Planning Workshop on

Energy Efficiency in Buildings and Renewable Energy

Programmatic Approaches to Municipal Energy Efficiency Improvement in Ukraine

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Ukraine


BUH
BELORUS
WARSAW
PRIPYAT
VISTULA
DESNA
RUSSIA
POLAND
CHERNIHIV
SUMY
LUTSK
RIVNE
SAN
ZHYTOMYR
KYIV
BUH
LVIV
KHARKIV
DNIEPR
DONETS
DNIESTER
KHMELNYTSKY
POLTAVA
TERNOPIL
CHERKASY
SLOVAKIA
IVANO-FRANKIVSK
VINNYTSIA
VOROSHYLOVHRAD
DNIPROPETROSK
PRUT
UZHHOROD
KIROVOHRAD
DONETSK
CHERNIVTSI
MOLDAVIA
HUNGARY
ZAPOROZHIA
BUH
ROMANIA
MYKOLAIV
DON
KISHINEV
ODESA
KHERSON
SEA OF
AZOV
SYMFEROPIL
BLACK SEA
50 0 50 100 150 miles
50 0 50 100 150 200 km.

Ukraine

Gained independence in 1991, with the breakup of the former Soviet Union

- Population 49,506,000
- Land area 603,700 sq km
- Capital – Kyiv
- 27 administrative regions
- 689 cities with autonomous budgets
  (size between 10,000 and 3,500,000 inhabitants)

Challenges of Transition Economy

- inefficient public management, nontransparent privatization, corruption,
- decentralization of state power, conflict of interests between national and local governments, lack of partnership
- deteriorated municipal infrastructure and building stock, luck of funds at local level,
- inefficient social assistance programs,
- rise of energy costs.

