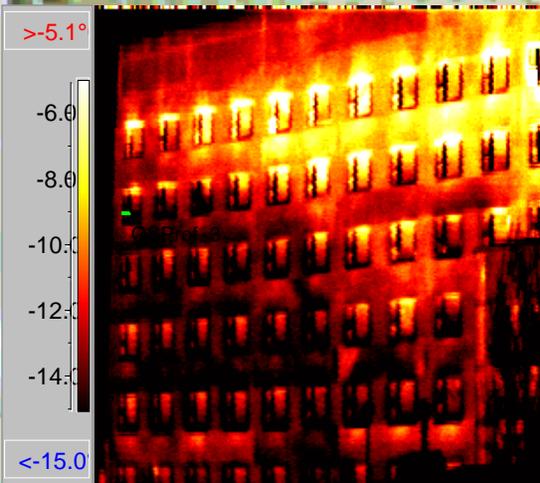
- **High degree of wear**
- **Frequent failures**
- **Heat waste and leaks**
- **Insulation breaks and heat losses**
- **Disruption of efficient hydraulic regimes**
- **Multiplicity of owners**



Major Problems of Heat Supply: Public Buildings

14 deg C
indoor
temperature
Magadan

- Shortage of funds to pay for heat services
- Poor quality of heat supply
- Lack of heat meters
- Poor building insulation and maintenance
- Lack of qualified personnel
- Lack of financing to improve facilities' energy efficiency

