NATURFREUNDE
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FRIENDS OF NATURE
INTERNATIONAL

Climate Protection at Friends-of-Nature Houses

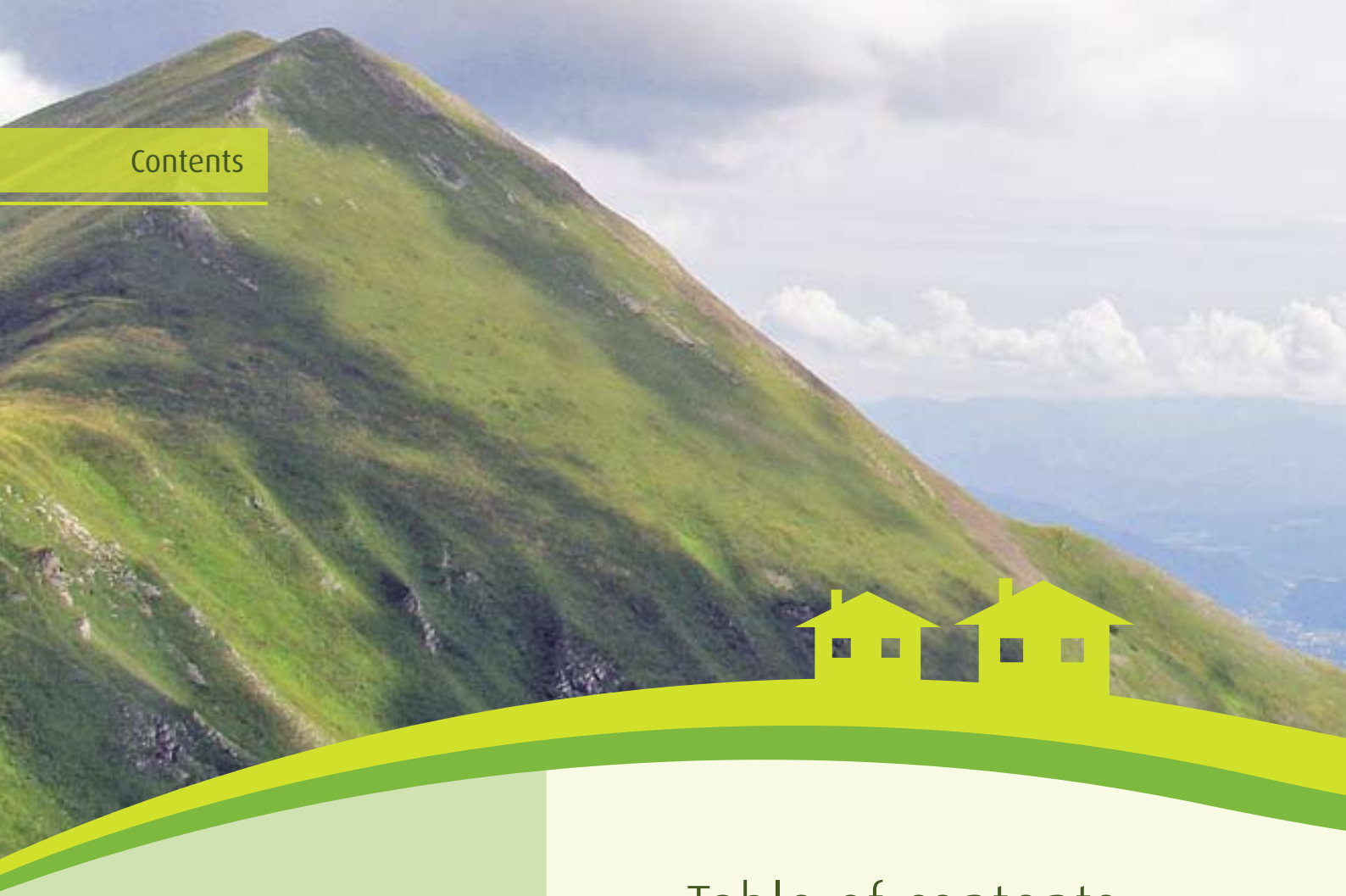

Construction


Operation


Regionality


Mobility


Information



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Herbert Brückner / Christian Baumgartner

Climate protection: We Friends-of-Nature Houses

Climate change is a global phenomenon that impacts on all national economies so that only swift, concerted action can prevent the worst consequences – this is the basic tenor of the 4th Assessment Report by IPCC, the Intergovernmental Panel on Climate Change, an intergovernmental UN committee for climate issues.

