

Steneby church, Karlstad diocese in Sweden. Steneby parish has built a bio-fuel central heating for four buildings including the church.

## Karlstad Diocese – Pioneer for Sustainable Energy

**Karlstad diocese in mid-west Sweden is one of the first dioceses in Europe, and perhaps in the world, that has made a comprehensive energy analysis of all its churches and other buildings. Energy inventories have been carried out in all of the diocese's more than 500 churches, parish houses, vicarages and other buildings that are heated. In addition, action plans for energy efficiency and phase out plans for fossil fuels have been approved for these buildings.**

Karlstad diocese has the potential to reduce energy costs by 40 per cent and to reduce carbon dioxide emissions by 50 per cent. The vision for Karlstad diocese is a transition to a fully renewable energy supply.

The energy work in Karlstad diocese

began in 2006 when the diocese adopted a climate strategy. In 2007 8.9 million SEK was allocated for a project called “the Climate Project” with three pillars:

(1) energy planning, (2) maintenance planning and (3) training of personnel.

Karlstad diocese includes 88 parishes and covers all of Värmland and Dalsland provinces and parts of Örebro county. The buildings in Karlstad diocese use approximately 32,000 GWh of energy distributed among different types of energy where electricity usage is dominant with approximately 18,000 GWh. With today's prices the annual cost for energy is more than 30 million SEK. Krister Eriksson, a former building engineer at the Diocesan Office and a project manager of the Climate Project, says:

- Taking into account rising energy prices

the energy bill may increase to 40-45 million SEK within a few years if nothing is done. For those parishes that have cash in the bank, this is the best investment they can make, much better than the bank interest. Most investments can be written off in 8-10 years.

### **Training of personnel**

An important part of the energy programme consisted of a two-day operational training in both theory and practice of church caretakers and ushers and other staff with a responsibility for the management of the buildings. The training mainly dealt with economic aspects of energy management and practical measures for increased energy efficiency.

### **Joint procurement**

During the project, the issue of joint procurement of electricity, technical equipment, materials, etc. came up. Joint procurement can lower investment costs and increase the likelihood that the proposed measures actually get implemented. The parish union in Grums applied this approach to buy two heat pumps and a new ventilation system. Thereby the investment cost was reduced by 20 per cent.

### **Good local examples**

There are plenty of good local examples in Karlstad diocese. Upper Älvdal's parish in northern Värmland reduced its energy consumption by 60 per cent by investing in geothermal heat instead of electric heating. Steneby parish in Dalsland built a bio-fuel central heating for four buildings including Steneby church. In addition, it plans to section the church so that only certain parts are heated at the ordinances.

### **Collaboration with Etik & Energi**

The energy work in Karlstad diocese has been carried out in collaboration with the Swedish association Etik & Energi and its energy programme. Etik & Energi has produced a large number of templates for energy inventory of buildings and checklists

for energy saving that Karlstad diocese made use of.

### **Lessons from Karlstad diocese**

Mikael Söderström Rosén, energy consultant at KanEnergi, has assisted Karlstad diocese for several years. His main advice to churches which want to take up work with energy is to allow the work to be a recurring project.

- The important thing is to get into the thinking. Try doing something all the time, how small it is. To see results is the best incentive to work actively, says Mikael Söderström Rosén.

- To work as an energy consultant for churches, one must have an understanding of cultural preservation. You have to understand issues such as temperature, humidity, microclimate, and how different measures affect the indoor climate. One must be able to assess the impact of changes in the church in order not to threaten to destroy the cultural values, says Mikael Söderström Rosén.

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## **Church of Sweden's energy work in other parts of Sweden**

**Church of Sweden is the owner of more than 20,000 buildings of which 3,400 are churches. A survey of 149 church buildings in western Sweden showed that energy saving measures can reduce energy consumption by 25 per cent, energy costs by 35 per cent and carbon dioxide emissions by 35 per cent.**

The total electricity consumption in these buildings is 1.3 TWh, which corresponds to the total electricity generated in all of Sweden's small-scale hydropower.

Härnösand diocese in northern Sweden has earmarked 5.7 million SEK for energy conservation. A major part of the parishes have already carried out energy inventories and

formulated energy action plans. The overall aim is to reduce energy consumption by 40 per cent. Five churches in Härnösand have installed a new climate and thermal management system together with heat pumps. Also the insulation of the attics was improved.

In Malmö in southern Sweden there are two parish houses with solar panels. Fläckebo church in Västerås diocese is another pioneer in the solar energy field.

There are also churches in southern and central Sweden who developed local heating system with biofuel-fired boilers. Church of Sweden has become a major player in the field of biofuel-fired heating centrals.

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## Pilot project at the Jesuit monastery in Stara Wies, Poland



Kick-off conference at Stara Wies in 2009.



Jesuit monastery in Stara Wies, Poland.

**A joint Swedish-Polish pilot project on energy efficiency was carried out at the Jesuit monastery in Stara Wies, Poland in 2009 and 2010. The project was launched at a Swedish-Polish conference at Stara Wies in September 2009.**

In May 2010 the working group at monastery performed energy inventories for all buildings in the monastery area:

- Basilica
- Convent building (including housing for 80 people, dining hall and administration)
- Pilgrim hall, parish house, youth center and pre-school.