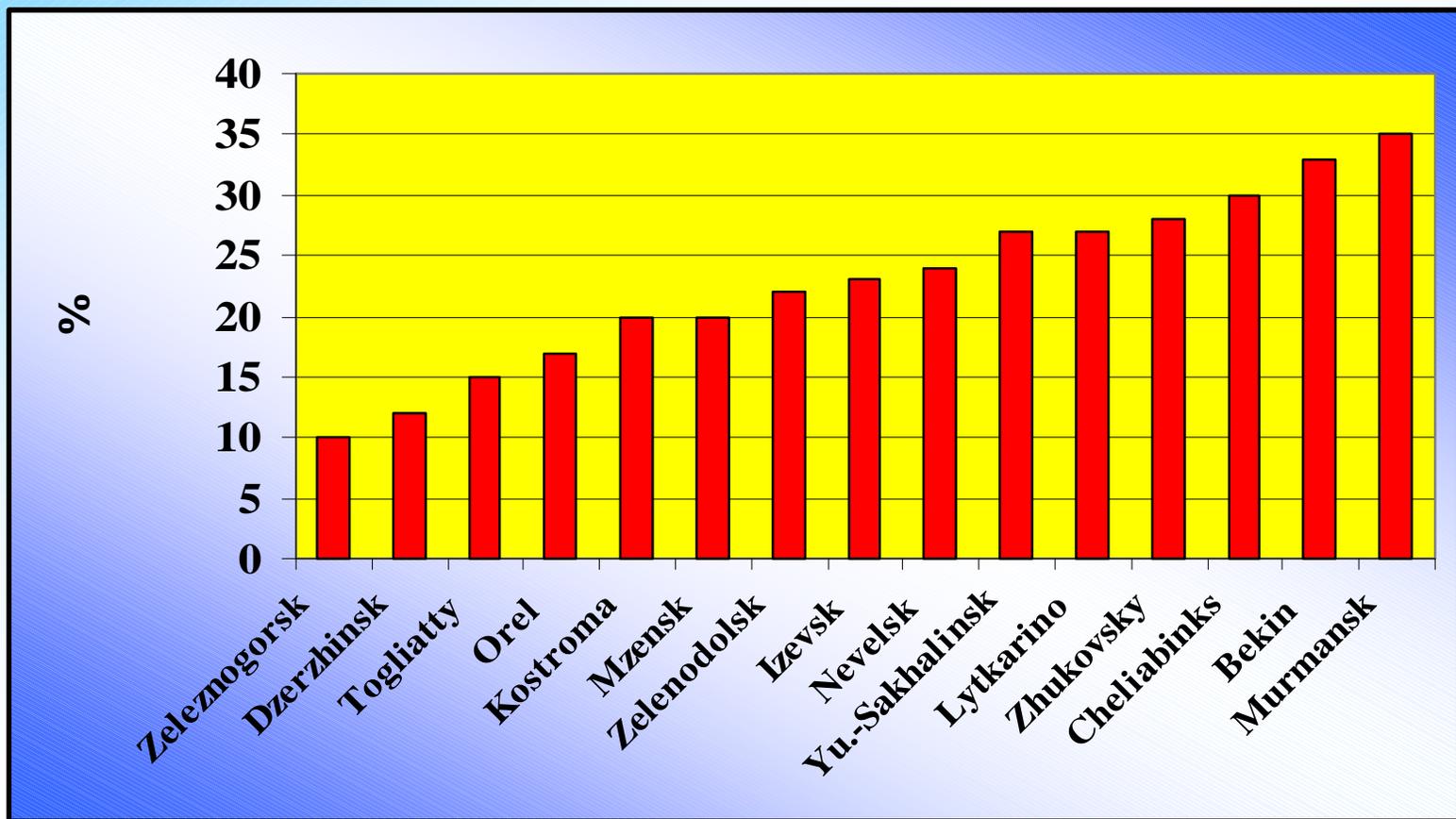


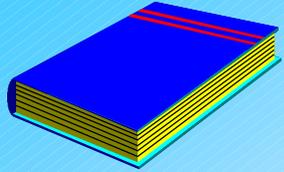


Why Subsidies?

- **Salaries and pensions average only \$100 and \$20 per month**
- **High fuel-labor cost ratio**
- **Zero technical price elasticity (no meters, no valves)**
- **Complicated building ownership structure**
- **Political tool in election years**

Heat Subsidies Share In Municipal Budgets: from 10 to 35%





Program Structure

- **Regional legislation and policy**
- **Boiler house efficiency improvement**
- **Heat distribution system modernization**
- **Public buildings retrofits**
- **Residential building metering and efficiency**
- **Buildings Thermal Performance Standards**
- **Monitoring and verification systems**



Program Development Process

- **Reach agreement with city administration**
- **Collect and analyze data**
- **Develop efficiency projects**
- **Analyze economic and financial aspects**
- **Identify financial options**
- **Suggest policy solutions**
- **Prepare feasibility study**
- **Discuss options with city officials and potential lenders**
- **Develop business plan**
- **Organize project management and monitoring systems**