The climate change we are witnessing in the 21st century has been primarily triggered by human activity. Since the era of indus-

»As Friends of Nature we set best practice examples – and both uphold and spread the idea of climate protection.«

need to act! set an example!

trialization in the 18th century, greenhouse gases – in particular carbon dioxide, methane and nitrous oxide – have been spewed into the atmosphere. These gases are mainly generated by the combustion of fossil fuels in heating systems, motor vehicles and for industrial purposes, and by intensive farming.

Between 1990 and 2004 emissions of greenhouse gases rose by 25 % worldwide to 49 000 megatons of CO_2 equivalent. Within the same period, CO_2 emissions alone increased by 28 %.

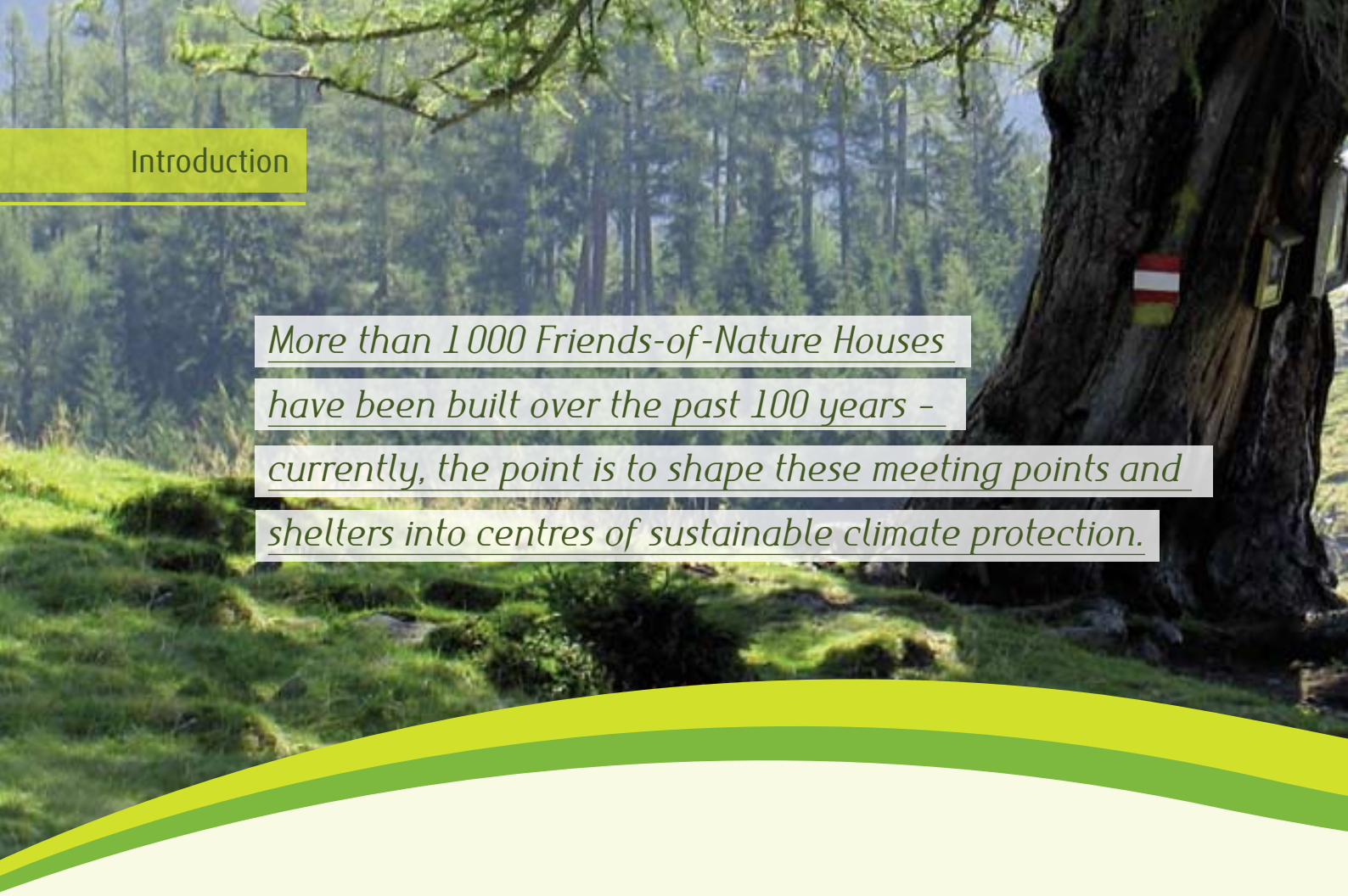
Climate protection is t h e challenge of our time. The Kyoto Protocol and the Climate Change Conference in Bali represent efforts at the international level to discuss and negotiate climate protection goals. As Friends of Nature we are amongst those who face up to this challenge and wish to contribute our share to climate protection – be it in our daily lives, at work and in our leisure time, when running Friends-of-Nature projects, when travelling or when building and operating Friends-of-Nature houses. As Friends of Nature we set best practice examples and both uphold and spread the idea of climate protection.