### Collection of information

The following information was collected for the buildings:

- Basic information about each building
- Indoor climate
- Building construction (windows, attic, floor)
- Heating system, electricity
- Water
- Cooling system
- Ventilation
- Lighting and other energy
- Previous energy conservation measures, opportunities for co-operation with local community

## Action plan

An action plan was elaborated with the following priorities:

- 1<sup>st</sup> Take wood/coal boiler in Basilica out of operation
- 2<sup>nd</sup> Start heat exchange unit fed with hot water from the boiler under the basilica
- 3<sup>rd</sup> Seal ducts from heat exchange unit to the church
- 4<sup>th</sup> Repair insulation on air ducts

- 5<sup>th</sup> Start electronic steering of heating system
- 6<sup>th</sup> Develop clear instructions and operating procedures for the heating system
- 7<sup>th</sup> Repair the existing solar heating system

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## Etyka i Energia – a new association in Poland

**The Polish association Etyka i Energia (Energy and Ethics) was created in 2011. It is a sister organization to Etik & Energi in Sweden. The aim of the new association is to promote sustainable energy and environmental protection in the Polish society, with catholic parishes and dioceses as particular important target groups.**

The headquarters of the new association is in Myczkowce in the Rzeszow diocese in southeastern Poland.

Willingness to co-operate with Etyka i Energia has been expressed by representatives of dioceses, Jesuits and Franciscans. On 13 May 2011 a co-operation agreement was signed between Etyka i Energia and Energi & Etik at a seminar in Myczkowce.

The first chairman of the new association is Fr Bogdan Janik, director of Caritas Rehabilitation Centre in Myczkowce.

- Changes are possible, as exemplified by our centre. We changed the heating system,

we have a biomass boiler and solar collectors. This has greatly reduced maintenance costs and improved our environmental performance, says Bogdan Janik.

- We want to benefit from the experience of the Swedes. In many buildings, they were able to spend less on electricity and heating, up to 30-50 per cent. Also carbon dioxide emission reductions were achieved, says Bogdan Janik.

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Jurek Krzyzowski and Stanislaw Jaromi.



Bogdan Janik, chairman, Etyka i Energia, Poland.

## ECEN

European Christian Environmental Network (ECEN) is a church network promoting co-operation in caring for creation. The aim of ECEN is to share information, experiences in environmental work among widely varied Christian traditions and to encourage a united witness in caring for God's creation. ECEN is the main working instrument of the [Conference of European Churches](#) for responding to the climate challenge.

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Url: <http://www.ecen.org>

## Twinning Churches Project (TCP)

The Twinning Churches Project (TCP) was established to promote twinning partnerships between churches with strong

eco-management programs and churches who would like to develop them. Churches and organizations in Sweden, Poland, Germany, the Czech Republic, Romania and the UK participated in TCP. TCP was facilitated by Prof. Dr. Hans Diefenbacher at Fest, Heidelberg, Germany.

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## Links

[Operation Noah](#), UK

[California Interfaith Power and Light](#), USA

Swedish Christian Council – [Climate](#)

See also various links at [www.ecen.org](http://www.ecen.org)



Etik & Energi's study visit to DBU in Osnabruck, Germany in 2008. Magnus Anderson, Roland Jonsson, Lutz Töpfer, Holger Finkemeyer, Dan Melander, Antoinette Bismark, Miriam Sannum, Per-Arne Bengtsson and Margareta Nordström.

# Etik & Energi's energy programme in Sweden

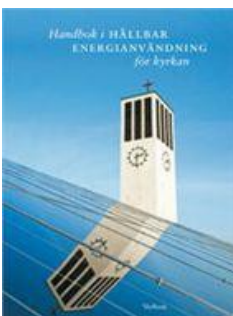
**Etik & Energi (E&E) is a Swedish member organization for sustainable energy solutions in Swedish parishes and dioceses. E&E emphasizes a systematic and holistic approach, ethical dialogue and co-operation with local communities.**

E&E was founded in 2003. It had 152 members in the beginning of 2011, mainly parishes and dioceses. Activities are mainly financed by member fees and program fees. The core activity of E&E is a three year Energy Base Program for parishes and dioceses. The Energy Base Program is governed by "Lotsen" – a management tool with eight steps:

- (1) Establishment of a working group at the parish
- (2) Energy inventory of all church buildings: energy system, energy use, energy costs and environmental impact.
- (3) Energy audit based on templates and checklists. Elaboration of a so called response protocol by an energy consultant.
- (4) Setting priorities for the future (policy, vision etc.)
- (5) Elaboration of action plans for the buildings. It is also possible to elaborate action plans related to the activities in the parish.
- (6) Elaboration of implementation plan with time schedule and definition of organizational aspects. Implementation: investments for energy saving, investments for renewable energy, training of personnel etc.
- (7) Follow-up activities.
- (8) Dispersion of information to local community and other parishes.

## Energy handbook

Etik & Energi, in co-operation with the Church of Sweden, has produced a handbook on sustainable energy for the church (Verbum, 2008). In 2010, a similar book appeared in Germany: "Klimatschutz in Kirchen – vom christlichen Auftrag zur Praxis" (by Melander, Diefenbacher, Bismark – Erich Schmidt Verlag).



E&E's energy handbook for churches.

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