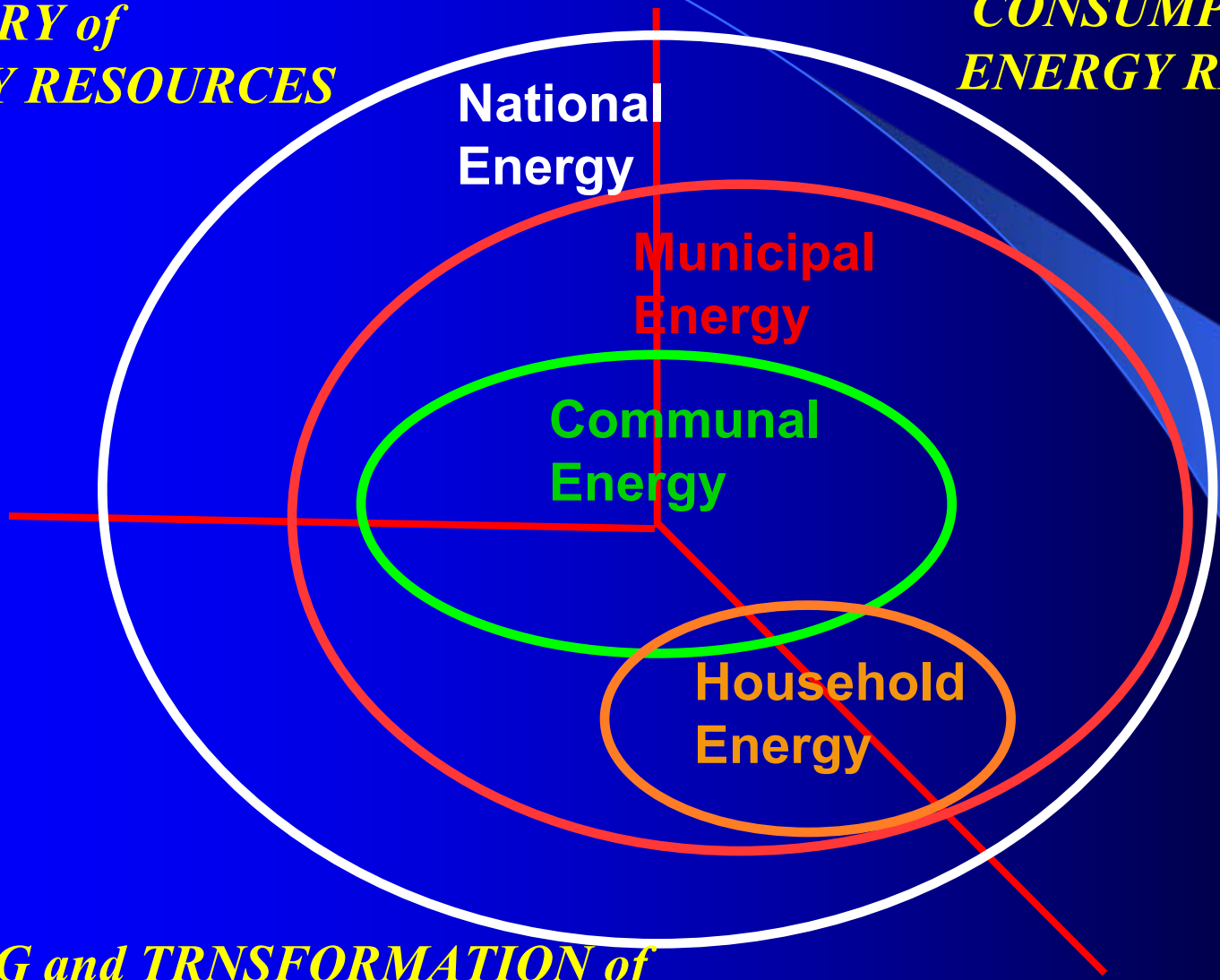
Issues of Energy Sector

- high dependency of import of natural gas and oil,
- energy wasteful buildings and transport
- energy intensive and inefficient industry
- lack of awareness about efficiency of energy use, unsustainable energy policy,
- Absence of institutional capacity and data in the field of energy consumption

Model of Energy Economy

DELIVERY of ENERGY RESOURCES

CONSUMPTION of ENERGY RESOURCES



DIGGING and TRNSFORMATION of ENERGY RESOURCES

Local Government – Key Actor of Energy Sector

- ***75%*** energy resources are used in settlements self-managed by local governments
- municipality usually is the biggest buyer of energy resources in city/town
- Most energy networks and generation units at local level owned by local communities and managed by municipalities

Energy Demand in Ukraine

- COMFORT, SPECIAL EQUIPMENT IN BUILDINGS ***40%***
- MANUFACTURING GOODS AND MATERIALS ***30%***
- MOVING PEOPLE, GOODS AND MATERIALS ***27%***
- COMMUNICATION, SCIENCE ***3%***

Rational Logic of Sustainable Energy Sector Development

- Review of needs in energy services and goods (new lifestyle).
- Energy efficiency retrofit of buildings (first priority), transport units and traffic control (second priority) and industry processes (third priority) with taking into account new lifestyle.
- Satisfying energy demand with renewable energy sources at cost efficiency basis.
- Adoption of centralized energy networks, generation units and extraction capacities to reduced needs of traditional energy resources.

Background of Municipal Sustainable Energy Program

Motivated Staff | Information

Adequate Vision & Political Will

Energy Saving Potential in Buildings

UKRAINE:

1. **Energy Refurbishment of Buildings in Uzhorod (IWU, Darmstadt, Germany 2003), estimation of heat energy savings in buildings: *36% - 64%***

2. **Energy Audit of Kindergarten №20 in Sumy, (NAPE, Poland, 2007), comprehensive cost effective modernization of building : *77%***

Energy Saving Potential in Buildings

Poland:

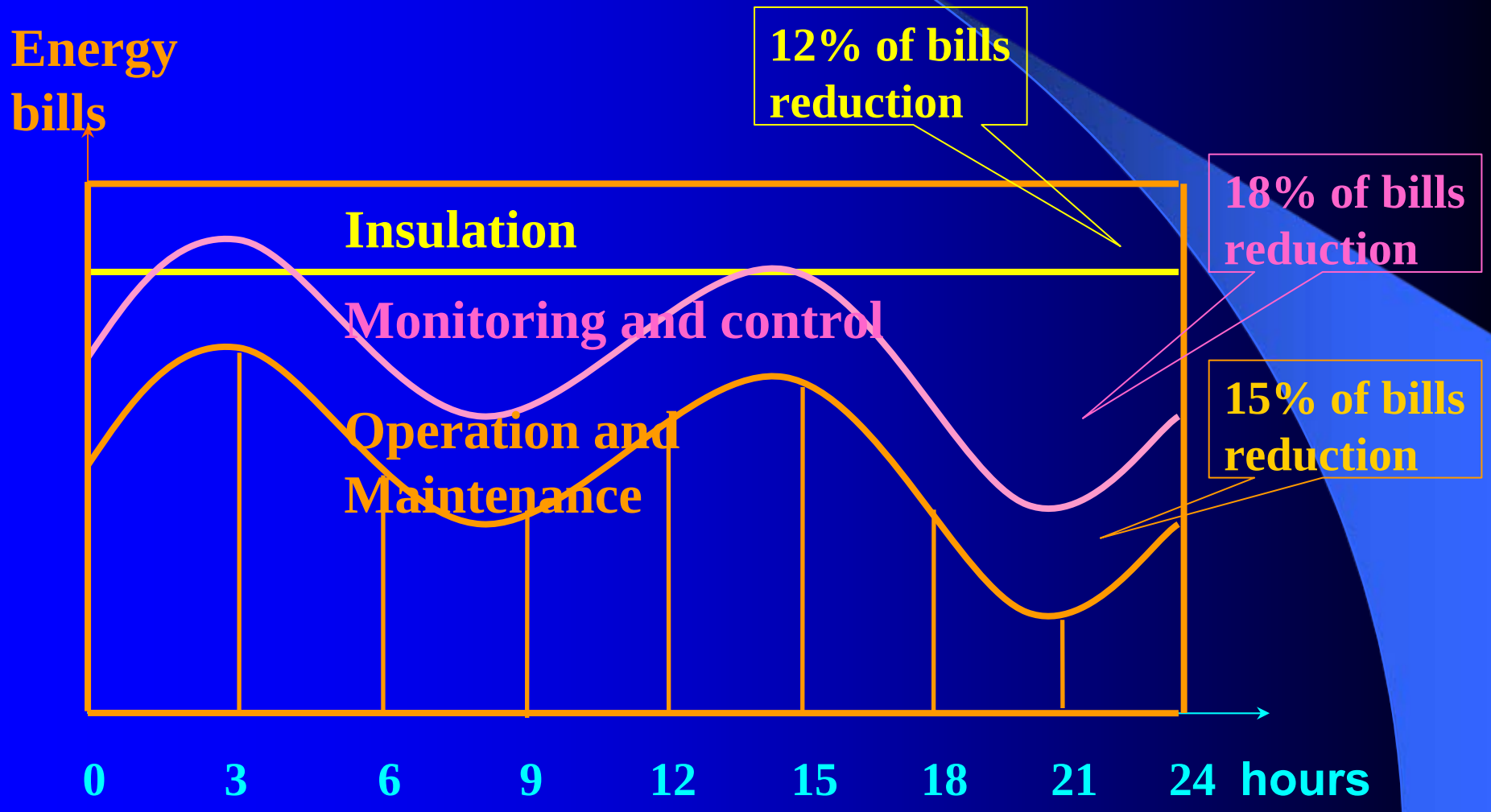
- **Monitoring of actual EE retrofit of Buildings:**