Accordingly, this brochure on climate protection at Friends-of-Nature houses is intended to raise awareness and to encourage people to take an active part in climate protection and / or extend existing activities, to find partners and to motivate the owners or managers of other houses to pursue the same course. In 2008, we are going to launch an international climate contest and award prizes to convincing and inspiring climate-protection projects run at Friends-of-Nature houses, by local groups and national federations. In conjunction with the statutory Congress of International Friends of Nature in September 2008, we shall organise a Climate Congress where decisions will be taken on future Friends-of-Nature activities in the interest of climate protection.

Climate protection concerns us all! Let's join forces and get "climate-active"!

Herbert Brückner
IFN President

Christian Baumgartner
IFN Secretary General



More than 1 000 Friends-of-Nature Houses have been built over the past 100 years – currently, the point is to shape these meeting points and shelters into centres of sustainable climate protection.

Friends-of-Nature Houses are actively involved in climate protection!

The purpose of this brochure is to demonstrate how climate protection can become part of the daily routine at Friends-of-Nature houses. Options may range from technical (construction and operation) and organisational measures (regionality, mobility) to PR work.

Climate-friendly construction and operation of Friends-of-Nature houses is about improved heat insulation or the use of renewable energies. Another way of effectively boosting climate protection is to purchase mainly regional produce and other products or to switch to or promote public transport. Under the motto, "Do good and talk about it", guests and the public should be informed about the climate-protection activities at Friends-of-Nature houses and motivated to follow their example.

Individual solutions

Friends-of-Nature houses are highly diverse: The spectrum extends from self-catering huts to fully serviced houses providing food and accommodation, from houses that are open all year round to seasonally operated houses, from houses at the seaside to huts in high mountains. This is to say that not all the measures and activities listed in this brochure can be implemented in each and every house. Nevertheless, it is supposed to con-

tain ideas from which every house can benefit and which are adjustable to specific situations – no matter whether the object is to make a beginning or to follow up steps already taken in the interest of climate protection.

Climate Network linking up Friends-of-Nature houses

Each chapter contains best practice examples. The idea is to trigger an exchange of experience as well as communication and to knot the first loops in an international Friends-of-Nature climate network, under the motto, Friends of Nature set best practice examples in climate protection!

Climate Contest of Friends-of-Nature houses

For information on the climate contest please access www.nfi.at/klimawettbewerb

klima:aktiv

klima:aktiv standard

The klima:aktiv standard was developed in Austria for buildings that meet especially high quality criteria. In addition to energy efficiency, the standard covers the quality of planning, construction and building materials as well as dwelling comfort and air quality.

The klima:aktiv catalogue of criteria provides information and hints for all those involved in the construction or rehabilitation of buildings. The certificates required for klima:aktiv buildings indicate how the quality of the above-described elements can be ensured.

More information at: www.klimaaktivhaus.at

Optimise energy consumption – with appropriate heat insulation

As energy prices are soaring and climate protection becomes imperative, Friends-of-Nature houses can only be economically and responsibly run, if technical and organisational measures are taken to minimise energy losses. There is the option of using eco-friendly energy sources, such as solar, wind and water power – something which has by now become "state of the art" in mountain huts – and of replacing diesel engines.

Improving thermal insulation is another vital measure. It brings down heating costs and boosts comfort especially in exposed positions.

The ceiling of the topmost floor, the outer walls and – if possible – the basement ceiling need to be well insulated. The windows deserve special attention: in regions with cold winters, windows should be fitted with double or coated double-glazing.

