CB 12 – Association of social Institutions of Slovenia - SSZS

Country: SI

SUMMARY

Introduction

One of the priorities of the European Union is improving energy and environmental efficiency. This is also the fastest and the most cost effective way to reduce the primary energy consumption and greenhouse gas emissions. Energy and water costs in public buildings represent up to 5-10 % of total expenditures. This is why the importance of energy efficiency is increasing rapidly.

Energy efficiency in residential care homes is currently not a standard practice and above all, it is not a continuous process, which is systematically designed, managed and controlled. In the past, a series of activities in this area was carried out, particularly in terms of data collection and single comparative assessments of the situation through the perspective of key energy indicators.

However, in reviewing the situation in this area we discovered that in the majority of these buildings no one systematically dealt with the problem of energy consumption. Persons dealing with energy efficiency are often directors who want to reduce the cost of energy bills. In such cases, measures are not normally carried out systematically; they depend on the current initiatives, information or offers.

In order to improve energy efficiency, the implementation of an energy audit and an efficient energy management system are of crucial importance. In the first phase, it is sensible to introduce an energy manager, standard ISO 50.001 and implement the best available practices in this field. Only then the residential care home should start planning the renovation of the existing buildings or eventually building new premises, which must always consider the existing local energy concept and be optimally installed in the surroundings.

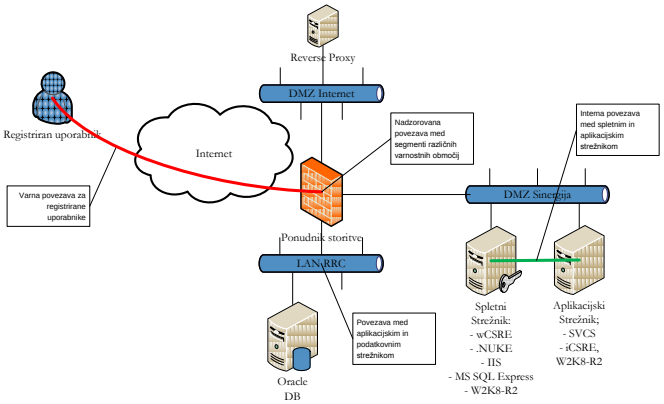
Summary of Energy Efficiency Measures

Introduction of System for Energy Management

From previously performed analyses it was established that the savings pontentials of residential homes for the elderly are very high, however, those potentials are seldom achieved. Experiences have shown that constructional and technical measures are not the only possible solutions – economical treatment of the existing sources and means is also very important. This kind of energy managemet can be functional on a long-term only with the integration of two fields: an umbrella energy management and suitable information support.

Some residential care homes have already realized that and have joined the central system for energy management on the level of Association of Social Institutions of Slovenia (the Association). At the moment, 16 organizations with the corresponding 21 buildings are integrated in the central system. The project joins and directs common activities of the Association and individual activities of residential care homes in this area.

A basis for energy, environment, and cost efficiency evaluation is respresented by an umbrella information system for energy management – CSRE. This comprehensive information system for energy management derives from a long-standing best practice and a much more complex industrial application in the background of the system, which was deliberately simplified for residential care homes in order to be user-friendly. In the first phase, a basic version of the software was established. Now, it is being upgraded from simple measurements to very complex monitoring systems.