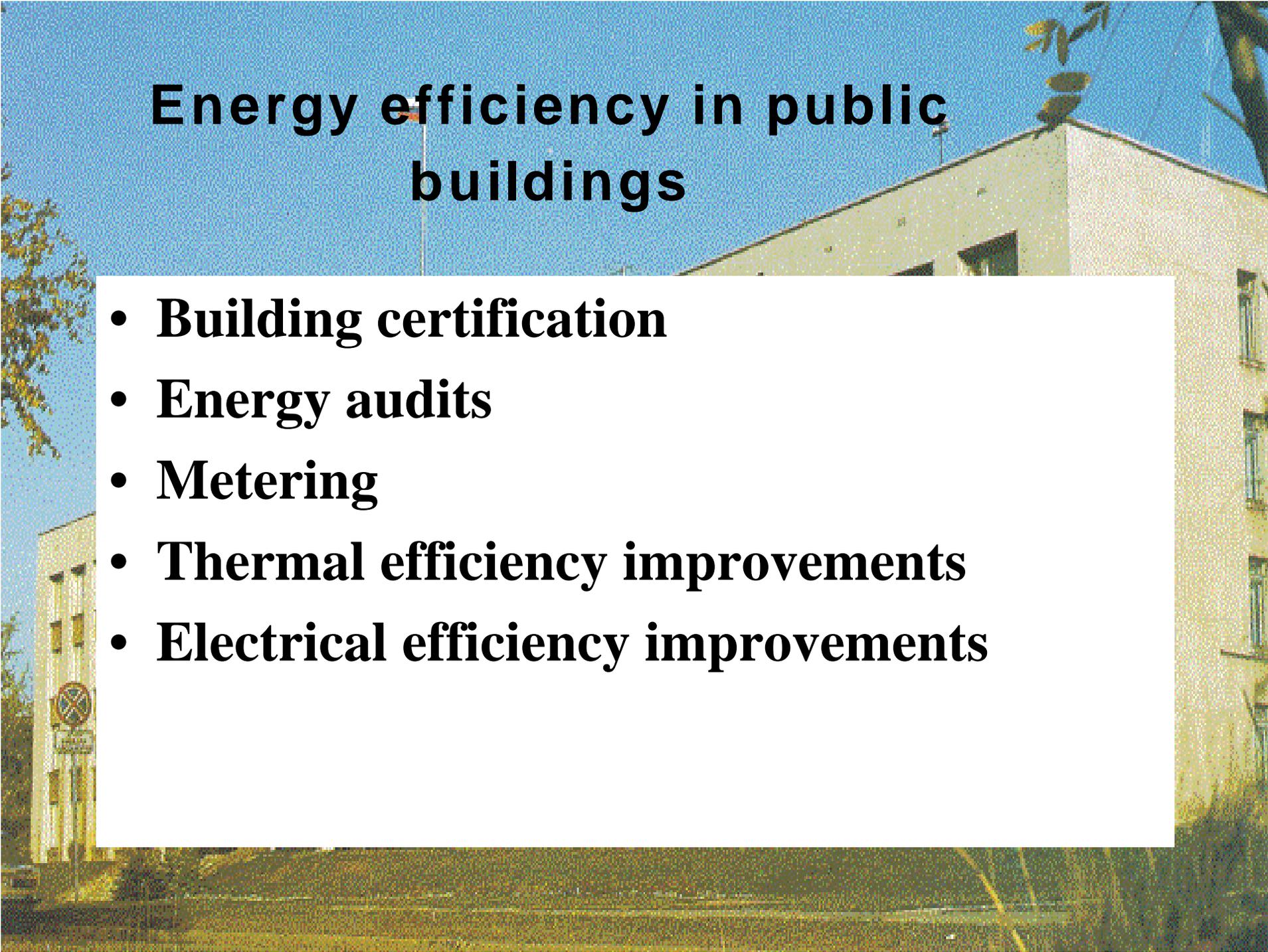
Boiler-house efficiency

- Improve management (data collection, certification & regulation of heat tariffs)
- Equip boiler-houses with fuel and heat meters
- Modernize boiler-houses
- Switch to gas

Heat distribution system modernization



- **Meter heat provided by electric utilities and enterprises**
- **Modernize heat distribution system**
- **Upgrade heating points and pump-houses**
- **Provide distribution system diagnostics and operations feedback**



Energy efficiency in public buildings

- **Building certification**
- **Energy audits**
- **Metering**
- **Thermal efficiency improvements**
- **Electrical efficiency improvements**

Conducted All Over the Russian Federation



Cheliabinsk



Izevsk



Yu.-Sakhalinsk

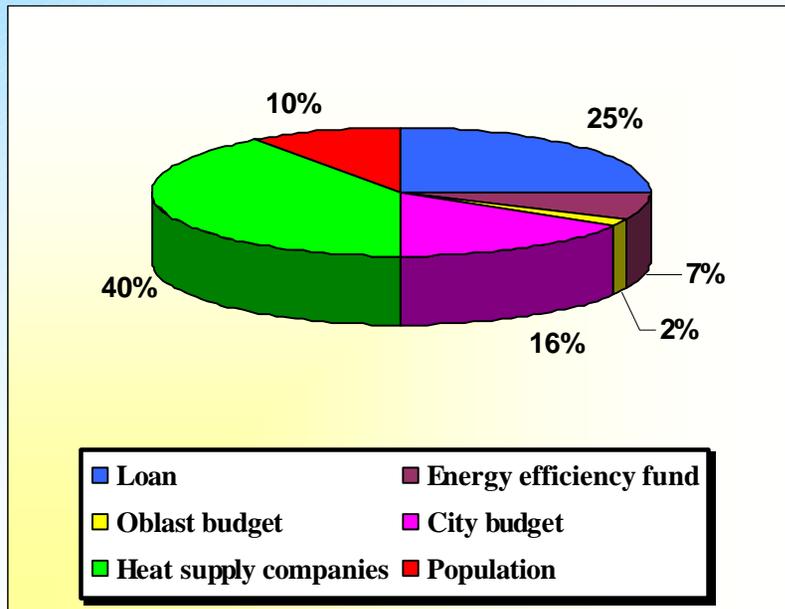


Zheleznogorsk



Shaking the Money Tree

- Subsidy shift--from fuel to capital
- Oblast budgets and regional efficiency funds
- Heat supply company investments
- Russian, foreign, and multilateral banks
- Consumer expenditures