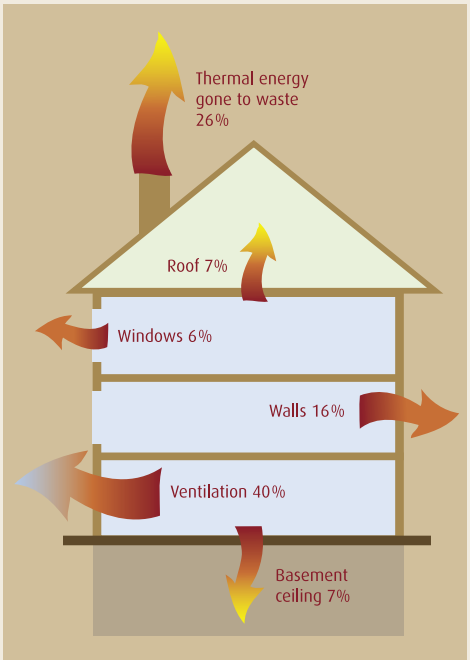


Diagram: Johannes Fechner / Hilde Matouschek

Waste heat from a building

»There is a wide choice of options for insulating buildings ›with climate protection in mind‹, and every region provides its typical, regenerative insulation materials.«

Benefits of good insulation

- Less energy is consumed: heating costs are lowered.
- Greater comfort: comfort depends not only on the air temperature but also on the temperature of wall surfaces, which is raised by heat insulation.
- The value of buildings is maintained and / or increased: installing heat insulation helps to maintain and / or improve the substance of a building.

Construction and insulation material

Strikingly sited Friends-of-Nature houses frequently appear like landmarks. The choice of construction material is crucial to the appearance. Block masonry and suitable timber (e.g. larch timber, handmade larch shingles) and glass are still very much in the running. Timber is a long-term CO_2 binder. Occasionally the choice of construction material is influenced by transportation costs: compared with solid structural components, lightweight timber constructions will save helicopter costs.

Depending on the region, there will be other, mostly traditional construction materials, such as loam, limestone or bricks. Also reusable material or structural parts from dismantled farm buildings, hay sheds etc. can serve as construction material. Many countries have recycling exchanges. Information on regional options and sources of supply is available from eco advisory boards, construction companies etc., or on the Internet, for example at www.baustoffrecycling.so.ch, www.recyclingbaustoffe.de, www.brv.at

Large amounts of insulating material are needed to meet the increased heat insulation requirements. There are many different options and there is a good selection of approved and tested systems, with mineral fibres and EPS hard foam boards most prominent among them. But also cellulose fibres made from used paper have excellent thermal insulation properties. If tried and tested insulation material is regionally available, there is no reason why it should not be used (e.g. hemp, flax, jute, wool or granulated cereal).

Another criterion in the assessment of construction materials is the energy input and hence the CO_2 emitted during production. By and large, construction material made of regenerative feedstock – such as wood or plant fibres – can be produced with significantly less energy than, for example, burnt bricks, concrete or synthetic insulation material.

Health and environmental impact of construction materials

In the interest of the environment and the health of staff and guests care must be taken to use ecologically safe material for interior furnishings and fixtures.

In many countries institutes of building biology test construction and insulation materials for their environmental and health impact. For several years now, NATUREPLUS, a transnational quality label has been in use in Germany, Austria, Italy, Switzerland, the Netherlands, Luxembourg, and Belgium. Among the assessment criteria are the renewability of the material, the energy input into and the emissions generated by production and use. www.natureplus.de and / or www.natureplus.at (in German and English).

Since law regulates not all known problem areas, the following points should be kept in mind for precautionary reasons:

- No HFCs (part-halogenated hydrofluorocarbons): HFCs are still used as expanding agents in the production of insulating material, even though there are lower-polluting alternatives, such as regenerative feedstock or foaming agents, e. g. CO_2 or pentane.
- No plasticisers: Soft PVC, which is the main component of floor and wall coverings, film and cables, is consists up to 50 % of plasticisers. These substances have become widespread in our environment and DEHP the most frequently used plasticiser has been graded as "toxic for reproduction" by the EU Commission.
- No solvents: The emission of solvents is harmful to the environment as they reduce the ozone layer in the stratosphere and cause the formation of atmospheric ozone. Bitumen primers, coatings and bonding adhesives should be solvent-free.

When purchasing new furniture and equipment, when refurbishing (painting) rooms etc., the interior decoration can be raised, step by step, to a climate-friendly standard. The criteria for a klima:aktiv building: www.klimaaktivhaus.at (catalogue of criteria) can be taken as a practical guideline for the choice of construction material, which is safe in terms of health and environmental impact.