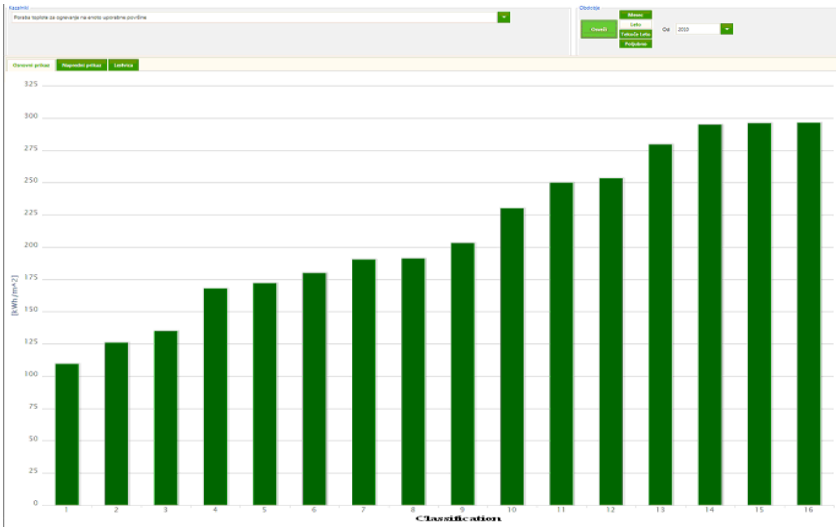


The system is in accordance with EN 16001 and ISO 50001 standards and represents a support to efficient energy management. It enables continuous improvement of energy efficiency with stimulation and evaluation of organizational and investment measures. The energy efficiency improvement is achieved with the help of efficiency indicators, which are based on the measured values of energy and water consumption, external factors, statement values, occupancy of rooms, financial parametres and architectural and energy characteristics of the building. The transparency of the results on the basis of mutual comparison of efficiency enables introduction and transfer of best practices.

The introduction of information system was performed in January 2011 within the Save Age project. The structure of the monitoring system was prepared on the basis of the gathered data at the take-off

points for energy and water and data on characteristics of the building. The system was put in use in February 2011. The implementation of system for energy management was supported by Association of Social Institutions, while all activities have been performed by external organization ENEKOM, d.o.o., Energy Advisory Institute, which offers energy consulting services.

The project results show that in 2011 the average energy savings due to organizational measures count up to 3.6 % savings in heat consumption, 1.1 % savings in consumption of electric energy and 3.9 % savings in consumption of water with regard to 2010, which represents 910 MWh of savings (83,000 €) or 320 tons of CO2 reductions.



With the optimization of the take-off points, monitoring of settlements of accounts and other activities in the field of energy supply, more than 50,000 € additional savings on the yearly basis were achieved. The project also represents a basis for a joint purchase of electric energy and fossil fuels. The joint purchase enabled more than 0.5 mio € yearly savings for the participating residential care homes.

In the future, we can expect that only with organizational and low-cost measures energy consumption in the participating homes will be reduced for 5-15 % according to the characteristical consumption prior to the implementation of the system. The system also shows the correct orientation for projects dealing with energy renovations (energy supply, laundries, hot water preparation, etc.). In the past, a partial approach was characteristical for this field, which reflects in numerous worst practices, from the planning or reconstructions to buying equipment. Cases where individual residential care homes invested a lot and gained almost nothing are not rare. With the introduction of energy management on the level of Association of Social Institutions, basis for effective investments will be laid due to transparent results.

The implemenitation costs of system for energy management are negligible in the comparison with the achieved effect. On average, savings for an individual organization are 5 times bigger than the project's costs.

Implementation of Energy Information System in Dom upokojencev Nova Gorica and Unit Podsabotin

One of the Save Age projects is also the upgrading of the umbrella information system for energy management with energy supervisory information system. The system was implemented in Dom upokojencev Nova Gorica in October 2012. The residential care home introduced the measuring equipment and supervisory information system for preparing detailed energy statements, supervising key energy parametres and automatized data recording. The supervisory information system enables a much easier optimization of energy consumption.

The energy supervisory system represents a basis for efficient comprehensive system for energy management. An intelligent system for measuring and supervision called »smart metering« represents an important tool for improving energy consumption efficiency.

On a yearly basis, the introduced measure should bring direct savings counting up to 30 MWh of electricity and 80 MWh of heat or around 8,000 €. The investment should return in 2.5 years; if we take into consideration the non-returnable funds, the return period will be a year and a half. The measure includes introduction of umbrella indicators on the level of the home (in accordance with the best available technology – BAT), quality indicators in the boiler room, sanitary water heating, drinking water consumption, kitchen and laundry. Energy supervisory system therefore includes quality indicators, supervisory system, indicators' evaluation, stimulation for introducing a system of responsibility and determination of indicators' target values.

