ENERGY in European Healthcare Institutions

ENERGY-QUESTIONNAIRE **IFHE-EUROPE**

PARIS 30 .05.2011

PAUL MERLEVEDE
VTDV BELGIUM

Idea energy-questionnaire

- In IFHE-Europe board ,we decided to create Working groups in order to learn from each other about different items used in the healthcare sector in Europe.

  - Working group 3: energy IFHE-Europe:

    board NVTG/VTDV - Questionnaire VTDV

  - participants: France, Finland, Belgium,

    Austria, Switzerland

energy-questionnaire

- We tried to have an European overvieuw :
  - energy consumption
  - kind of energy used
  - used ‘alternative’ sources
  - purposes of used energy
  - integration ‘alternative’ sources into total energy concept

Energy - questionnaire

- Energy consumption and building facts
- Relationship government – institutions
  - energy-costs
  - environment
  - government funding

Conclusions

Energy consumption

Average consumption heating-cooling participating countries (to have a general idea)

Energy per bed :11 -60 KW (installed power)

Energy per m² : 0,12-0,5 KW(installed power)

The big difference between minimum and maximum is depending from

- country to country – rules
- geografical
- institution to institution : old or new building…
- kind of institution : elderly houses
  - hospitals - number of beds
  - university hospitals

Energy consumption

- lightning :10 - 20 % of total electricity consumption
  - 2 - 6 KVA /bed
  - 0,17 - 0,8 KVA/m²

  Average % of TOTAL energy consumption
  - heating: 41 -87,5
  - cooling : 2- 17

    ventilation is included in previous consumptions
  - electricity: 15-40

Energy consumption

Al this average figures

- to have an idea about the different energypoints
- are depending on:
  - kind of institution
  - kind of building (building layers)
  - kind of heating (water, electricity,…)

Cooling in hospitals: more and more cooling:

- wellbeing
- cooling of hightech medical apparatus

‘Alternative’ sources

- Alternative sources already used:
  - BES (bore hole energy storage)
  - ground tubes
  - windenergy
  - hydro-energy
  - solar panels PV
  - solar panels Warm Water production
  - co-generation
  - other : nightventilation

Purposes of used energy-sources

- conventional energy sources are used for
  - electricity: principal for total consumption
    lighting, ventilation, apparatus,
    automation, sometimes
    heating, electrical engines…
  - gas :principal for total heating and kitchens
    and a little bit for labs
  - fuel : additional for heating

Integration of used alternative energy-sources

Alternative energy-sources and total energy concept:

- BES : in addition with conventional cooling, heating, warm water, ventilation (with exchangers)
- Groundtubes: in addition with conventional ventilation cooling-heating directly using via mixing air-box
- Windenergy: in addition with conventional electricity with convertors and synchronization apparatus.

Integration of alternative energy-sources

Hydro energy : in addition for conventional electricity
Solar energy PV: in addition with conventional electricity
private or deal with electricity providers
Solar energy Warm Water: preheating water for sanitary consumption or for heating : via exchanger
Co-generation : in addition with conventional energy:
producing warm water for consumption or for heating :via exchanger
producing electricity (own consumption or selling to distributor)
Other: nightventilation: less cooling energy needed

Energy consumption and building facts

- Most of the buildings are insulated (more or less)
- The difference in consumption for a building with less insulation (older building) and hyper modern insulated building can be very high concerning heating and cooling.

Energy consumption and building facts

- Buildings with less energy costs, have very good insulation of:
  - roof : sustainable insulation + green roof
  - wall: stones , cavity walls, insulation
  - windows: energy designed + super insulating glass
  - ground-floor insulation
  - basement walls : outside insultated (sustainable)
  - concrete-core activation and thick floorboard
    - building inertia
    - positive influence on energy concept

Relationship Government - Institutions

- Energy cost
- environment
- governmentfunding

In most countries : the government is funding part of the investments for new buildings or for big renovations.

Otherwise the government is also funding for daily costs of the institutions - price per" laying day".

Relationship Government- Institutions

- In some countries (Belgium f.i.) : government has some rules about energy consumption and saving (insulation, m² per bed,….). So they pay part of the investment (60 % for general investments)
- Alternative sources are promoted and some governments take part in the cost of investment.
- Finally these investments are positive for governments because there is less energy consumption- so the price of the laying- day will be lower .

Conclusions

- Difficult to take very secure conclusions, because there were not enough questionnaires.
- But in general we can say that in Europe

  more and more institutions are :

  - aware about energy costs
  - aware about alternative sources
  - are using already alternative sources
  - are looking for energy friendly renovations

Conclusions

- Governments are promoting and paying back investments of energy saving programs and renewable energy
- Specialised offices are looking for detailed benchmarking about energy and how to create ‘poor’-energy institutions
- May be it is necessary that local healthcare departments and environmental departments can look for “co-sponsoring” of all kind of energy-saving investments and for using alternative energy sources

Conclusions

The meaning of this rough overvieuw is to aware Europe and the European energy –officers about creating special European programs for healthcare sector (in combination with local government programs) about energy using , energy saving and other energy sources.

Via this way the global environment will be “ very glad” (less emissions, less depletion of the earth…..)

Conclusions

- Collaboration between different departments and specialists can make a proposal to European Government
  - realise less energy consumption,
  - implementation of alternative energysources,
  - special funding programs in addition with local funding
  - kind of CO^2 certificate (Kyoto protocol)

Conclusions

combining:

- building facts (walls ,floors,windows,roof)
- orientation and implementation of new buildings
- surfaces per bedroom
- total surface in function of kind of healthcare
- technical installations
- consumption of all kind of apparatus (incl. medical apparatus)
- posibilities for acces by train,bus,car,bycicle…)

Conclusions

- The healthcare sector uses a lot of energy (hunderd thousands of T Joule in Europe)
- All this points are important helping to create:
  - a cheaper healthcare
  - a better environment : less pollution,
    less use of fossiles, may be less risks(nucleair),..
  - some standards about energy management

A combined group of the European departments of healthcare and energy , specialists of all kind of alternative energy-sources, buildings specialists and also the users (f.i. representatives of IFHE-Europe) can make a proposal to reach this gaols.

Conclusions

- All this gaols are a win-win situation for institutions and for governments.
- A worldwide winning goal (natural energy stocks, Kyoto…)

So it is very important :

- to take part in this IFHE-Europe energy working group (questionnaire)
- gathering all information about what exists , idea's, energy concepts…local rules of goodpractice , energy management

Conclusions

- ENERGY is very important in our live and our society and also worldwide
- Energy is a hot-topic for healthcare
- Without energy : no economy
- Use different energy sources
- SUPPORT IFHE-EUROPE Energy Working Group 3.

The end

Thank you

IFHE – Europe - VTDV Belgium

Paul Merlevede
paulmerlevede@hotmail.com
Mobile :0032478221751