Cost efficiency of improving and / or retrofitting thermal insulation

If fuel requirement, energy costs and emissions are to be reduced, it is advisable to take a close look at the thermal protection of the building envelope and at the heating system, before deciding on the appropriate measure. In this context, energy indicators, such as those identified for the EU energy performance certificate, come in very useful. The know-how will be supplied by the specialists at energy and eco advisory boards or by specialised engineering offices.

The ambient temperature falls by ca 0.6 to 1 °C per metre of altitude. For many mountain huts this means long heating periods and high demands on the thermal insulation and heating systems.

Automatic ventilation systems ensure comfortable indoor climate and appropriate air exchange. Experience with passive houses goes to show that with heat recovery systems a lot of energy

»The term ›passive house‹ implies that all you need to heat the building is the ventilation system and that a conventional ›active‹ heating system can be dispensed with.«

can be recouped, especially during peak periods. The term "passive house" implies that all you need to heat a building is its ventilation system and that conventional "active" heating systems can be dispensed with. This technology is also used to good effect, when buildings are rehabilitated; so you should always check, if the instalment of a heat recovery ventilation system is a possible option.

For information on quality criteria for ventilation systems access the klima:aktiv catalogue of criteria: www.klimaaktivhaus.at (»» catalogue of criteria, comfort ventilation)

Under the Austrian "House of the Future" programme, Schiestlhaus, a mountain hut at an altitude of 2 000 metres, was designed and built with a view to maximum energy self-sufficiency. The project was extensively documented and the experience gathered is highly pertinent to the construction of energy-optimised buildings in exposed positions: www.HAUSderZukunft.at, www.hausderzukunft.at/diashow/schiestlhaus.htm

3 steps towards climate-friendly thermal insulation

1. Check the structure of the building (identify need for rehabilitation)
The first step to be taken is to thoroughly check out the building and identify the need for rehabilitation and the options for improvement.

2. Cost / benefit analysis
Once you have assessed the needs, you have to look at possible ways of funding the measures you have in mind. In many countries measures in the interest of climate protection are grant-aided. Once the building has been rehabilitated, energy costs will drop. Decisions should be based on a financing scheme that includes the following items: investment cost, grant aid, loans required, expected payment obligations (overheads, repayment). In many cases, long-term payment obligations will turn out to be more critical than investment costs. And the higher energy prices are climbing, the greater the benefit of lowering energy costs. The most cost-effective solution is to combine the installation of thermal insulation with necessary refurbishing work – e. g. renewal of the exterior rendering. Insulating the ceiling of the topmost floor and the basement ceiling to stop major energy loss can be useful single interventions. Again, it is advisable to consult a specialist.

3. Plan of implementation / setting priorities
Often the thermal insulation measures that are necessary and planned cannot be financed in one go. This calls for a plan of implementation and for priority setting.

The following Friends-of-Nature Houses serve as best practice examples

Gföhlberghütte (A)

A-3170 Hainfeld, Kasberg
Contact: Leopold Dworak, Tel.: +43 (0)2773 46978
www.nfhouse.org

The Gföhlberghütte was entirely built with regional, ecological construction and insulation material. Sandstone, quarried right next to the building, was used for the foundations and the basement. Timber was used as construction material for the building proper: A forest owned by the house proprietors provided the larch timber for the walls; even the nails were handmade of wood. The furnishings were crafted of local ash timber. Sheep's wool was used for the thermal insulation. It goes without saying, that only building trades from the region were commissioned with the construction. The house also relies on eco-friendly energy supply: it is heated with wood from the owner's forest, the water is heated with solar energy, and the electricity is generated by a photovoltaic system coupled with a wind generator. In the dry composting toilet, no water goes "down the drain".

Friends-of-Nature House Hanau-Rodenbach (D)

D-63517 Rodenbach, Bergstrasse 47
Contact: Wolfgang Bergmann,
Tel.: +49 (0)6181 32712
www.naturfreunde-hanau-rodenbach.de

The house, which dates from the1960s, was restructured and enlarged in 2003, with climate protection as one of the criteria: The topmost story was knocked down, reconstructed with single-plank walls and insulated with pulp flakes. The entire building envelope was thermally insulated with breathable mineral fibres. The roof is doubly insulated. Beverages are stored and cooled in an earth cellar, which means that no coolants are needed. A combined wood pellet and solar system is used for heating.