Integral Reconstruction of the Heating System in Dom starejših občanov Ribnica

Within a comprehensive reconstruction of the heating system in Dom starejših občanov Ribnica, the following measures have been implemented:

- installation of a heat pump (type air/water) for heating and cooling of the building;
- introduction of a district heating system connected with a biomass boiling room;

The above-mentioned measures were implemented in November 2012. On average, 1,005 MWh/year of heat was used in Dom starejših Ribnica for heating, hot sanitary water preparation and other use (laundry room, kitchen). The heat was produced by combusting liquefied petroleum gas in warm-water boilers. Because there is no possibility for heating with natural gas and the local energy concept enables a system for district heating with heat from a biomass boiler plant, the residential care home decided to introduce district heating. Regarding the momentary heat prices (LPG), the annual savings should be around 18,900 €. The return period should, therefore, be aroud 1 year.

In 2011, Enekom, d.o.o. performed a detailed energy audit of Dom starejših Ribnica. It has revealed that together with the district heating, an introduction of a heat pump would be reasonable too, because district heating does not operate from May to October. A residential care home needs heat in that period too (higher room temperatures, hot water preparation). An integration of both systems was, therefore, necessary. The residential care home can now use district heating and a heat pump and/or the existing system for LPG heating for additional heating. The energy audit revealed that home will save around 45 MWh of energy or 4,500 €.

Total energy consumption for heating and sanitary water heating in May, September and October was estimated at 70 MWh. In the warmer period, when space heating will not be necessary, the heat pump will be integrated into the cooling system, which is represented by a separate cooling compressor on the roof of the building.

The residential care home is in the process of acquiring non-returnable funds for both projects. If they are successful, the return period will be 1.5 years; otherwise, it will extend to 2.5 years.

Visibility Actions

In order to improve residents' and employees' energy efficient behaviour, we decided to prepare visibility signs to be used in residential care homes. Because we wanted our approach to be comprehensive and innovative, we contacted Faculty of Natural Sciences and Engineering (University of Ljubljana). Within their study courses, students of graphic and interactive communication agreed to prepare material for reminding residents and emloyees to behave in an energy efficient way. In order to present the specific environment of residential care homes to students, we visited a typical home in Ljubljana and discussed possible solutions with the management. Another useful insight into energy efficiency issues of residential care homes was given by our energy manager. At the end, the students justified our trust; they prepared interesting and innovative solutions for reminding employees and residents to behave more energy efficient.

We decided to equip 5 residential care homes with different signs, dealing with ventilation, turning off the lights, setting appropriate temperature in rooms, saving hot and cold water, turning off different machines, using the stairs, correct separating of waste and laundry. Students also prepared other materials, such as information pyramids (to be put on tables), a roll-up stand, posters, and dominos that remind the user of energy saving. We will present the materials to all residential care homes and together with our energy manager promote their use.

Visibility signs are attached as Annex to the report.

1- Energy Efficiency Activities in Residential Care Homes in Slovenia

Dom ob Savinji Celje

1. Analysis of Consumption

In Dom ob Savinji Celje, the total energy consumption in 2011 amounted to 9.9 TJ, electricity representing 24 % and natural gas 75 % of total energy consumption. Until September 2007 the residential care home used extra light fuel oil. Then they started using natural gas, which enabled lower prices for heating and lower environmental impact. In 2011, the residential care home produced 777.2 tons of CO_2.

The energy consumption does not vary much in the last few years; however, a trend of efficiency improvement after 2010 is noticeable. Energy and water costs were continuously increasing until 2010. In 2011, the costs lowered for 12 % regarding the previous year. This was due to lower energy consumption and lower electricity prices.

2. Action Plan

There are numerous opportunities for improvement. The first measures to be implemented should deal with energy supply and wise energy management:

- optimization of electricity purchase, joining of natural gas take-off points and optimal predictions of the maximum take-off per day;
- optimization of room temperatures;
- suitable natural ventilation in rooms;
- optimization of laundry washing regarding the amount of laundry, assorting, and operation;
- reducing the electricity consumption by turning off different machines and equipment in the night time;
- partial reconstruction of the ventilation system;
- economical use of drinking water;
- reduction and/or adjustment of equipment operation regarding the actual needs (lighting, computers, etc.);
- etc.

Regarding investment measures there are three priority fields:

- upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system;

- modification of the take-off points;
- introduction of renewable resources (heat pump, micro-cogeneration, etc.) ;

3. Energy Efficiency Activities Implemented

In 2012, a comprehensive energy audit was performed, which gives guidelines in the field of energy supply, partial reconstruction of energy systems and other devices, promotion, and education. On the level of the Association, the energy efficiency project has the highest priority. A comprehensive system for energy management was simplified in order to be suitable for use in residential care homes. The system was integrated in the management system in Dom ob Savinji in April 2011. Different promotional activities are being carried out within the project and they already show the first results, such as efficiency improvement and better staff motivation. In accordance with the energy manager recommendations, a reconstruction of the heating system is being implemented.

