Spring Session on Auditing Energy Issues

Introduction to Energy Efficiency and Savings

*Measures for energy efficiency and saving*

Michal Rampír
Primary energy demand, 2035 (Mtoe)

Source: IEA, World energy outlook 2013
Work plan of INTOSAI WGEA for 2008-2010

2010

Auditing Sustainable Energy: Guidance for Supreme Audit Institutions
The Energy Chain

- Energy resources
- Energy generation
- Energy supply
- Energy consumption

Non-renewable
Renewable

Energy savings
Energy efficiency
Are there any provisions following from international agreements or treaties that are obligatory for my country?

How is the field of sustainable energy regulated by national legislation in my country?

Does my country have policies/programmes regarding sustainable energy?

What to do if my country has no energy policy/programme?

What instrument does my country use to address the environmental impacts of energy production?

What instruments does my country use to manage the energy policy/programme?
GOVERNMENTAL RESPONSE TO THE SUSTAINABLE ENERGY ISSUE

Main risks
- Environmental damages
- Emissions, waste, landscape, human health...
- Limited natural resources
- Political dependence
- Social shocks
- Capacity disproportions

Main measures
- Legislative changes
- Supportive programmes
- Energy saving technologies
- "Green" taxes
- Price regulation
- Educational programmes

Legal framework:
- International
- National

State policies:
- Energy
- Economy
- Industry
- Environmental
- Social

Supply and demand

Research and innovation

Energy consumption

Energy supply

Energy generation

Energy sources
- Non-renewable x renewable

Conceptual framework

Energy framework
Energy policies/programmes and possibilities of their management
INSTRUMENTS USED TO INFLUENCE ENERGY MANAGEMENT

- Direct support
- Indirect support
- Energy-related services provided directly by government
- Regulating the energy sector
- Energy Efficiency And Energy Savings Measures
- Other instruments
ENERGY EFFICIENCY AND ENERGY SAVINGS MEASURES

The WGEA Auditing Sustainable Energy handbook mentions examples of measures to improve energy efficiency and energy savings in the following areas:

- Energy transformations
- End – consumers
- Further potential instruments to achieve energy savings
ENERGY TRANSFORMATIONS

✓ increasing combined production of heat and power (so-called co-generation);

✓ raising the electric power efficiency and central heat generation efficiency;

✓ cutting down the energy losses in transmission and distribution.
END – CONSUMERS

IN PROCESSING INDUSTRIES, I.E.

✓ adopting and implementing measures identified by energy audits;

✓ using modern, energy-saving technologies and procedures.
END – CONSUMERS

IN HOUSEHOLDS, I.E.

- heat insulation of buildings, mitigation heat losses of buildings;
- supporting low-energy and passive housing;
- using energy-efficient appliances;
- reducing energy consumption by adopting a more economical standby mode;
- suitable placing of electrical appliances;
- optimum temperature for economical heating;
- regulating indoor temperature;
- removing obstacles that hinder free circulation of heat;
- preventing heat leaks through windows and doors;
- energy-saving measures applied to the use of warm and cold water;
- adopting suitable food preparation technologies;
- using economical fluorescent lamps instead of incandescent light bulbs.
END – CONSUMERS

IN TRANSPORTATION, I.E.

- supporting public transport;
- modernizing the fleet of vehicles;
- using a “green switch“ for outdoor lighting.
FURTHER POTENTIAL INSTRUMENTS TO ACHIEVE ENERGY SAVINGS

- introducing an environmental tax reform;
- green bonuses;
- guarantees extended in respect of payback on investment;
- monitoring and targeting;
- information and awareness-raising campaigns;
- educational activities focused on school establishments;
- technologically more exacting methods of production which at the same time are more friendly toward the environment.
IEA - database

http://www.iea.org/policiesandmeasures/energyefficiency/
Thank you for your attention

Michal RAMPÍR
michal.rampir@nku.cz