Friends-of-Nature House Haus Banjaert (NL)

NL-1949 CC Wijk aan Zee, Burg. Rothestraat 53 a
Contact: Natuurvriendenhuis De Banjaert – huiswacht
Tel.: +31 (0)251 374318
banjaert@nivon.nl, www.nivon.nl/banjaert

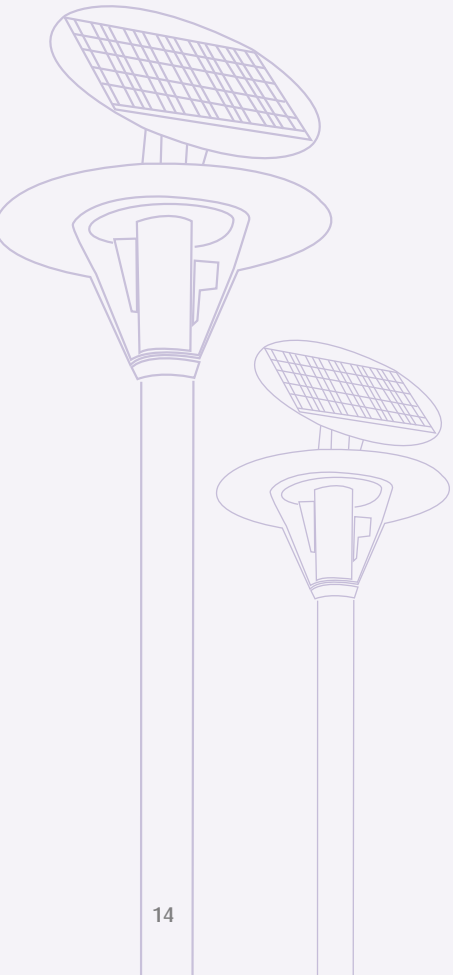
In 2005, the old house was knocked down, rebuilt and enlarged. Construction work was completed in the summer of 2006. Irrespective of the small budget, every effort was made to construct an environment and climate friendly house. We made sure that only natural material, such as timber, bricks and limestone, were used. The timber is eco-certified. Rockwool was used for insulation. A specialised company helped us find suppliers of "eco-power" and so we are purchasing our supply from a combined wind and hydropower plant. The roof was partly greened with sedum and fits harmoniously into the landscape. About half of our guests travel by public transport or use bicycles, for which we are providing a shed.

Koschutahaus (A)

A-9170 Ferlach, Altitude: 1279 m
Contact: Naturfreunde Landesleitung Kärnten,
Tel.: +43 (0)463 512860
lo-kaernten@naturfreunde.at, www.nfhouse.org

The Koschutahaus rests on a foundation of natural stones from the region, which were also but not exclusively used in the construction of the building. All fixtures and new structures were crafted of local timber; the main room is a new timber construction. Wood from the tenant's own forest is used to generate space heating and hot water.

Energy and heat supply



The term "Friends-of-Nature House" is expressive of the wish to relate to nature. Nowadays, eco-energy, in other words renewable energy, is an attractive source of energy supply.

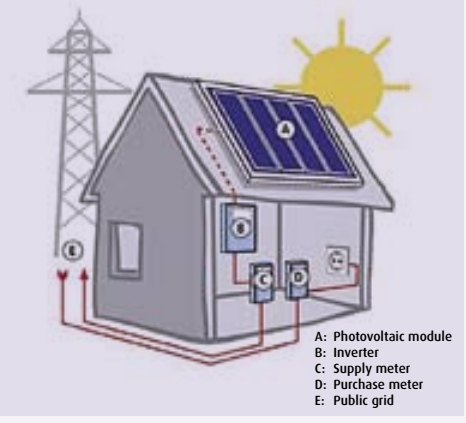
Diesel and gasoline engines can be largely replaced by regenerative energy systems. Many houses would greatly benefit from systems dispensing with more or less costly and complicated fuel transport, in other words from solar energy, wind turbines or small-scale hydropower plants.

With a view to the optimum utilisation of renewable energy it is important to reduce energy loss, to exploit synergies, for example by using the excess energy from a regenerative energy system to improve the efficiency of a purification plant.