4. Monitoring

In 2011, Dom ob Savinji Celje has joined the umbrella energy management on the level of the Association and uses the programming solution CSRE. The system is designed in a way that shows different characteristical indicators and building's efficiency in different timeframes. At least once a year an expert presentation of the system and results are presented to all residential care homes within the Association. According to the typical indicators, Dom ob Savinji Celje represents a medium energy efficient residential care home in Slovenia.

With the correct approach and economical behaviour, electricity and gas consumption can be additionally lowered with simple organizational measures. Some potential exists mainly in the field of heating, economical electricity consumption, and so on. Regarding the investments, reconstruction of the heating system and implementation of the energy supervisory system have the priority.

2- Dom starejših Logatec

1. Analysis of Consumption

In Dom starejših Logatec, the total energy consumption in 2011 amounted to 6.97 TJ, electricity representing 26% and natural gas 74 % of total energy consumtion. The energy consumption does not vary much in the last few years; however, a trend of efficiency improvement in 2011 and especially in 2012 is noticeable. Until now, the difference between the highest and lowest energy consumption is 7%. Energy and water costs were continuously increasing until 2010, when they were 31 % higher as in 2007. In 2011, the costs lowered for 12 % regarding the previous year. This was due to lower energy consumption and lower electricity prices.

2. Action Plan

There are numerous opportunities for improvement. The first measures to be implemented should deal with energy supply and wise energy management:

- optimization of electricity purchase and natural gas take-off point;
- integration of micro-cogeneration in the energy system of the building;
- optimization of laundry washing regarding the amount of laundry, assorting, and operation;
- reducing the electricity consumption by turning off different machines and equipment in the night time;
- reduced operation of the ventilation system;
- suitable natural ventilation in rooms;
- optimization of room temperatures;
- economical use of drinking water;
- reduction and/or adjustment of equipment operation regarding the actual needs (lighting, computers, etc.);
- etc.

Regarding investment measures there are three priority fields:

- upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system;
- compensation of the reactive power;
- replacement of the steam system;

3. Energy Efficiency Activities Implemented

In 2012, a comprehensive energy audit was performed, which gives guidelines in the field of energy supply, partial reconstruction of energy systems and other devices, promotion, and education. On the level of the Association, the energy efficiency project has the highest priority. A comprehensive system for energy management was simplified in order to be suitable for use in residential care homes. The system was integrated in the management system in Dom starejših Logatec in 2011. Different promotional activities are being carried out within the project and they already show the first results, such as efficiency improvement and better staff motivation. Energy efficiency of Dom starejših Logatec was improved due to different implemented measures and investments, such as heating system and laundry room improvements, ventilation of halls and other activities.

4. Monitoring

In 2011, Dom starejših Logatec has joined the umbrella energy management on the level of the Association and uses the programming solution CSRE. The system is designed in a way that shows different characteristical indicators and building's efficiency in different timeframes. At least once a year an expert presentation of the system and results are presented to all residential care homes within the Association. According to the typical indicators, Dom starejših Logatec represents a medium energy efficient residential care home in Slovenia.

With the correct approach and economical behaviour, electricity and gas consumption can be additionally lowered with simple organizational measures. Some potential exists mainly in the field of heating. Regarding the investments, reconstruction of the laundry room and implementation of the energy supervisory system have the priority. Both systems are already in the process of implementation.

3- Dom Tisje Šmartno pri Litiji

1. Analysis of Consumption

In Dom Tisje, the total energy consumption in 2011 amounted to 3.7 TJ, electricity representing 31%, extra light fuel oil 66 % and liquefied petroleum gas 3% of total energy consumtion. The energy consumption does not vary much in the last few years; however, a trend of efficiency improvement after 2010 is noticeable. Energy costs in 2011 were 28% lower as in 2008.