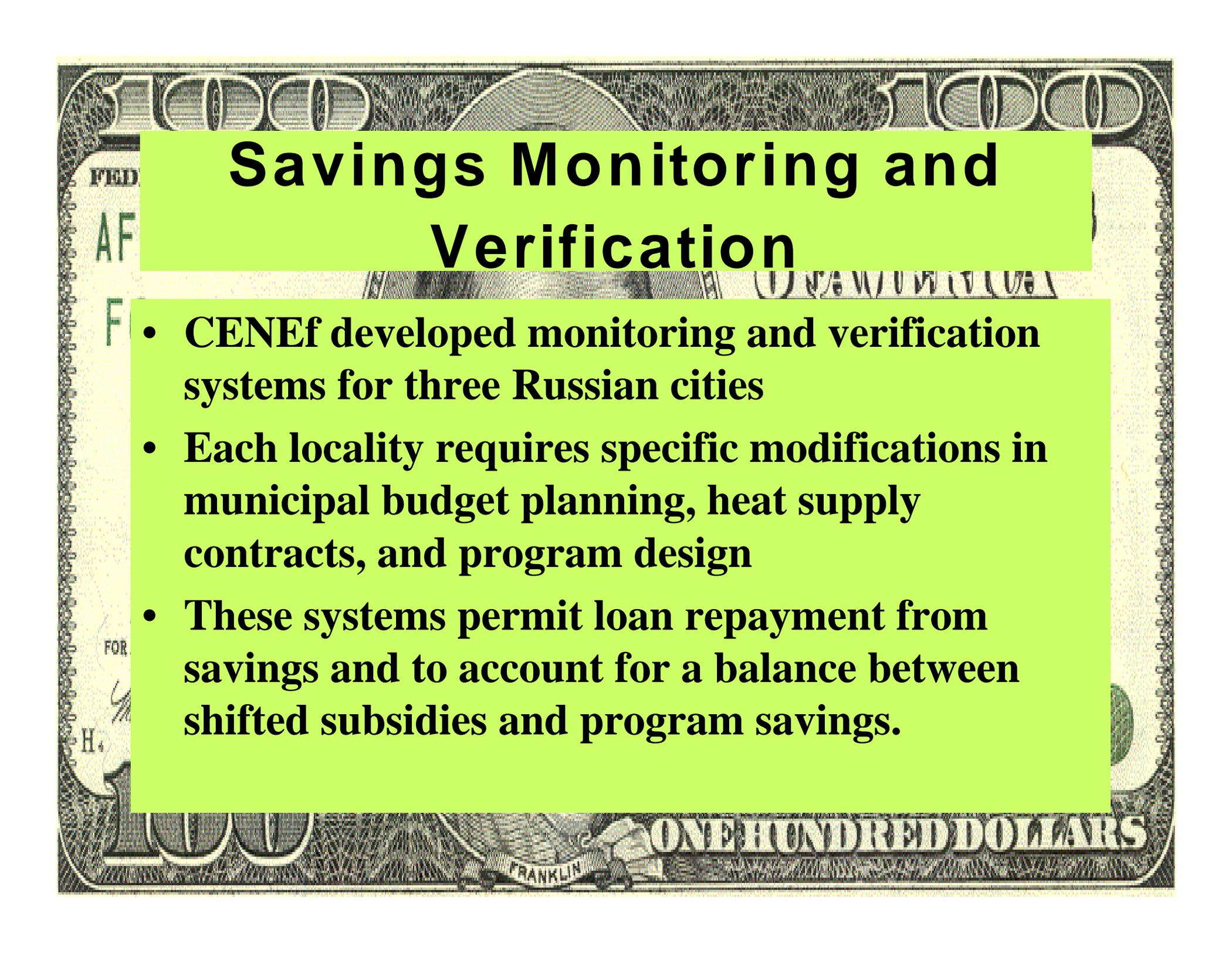
The CENEf Subsidy Shift Mechanism

- **Maximizes use of internal city financial resources**
- **Avoids additional tax burden and tariff increases**
- **First case: In 1997, Kostroma re-allocated \$1.2 million to new budget item, “*Energy conservation program*”**
- **Replication: Many Russian cities now use the subsidy shift mechanism**