Solar energy

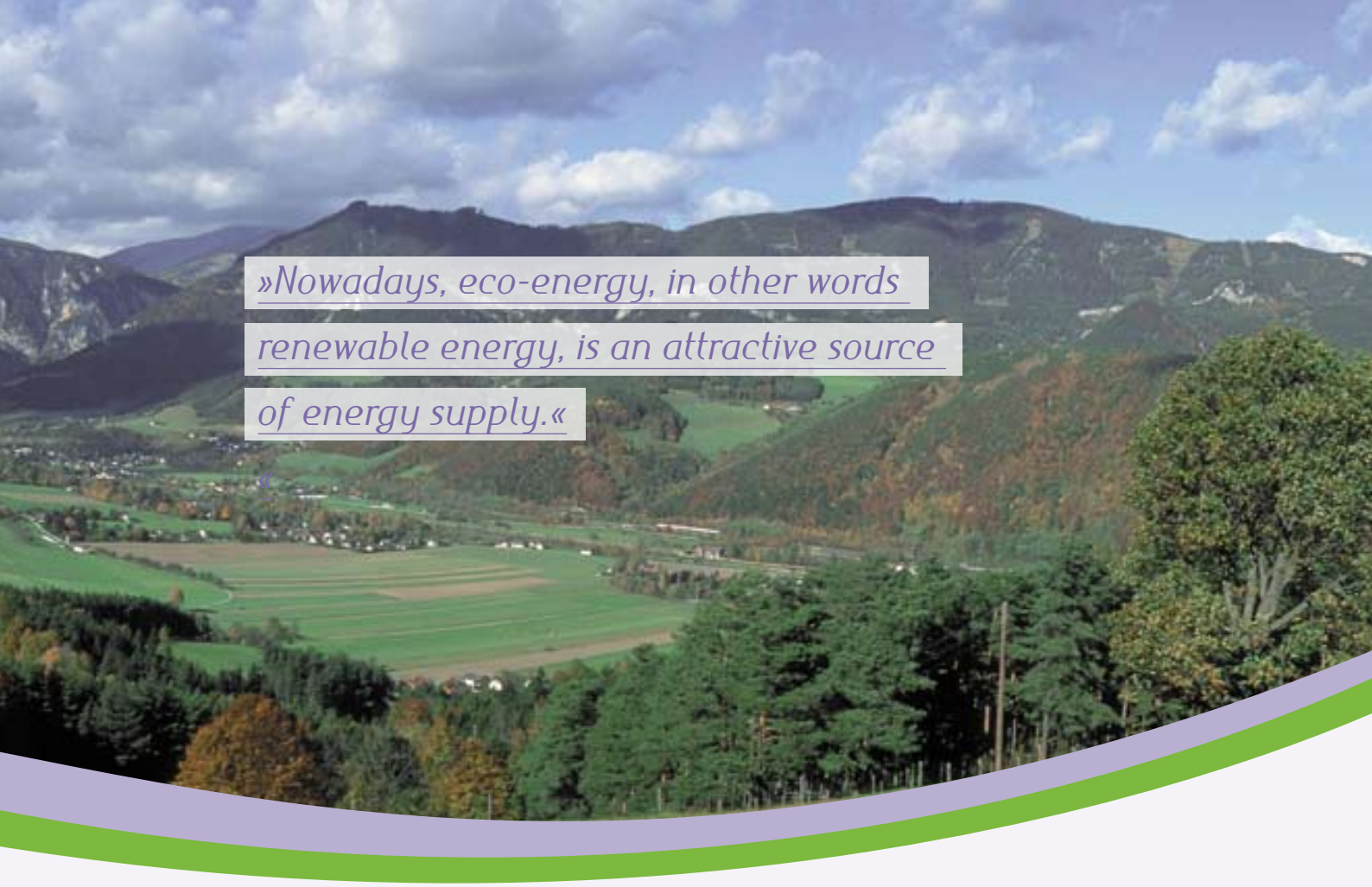
Direct use of solar energy is something that ought to be considered in each and every case. The utilisation spectrum extends from solar water heating and harnessing solar energy for heat generation (solar-thermal systems) to the generation of electricity (photovoltaics). (www.solarwaerme.at)

Photovoltaics signifies the direct conversion of light from the sun into electric power. The direct current supplied by the PV modules of so-called stand-alone systems, i. e. plants not connected to the national grid, can be used to operate suitable electrical appliances.



A: Photovoltaic module
B: Inverter
C: Supply meter
D: Purchase meter
E: Public grid

Diagram: Photovoltaic Austria



»Nowadays, eco-energy, in other words renewable energy, is an attractive source of energy supply.«

Biomass

Wood is a solid fuel with a long tradition. It is regenerative and regionally available, which makes for shorter haulage distances and consequently for reduced CO_2 emissions, and its use boosts the regional economy. Energy generation from wood is CO_2-neutral, since the amount of CO_2 released during combustion equals that previously absorbed by the tree. Less pollution is caused, if wood is burned in state-of-the-art boilers. In recent years, technologies for wood combustion have been continuously upgraded and, in terms of efficiency, wood can now compete with fossil fuels.