2. Action Plan

Energy costs reduction can be achieved on different levels; the most effective measures are organizational measures, optimization of electric devices operation and ligting, reconstruction of the heating system, and introduction of renewable energy sources. The first measures to be implemented should deal with energy supply and wise energy management:

- reconstruction of the boiling room and introduction of the wood biomass or heat pump;
- reduction of the heat loss due to transmission (roof, facade, windows);
- optimization of ventilation and system regulation;
- gradual replacement of machines in the laundry room;
- etc.

3. Energy Efficiency Activities Implemented

In 2011, a comprehensive energy audit was performed, which gives guidelines in the field of energy supply, partial reconstruction of energy systems and other devices, promotion, and education. On the level of the Association, the energy efficiency project has the highest priority. A comprehensive system for energy management was simplified in order to be suitable for use in residential care homes. The system was integrated in the management system in Dom Tisje in April 2011. Different promotional activities are being carried out within the project and they already show the first results, such as efficiency improvement and better staff motivation. Energy efficiency of Dom Tisje was improved due to different implemented measures and investments, such as heating system and laundry room improvements, ventilation of halls and other activities.

4. Monitoring

In 2011, Dom Tisje has joined the umbrella energy management on the level of the Association and uses the programming solution CSRE. The system is designed in a way that shows different characteristical indicators and building's efficiency in different timeframes. At least once a year an expert presentation of the system and results are presented to all residential care homes within the Association. According to the typical indicators, Dom Tisje represents a high energy efficient residential care home in Slovenia.

In the past, Dom Tisje reconstructed the boiling room, optimized the heating system, insulated the attic, and replaced the majority of windows. All those measures substantially reduced energy consumption for heating. With organizational measures, energy consumption and extra light fuel oil consumption can be additionally reduced. Regarding the investments, the highest priorities are the upgrading of the heating system with potential integration of renewable energy sources, reconstruction of buildings' envelope, the upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system.

4- Center slepih, slabovidnih in starejših Škofja Loka

1. Analysis of Consumption

In Center slepih, slabovidnih in starejših Škofja Loka, the total energy consumption in 2011 amounted to 9.7 TJ, electricity representing 81%, extra light fuel oil 13 %, natural gas 5 %, and liquefied petroleum gas 1 % of total energy consumtion. During the last few years the energy consumption is reducing and the energy efficiency improvement trend is noticeable. Energy costs in 2011 were 34% lower as in 2008.

2. Action Plan

There are numerous opportunities for improvement. The first measures to be implemented should deal with energy supply and wise energy management:

- optimization of electricity purchase and natural gas take-off points;
- optimization of room temperatures;
- suitable natural ventilation in rooms;
- optimization of laundry washing regarding the amount of laundry, assorting, and operation;
- reducing the electricity consumption by turning off different machines and equipment in the night time;
- economical use of drinking water;
- reduction and/or adjustment of equipment operation regarding the actual needs (lighting, computers, etc.);
- etc.

Regarding investment measures there are three priority fields:

- upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system;
- partial reconstruction of the heating station;
- integration of renewable energy sources (heat pump, micro-cogeneration) into the energy system;

3. Energy Efficiency Activities Implemented

On the level of the Association, the energy efficiency project has the highest priority. A comprehensive system for energy management was simplified in order to be suitable for use in residential care homes. The system was integrated in the management system in Center slepih, slabovidnih in starejših Škofja Loka in April 2011. Different promotional activities are being carried out within the project and they already show the first results, such as efficiency improvement and better staff motivation. Energy efficiency of Center slepih, slabovidnih in starejših Škofja Loka was

improved due to different implemented measures and investments, such as laundry room improvements, ventilation of halls and other activities.

4. Monitoring

In 2011, Center slepih, slabovidnih in starejših Škofja Loka has joined the umbrella energy management on the level of the Association and uses the programming solution CSRE. The system is designed in a way that shows different characteristical indicators and building's efficiency in different timeframes. At least once a year an expert presentation of the system and results are presented to all residential care homes within the Association. According to the typical indicators, Dom Tisje represents a medium energy efficient residential care home in Slovenia.

With organizational measures, energy and extra light fuel oil consumption can be additionally reduced. Regarding the investments, the highest priorities are the upgrading of the heating system with potential integration of renewable energy sources, reconstruction of buildings' envelope, the upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system (currently in process).

