EAEME

European Master Programme in Environmental Management

Vourvoutsiotis Apostolos **Architect Engineer**

POLICY INSTRUMENTS

Project of the week No 7

Encourage Rational Use of Energy in Buildings

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In order to be interesting the presentation and the report I will formulate the text in five main questions:
What is Rational Use of Energy?
Who are the actors?
Why Rational Use of Energy?
How to save energy?
How to promote Energy Efficiency?

What is RUE and where applies.

Rational Use of Energy is energy saving, energy efficiency in Industry, transport and buildings.
Today the most buildings are built without Energy Assessment concerning energy efficiency and energy is lost in high consuming buildings.
The demand for energy was increasing year by year the last century with the industrial and technological development following the development of the quality of life. Last decay early ’80’s (even from ‘60’s we started to worry for high consumption in buildings and to talk for energy saving in buildings) there is the beginning of an effort to decrease the energy consumption in buildings that is called RUE
At the beginning Energy Efficiency seemed to be an expensive way of building but since the last decay many steps have been done also in order energy efficiency to be cost efficient also.
Key word to RUE is to be cost efficient without complicated, sophisticated and mainly high cost technologies.

Who are the main actors.

Actors -European Commission plays grate role in RUE by the Research and Technological Development Programme and the Demonstration Actions which is supporting.

-Government of each member state has to develop the appropriate policy and strategy with regulations, subsidies, education in order to promote RUE.

-Local Authorities will be responsible for the implementation of the European and National Programme but they should implement also their own programme according to their needs.

-Consultants public or private would be responsible for the implementation and the information of the public about RUE and the programme.

-Universities would be responsible to educate the future engineers for RUE by special courses focused on it.

-Technical Chambers, Associations of Engineers should organise seminars and conferences in order to inform and to educate the engineers.

-Construction companies should be award that energy efficiency can be and cost efficient at the same time in order to construct low energy buildings.

Receivers -Families intend to build new house.

-Families intend to buy a new apartment.

-Owners of excising houses.

-Engineers should be educated.

Why Rational Use of Energy?

World Energy Research Council reckons that the world could cut CO2 emissions by 20-30% simply by making more efficient use of energy.

High energy consumption is one of the main pollutants. Trying to use energy with more efficient way, minimising our needs at the same time we help to the improvement of the environment by decreasing green house emissions that are responsible for the increase of the world's average temperature.

Rational Use of Energy in combination with Renewable Energy Sources and clean fossil fuels is a good and the only solution for the sustainable development without Nuclear reactors. Decreasing dramaticaly the energy demand in buildings even at 50% of today's standard (a normal building demands 300w/m2a and a low energy house till 130w/m2a) we give the opportunity to the RES to cover more than 15% of the energy consumption.

Rational Use of Energy in housing and not only is one of the most important issues for energy conservation in order to reduce CO2 gases.

Advantages.

-Saving money during the operation (payback period)

-Environmental friendly

-labour opportunities through the active systems in housing. Encourage industry
-comfortable internal condition, thermal comfort, clean air.

Disadvantages
The only disadvantages are the higher construction cost and the difficult implementation. The first construction cost reimbursed from the payback period and gives benefits in long terms.

How to save Energy in buildings.

The systems and the techniques we use in order to save energy in building are divided into two categories: Passive and Active Systems.
Passive Systems
-Insulation is the most energy efficient and cost efficient techniques at the same time having high quality of construction in order to avoid Thermal bridges.
-Geometry of the building is also important. Compact buildings minimising the loss of energy.
-Orientation. Main living areas should be at the south and secondary like bath, storage at the north.
-Materials are important for the thermal mass of the building.
-Glass facade with low e-glasses in combination with
-shading devices in order to have enough solar heating in the winter and to prevent the sun and the overheating in the summer.
-Natural cooling techniques in order to avoid the use of the air-conditions
-Heat recovery systems in order to have good interior quality of the air energy saving at the same time.

Active systems
-Solar flat plate collectors in order to heat up water.
-Photovoltaics can cover till 50% of demand of every day energy.

How to promote Energy Efficiency.

Promotion and the implementation of RUE is very difficult because there many ways and combinations of solutions to achieve energy saving in one building. Another factor that influence the difficulty of the rue promotion is the higher cost of the construction and the pay back period.
-Education is most important measure to promote RUE. First we have to educate the engineers and then the public with contact persons for advising, info-brochures that can have access to the mass like newspaper or energybills, People doubt for the efficiency of the various techniques so the right information will illuminate these doubts.
-Motivations like subsidies is also important to attract the interest of the public to try some energy systems with lower costs.
-Easy products that the people could install by themselves, like the selfinstallion programme in Austria.

-Research and Technological Development in order to have better and more innovating energy saving systems.
-Regulations, harder than the existing, with a very good energy assessment for every building in order to decrease the demand for energy from 300W/m2a to 200W/m2a.

Programme
Programme in order to implement a RUE programme has to be a long term plan.
-Education , information
We will educate first the engineers in Universities or through seminars and conferences. And the people starting from schools with the children and going to the adults through television magazines brochures, media mainly.
-Subsidies -VAT Programme to public or large scale buildings and special programme for houses.
I will implement programme to install PV in roofs of public offices first and then to private building offices and Hotels where is the highest consumption with 40% subsidies. At the houses I will implement a programme for PV like the 1000 roofs in Germany in order to be familiar the people with this technology and to understand how effective is. I will give also subsides for isolation special glass and heat recovery systems in order to encourage their use.
-New Regulations
New regulations with higher standards and more efficient insulation should be required. An energy assessment also will be required and monitoring for how effective are the measures.

Conclusions.
Rational Use of Energy is an important issue for the solution of the energy problem and further to the problem of global warming.
RUE is not enough by itself as measure in order to produce Non Nuclear energy. We have to implement at the same time Renewable energy power plants and to improve the existing generators based on fossil fuels in order to reduce CO2, NOx and SO2 emissions..
RUE not only in buildings is one way.

Climate Change
Green House gases
CO2,NO2,MH4

Energy production & consumption

Non Nuclear

RUE in Buildings

Passive systems
Active systems