  all energy - *45%* ***(REUS Polska –www.reus.pl),***

- **Estsmates of EE retrofit of Buildings:**

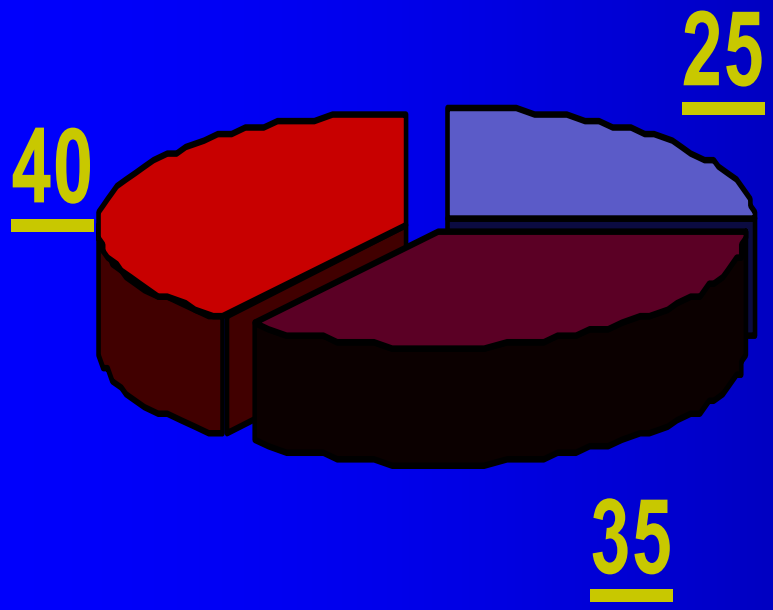
  thermal energy - *80%* ***(EURIMA- www.eurima.org)***

Structure of Energy Savings in Buildings (REUS-Polska)



Structure of Energy Savings in Buildings (REUS-Polska)

Energy savings in %, REUS Polska Projects



- Insulation
- Operation and Maintenance
- Monitoring and control

Strategy for Sustainable Energy in Buildings

Step 1

Metering, monitoring, control, benchmarking, awareness, initial local policy, institutional capacity

Step 2

Quality operation and maintenance, energy-efficient purchasing, improved local policy and institutional capacity

Step 3

Energy efficiency retrofit of building and energy equipment, advanced policy

Tactic for Sustainable Energy in Buildings

Close-in Actions: **Sustainable energy solutions for public buildings.**

Mid-term Actions: **Sustainable energy solutions for residential buildings.**

Remote Actions: **Sustainable energy solutions for comercial buildings.**

Establishment of Sustainable Energy Management System for Buildings

Requirements

- Common vision
- Long term policy and goals
- Integration with other municipal priorities
- Motivated staff
- Organizational structure
- Information
- Finance

Association "Energy Efficient Cities of Ukraine"

- Established in June 2007 by decisions of city councils of Kamianets-Podilsky, Lviv, Slavutych, Berdiansk.
- 11 city-memebers on May 15, 2007
- **Goals:** Sustainable energy development in municipalities, energy security and quality energy services for energy community.
- **Instruments:** Information, communication, consultancy, partnership development, projects.
- **Priorities:** End-use energy efficiency, renewable energy.

Strategy and tactic verification in Lviv

- **Step 1: Total energy monitoring/targeting all public buildings in Lviv. Started March 2007. Project Cost – 67,000 UAH**

- **Result 1: Cost savings due to reduction of energy use just for 9 month – 2, 339, 000 UAH (4% of all annual energy expenditures of municipality in 2007)**

Thank you for attention!

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