5- Dom upokojencev Kranj

1. Analysis of Consumption

In Dom upokojencev Kranj, the total energy consumption in 2011 amounted to 7.8 TJ. 59 % of costs are spent for district heating, 30 % for electrical energy, 13 % for drinking water and 4 % for liquefied petroleum gas. During the last few years, the energy consumption oscilates, but the energy efficiency improvement trend is noticeable in 2009 and 2011. Energy costs in 2009 reduced for 43 % and since then they remained at the same level.

2. Action Plan

There are numerous opportunities for improvement. The first measures to be implemented should deal with energy supply and wise energy management:

- optimization of laundry washing regarding the amount of laundry, assorting, and operation;
- optimization of kitchen equipment operation;
- suitable natural ventilation in rooms;
- reducing the electricity consumption by turning off different machines and equipment in the night time;
- reduction and/or adjustment of equipment operation regarding the actual needs (lighting, computers, etc.);
- etc.

Regarding investment measures the following fields are of the highest priority:

- reconstruction of the building's envelope;
- upgrading of the regulation system for space heating;
- upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system;
- integration of renewable energy sources (heat pump) into the energy system;

3. Energy Efficiency Activities Implemented

On the level of the Association, the energy efficiency project has the highest priority. A comprehensive system for energy management was simplified in order to be suitable for use in residential care homes. The system was integrated in the management system in Dom upokojencev Kranj in April 2011. Different promotional activities are being carried out within the project and they already show the first results, such as efficiency improvement and better staff motivation. Energy efficiency of Dom upokojencev Kranj was improved due to different implemented measures and investments, such as laundry room improvements, ventilation of halls and other activities.

4. Monitoring

In 2011, Dom upokojencev Kranj has joined the umbrella energy management on the level of the Association and uses the programming solution CSRE. The system is designed in a way that shows different characteristical indicators and building's efficiency in different timeframes. At least once a year an expert presentation of the system and results are presented to all residential care homes within the Association. According to the typical indicators, Dom upokojencev Kranj represents a low energy efficient residential care home in Slovenia.

With organizational measures, electricity and gas consumption can be additionally reduced. Some investments are currently in process. Buildings are in the last phase of a comprehensive reconstruction. The upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system is also being prepared.

6- Dom starejših občanov Ribnica

1. Analysis of Consumption

In Dom starejših občanov Ribnica, the total energy consumption in 2011 amounted to 4.5 TJ.

73 % of costs are spent for liquefied petroleum gas, 23 % for electrical energy, and 4 % for drinking water. During the last few years, the energy and water costs are increasing due to higher prices.

2. Action Plan

Dom starejših Ribnica is one of the most efficient residential care homes in Slovenia. Due to the energy scheme of the building, which is based on fossil fuels, the home has high energy costs. The heat supply was the main reason for introducing some projects for lowering energy costs. There are numerous opportunities for improvement. The first measures to be implemented should deal with energy supply and wise energy management:

- optimization of energy purchasing;
- optimization of laundry equipment;
- optimization of kitchen equipment operation;
- optimization of system and local regulation;
- suitable natural ventilation in rooms;
- reducing the electricity consumption by turning off different machines and equipment in the night time;
- reduction and/or adjustment of equipment operation regarding the actual needs (lighting, computers, etc.);
- organizational measures in the field of lighting;
- etc.

Regarding investment measures the following fields are of the highest priority:

- connection to the district heating plant;
- introduction of the heat pump for sanitary water preparation;
- upgrading of the regulation system for space heating;
- upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system;

3. Energy Efficiency Activities Implemented

On the level of the Association, the energy efficiency project has the highest priority. A comprehensive system for energy management was simplified in order to be suitable for use in residential care homes. The system was integrated in the management system in Dom starejših Ribnica in 2011. Different promotional activities are being carried out within the project and they already show the first results, such as efficiency improvement and better staff motivation.

4. Monitoring

Dom starejših Ribnica opened in 2008 and has already joined the umbrella energy management on the level of the Association. The system is designed in a way that shows different characteristical indicators and building's efficiency in different timeframes. At least once a year an expert presentation of the system and results are presented to all residential care homes within the Association. Dom starejših Ribnica is one of the most efficient homes in Slovenia.