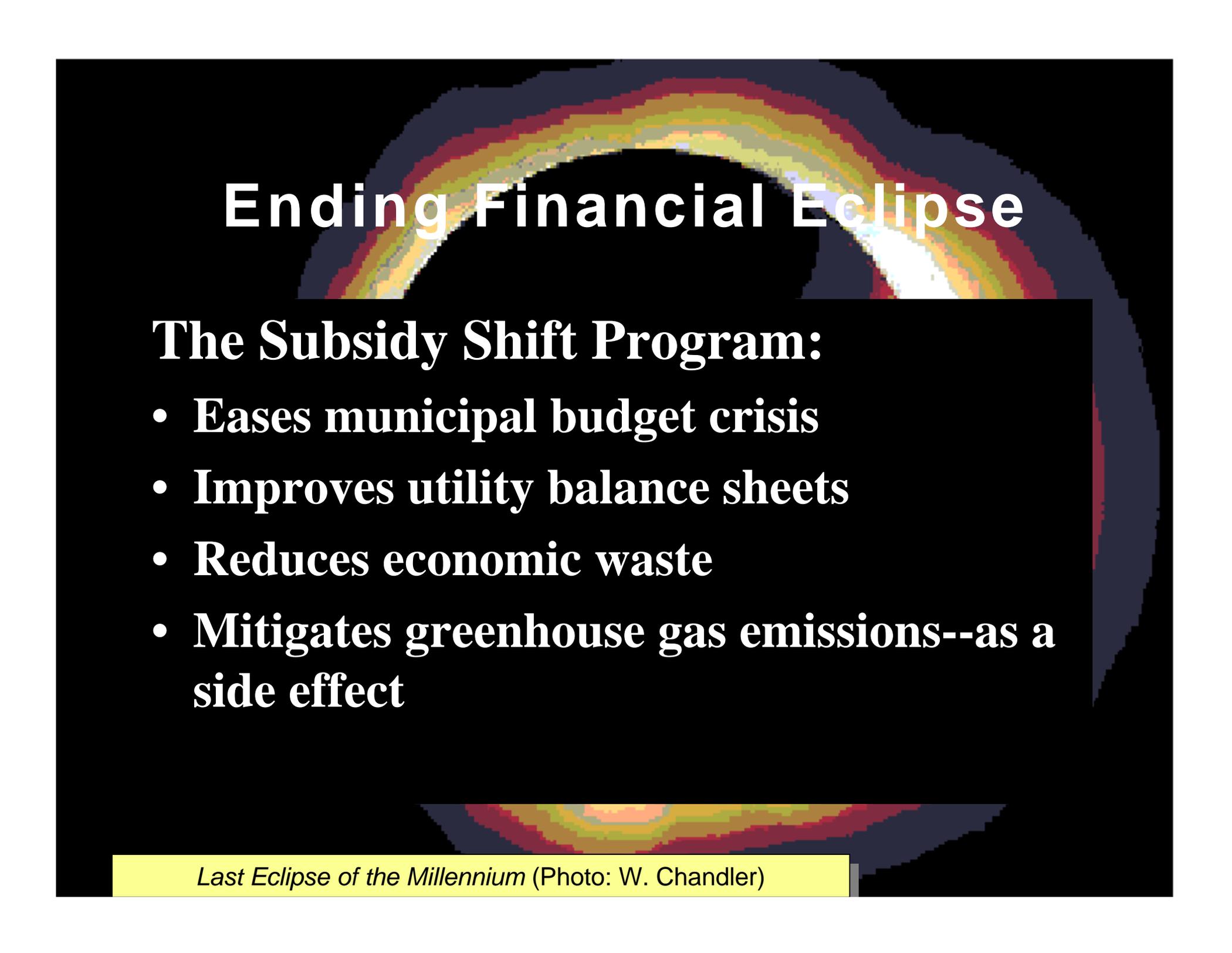
Costs and Benefits: 15 Cities

Annual heat subsidies	210 million \$US
Total recommended six-year investment	340 million \$US
Estimated annual savings	105 million \$US



Savings Monitoring and Verification

- **CENef developed monitoring and verification systems for three Russian cities**
- **Each locality requires specific modifications in municipal budget planning, heat supply contracts, and program design**
- **These systems permit loan repayment from savings and to account for a balance between shifted subsidies and program savings.**



Ending Financial Eclipse

The Subsidy Shift Program:

- **Eases municipal budget crisis**
- **Improves utility balance sheets**
- **Reduces economic waste**
- **Mitigates greenhouse gas emissions--as a side effect**

Last Eclipse of the Millennium (Photo: W. Chandler)