With organizational measures, energy and heat consumption can be additionally reduced. The residential care home introduced some good solutions, such as hallway ventilation, laundry transport, heat distribution, water heating system, and so on. Nonetheless, the energy audit has pointed out some possible improvements, especially reconstruction of air-conditioning, introduction of organizational measures, and so on. The upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system is also being prepared.

7- Dom upokojencev dr. Franceta Bergelja Jesenice

1. Analysis of Consumption

In Dom upokojencev dr. Franceta Bergelja Jesenice, the total energy consumption in 2011 amounted to 7.8 TJ. 54 % of costs are spent for extra light fuel oil, 35 % for electrical energy, 9 % for drinking water and 2 % for liquefied petroleum gas. During the last few years, the energy consumption oscilates, but the energy efficiency improvement trend is noticeable after 2010. In 2011, energy costs reduced for 15 % and since then they remained at the same level.

2. Action Plan

There are numerous opportunities for improvement. The first measures to be implemented should deal with energy supply and wise energy management:

- reduction of transmission losses of both buildings (roof, façade, windows);
- reconstruction of energy system and introduction of biomass;
- reconstruction of hot water distribution;
- reconstruction of the laundry room;

Regarding behaviour measures the following fields are of the highest priority:

- optimization of machines' operation;
- efficient energy consumption in joint and living rooms;
- etc.

3. Energy Efficiency Activities Implemented

On the level of the Association, the energy efficiency project has the highest priority. A comprehensive system for energy management was simplified in order to be suitable for use in residential care homes. The system was integrated in the management system in Dom upokojencev Jesenice in 2011. Different promotional activities are being carried out within the project and they already show the first results, such as efficiency improvement and better staff motivation.

4. Monitoring

In 2011, Dom upokojencev Jesenice has joined the umbrella energy management on the level of the Association and uses the programming solution CSRE. The system is designed in a way that shows different characteristical indicators and building's efficiency in different timeframes. At least once a year an expert presentation of the system and results are presented to all residential care homes within the Association. According to the typical indicators, Dom upokojencev Jesenice represents a medium energy efficient residential care home in Slovenia.

With organizational measures, optimization of machines' operation and lighting energy costs can be additionally reduced. Regarding the investments, heating reconstruction, renovation of building's envelope, and laundry room reconstruction have the priority. The upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system is also being prepared.

8- Dom upokojencev Nova Gorica

1. Analysis of Consumption

In Dom upokojencev Nova Gorica, the total energy consumption in 2011 amounted to 9.7 TJ. 43 % of costs are spent for heating, 38 % for electrical energy, and 19 % for drinking water. During the last few years, the energy consumption oscilates, but the energy efficiency improvement trend is noticeable in 2011 due to lower energy prices and lower energy consumption.

2. Action Plan

There are numerous opportunities for improvement. The first measures to be implemented are equipment and systems modernization. Other measures should deal with wise energy management:

- optimization of laundry washing regarding the amount of laundry, assorting, and operation;
- reduction of hot sanitary water circulation;
- suitable natural ventilation in rooms;
- reducing the electricity consumption by turning off different machines and equipment in the night time;
- economical use of drinking water;
- reduction and/or adjustment of equipment operation regarding the actual needs (lighting, computers, etc.);
- etc.

Regarding investment measures the following fields are of the highest priority:

- compensation of reactive power;
- reconstruction of hot sanitary water system;
- reconstruction of the drying room;
- reconstruction of insulation of the boiler room;
- introduction of the micro-cogeneration unit;
- introduction of the heat pump for sanitary water heating;
- etc.

3. Energy Efficiency Activities Implemented

On the level of the Association, the energy efficiency project has the highest priority. A comprehensive system for energy management was simplified in order to be suitable for use in residential care homes. The system was integrated in the management system in Dom upokojencev Nova Gorica in September 2011. Different promotional activities are being carried out within the project and they already show the first results, such as efficiency improvement and better staff motivation.

4. Monitoring

In 2011, Dom upokojencev Nova Gorica has joined the umbrella energy management on the level of the Association and uses the programming solution CSRE. The system is designed in a way that shows different characteristical indicators and building's efficiency in different timeframes. At least once a year an expert presentation of the system and results are presented to all residential care homes within the Association. According to the typical indicators, Dom upokojencev Nova Gorica represents a medium energy efficient residential care home in Slovenia.

Some investments are currently in process; however, the modernization of the sanitary water heating system has the highest priority. The upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system was already executed.

9- Dom upokojencev Postojna

1. Analysis of Consumption

In Dom upokojencev Postojna, the total energy consumption in 2011 amounted to 5.6 TJ. 47 % of costs are spent for extra light fuel oil, 42 % for electrical energy, 7 % for drinking water and 3 % for liquefied petroleum gas. During the last few years, the energy consumption does not change explicitly, however energy costs are increasing.

2. Action Plan

There are numerous opportunities for improvement. The first measures to be implemented should deal with energy supply and wise energy management:

- modernization of washing and drying machines;
- suitable natural ventilation in rooms;
- reducing the electricity consumption by turning off different machines and equipment in the night time;
- reduction and/or adjustment of equipment operation regarding the actual needs (lighting, computers, etc.);
- etc.

Regarding investment measures the following fields are of the highest priority:

- reconstruction of the building's envelope;
- upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system;

3. Energy Efficiency Activities Implemented

On the level of the Association, the energy efficiency project has the highest priority. A comprehensive system for energy management was simplified in order to be suitable for use in residential care homes. The system was integrated in the management system in Dom upokojencev Postojna in 2011. Different promotional activities are being carried out within the project and they already show the first results, such as efficiency improvement and better staff motivation.

4. Monitoring

In 2011, Dom upokojencev Postojna has joined the umbrella energy management on the level of the Association and uses the programming solution CSRE. The system is designed in a way that shows different characteristical indicators and building's efficiency in different timeframes. At least once a year an expert presentation of the system and results are presented to all residential care homes within the Association. According to the typical indicators, Dom upokojencev Postojna represents a medium energy efficient residential care home in Slovenia.

With organizational measures, electricity and gas consumption can be additionally reduced. The potentials are high in the area of heating, laundry room and efficient use of energy. The upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system is also being prepared.

10- Dom starejših občanov Ilirska Bistrica

1. Analysis of Consumption

In Dom starejših občanov Ilirska Bistrica, the total energy consumption in 2011 amounted to 8.0 TJ. 51 % of costs are spent for extra light fuel oil, 19 % for electrical energy, 20 % for drinking water and 10 % for liquefied petroleum gas. During the last few years, the energy consumption remains at the same level; however, energy and water costs are increasing (in 2011 21 % higher than in 2009).

2. Action Plan

There are numerous opportunities for improvement. The first measures to be implemented should deal with energy supply and wise energy management:

- optimization of electrical energy purchase;
- optimization of the laundry room and kitchen;
- suitable temperatures in rooms and appropriate natural ventilation;
- reducing the electricity consumption by turning off different machines and equipment in the night time;
- reduction and/or adjustment of equipment operation regarding the actual needs (lighting, computers, etc.);
- etc.

Regarding investment measures the following fields are of the highest priority:

- reconstruction of the laundry room;
- reconstruction of the boiler room;
- upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system;
- integration of renewable energy sources (heat pump) into the energy system;

3. Energy Efficiency Activities Implemented

On the level of the Association, the energy efficiency project has the highest priority. A comprehensive system for energy management was simplified in order to be suitable for use in residential care homes. The system was integrated in the management system in Dom starejših občanov Ilirska Bistrica in May 2012. Different promotional activities are being carried out within the project and they already show the first results, such as efficiency improvement and better staff motivation. Energy efficiency of Dom starejših občanov Ilirska Bistrica was improved due to different implemented measures and investments, such as laundry room improvements, ventilation of halls and other activities.

4. Monitoring

In 2012, Dom starejših občanov Ilirska Bistrica has joined the umbrella energy management on the level of the Association and uses the programming solution CSRE. The system is designed in a way that shows different characteristical indicators and building's efficiency in different timeframes. At least once a year an expert presentation of the system and results are presented to all residential care homes within the Association. According to the typical indicators, Dom starejših občanov Ilirska Bistrica represents a high energy efficient residential care home in Slovenia.

With organizational measures, electricity and gas consumption can be additionally reduced. Potentials lie in the field of heating, the laundry room, and economical use of energy. The upgrading of the existing system for energy management with measurements and introduction of the energy supervisory system is also being prepared.

Annexes

- Visibility signs
- Detailed energy action plans for 10 residential care homes