There are several options for wood space heating:

- **Split logs:** Split log boilers – ideally combined with buffer storage and a solar system – supply environmentally and climate-friendly heat. On the other hand, much space is required for storage and – depending on the system size – the boiler needs to be stoked daily – occasionally even more than once.
- **Woodchips:** Woodchip boilers are equipped with automatic fuel feeding systems – a major advantage over split log boilers. Again, much space is needed for storage. For cost-effective operation they should be installed in larger buildings, and they are a method of choice for local and district heating systems.
- **Pellets:** Wood pellets are cylindrical slugs of compacted wood residue (sawdust, wood shavings etc.), with a diameter of 4–10 mm and high energy density: The energy content of 2 kilograms of pellets corresponds to that of one litre of fuel oil. As a result, the storage-space requirement is considerably lower. Pellet boilers are cost-effective and very safe in operation. Should you opt for pellet heating, make sure that pellets are available in the region.

Eco-electricity

If you opt for an external supplier, choose a supplier of "eco-electricity" on the meanwhile liberalised electricity market. The term indicates that electricity is generated by means of low-polluting processes from renewable energy sources – such as wind, sun, water, solid or liquid biomass etc. The end consumer is hard put to actually trace the production process. Many countries issue quality labels for eco-electricity, which are audited by environmental organisations.

Geothermal heat

Ambient heat, stored for example in the earth, can be utilised by means of a heat pump. Efficient operation is crucial, the core criteria being the coefficient of performance of the heat pump and the annual coefficient of the entire system. Since the supply of ambient heat drops with rising altitudes, conditions need to be thoroughly checked out prior to purchase.

»Irrespective of a building's energy supply, energy should be saved wherever possible – both in the interest of cost reduction and in the interest of the environment.«

Wind and water

In the case of sufficient supply, you can use water to generate power in your own plant. This is an option that suggests itself for buildings situated in remote areas (e.g. in the mountains), with no access to public mains supply. Wind situation permitting, you can also use a small wind turbine generator system to generate electricity for your own needs. Small-scale hydro and wind power stations can also be coupled with photovoltaic systems.

Energy saving

Irrespective of a building's energy supply, energy should be saved wherever possible – both in the interest of cost reduction and in the interest of the environment. It is advisable to consult an energy specialist who can suggest solutions tailored to your needs. A brief summary of the principal energy saving measures is given below:

- **Energy consumption monitoring**

  Take stock of the energy consumed in your house! Read the meter, preferably every month, and keep count of the amount of differently sourced energy consumed. Ideally, consumption and costs should be correlated to bed nights and / or food provided within a given period (preferably one month).

  Once you have documented several years, to can compare individual months / seasons, identify possible weak spots and make improvements. When you know the operating figures of your house, you can draw comparisons with similar houses.

- **Lighting installations**

  Light bulbs should be replaced step by step with energy-saving lamps.

  It makes sense to use time switches or motion detectors in hallways, toilets, basements etc. Exterior lights – unless required for security purposes – should be controlled by proximity sensors or automatically switched off after a certain period of time.

  And remember to reduce standby consumption! A growing number of accu-chargers, remote controls etc. are kept on stand-by. Tipp: With switchable multiple sockets you can cut the energy supply to all the connected peripherals.

- **Water**

  The flow rate of taps and showers can be controlled with aerators and flow limiters without loss of comfort. You save both water and energy costs for hot water.

  Timers or proximity systems for kitchens and toilets automatically stop the flow of water after a certain amount of time or when no more water is needed. With mixing valves you can quickly adjust water temperature, and less water goes down the drain. A lot of drinking water is flushed down the toilet: Toilet tanks should be equipped with automatically or manually operated flush-stop mechanisms or dual flush buttons, or designed for a maximum flush volume of 6 litres. Urinals should be equipped with a (manually / electronically operated) single flush mechanism. Modern urinals work without water.

- **Appliances**

  When buying new electrical appliances, pay attention to energy consumption. Cooling units that are older than 10 years, should be replaced, since they consume too much energy. When purchasing equipment take note of the energy efficiency category, which is indicated on an adhesive label. Cooling units, washing machines, dishwashers, tumble driers, cooking stoves should all be in the top efficiency category. On certain equipment this is indicated by A++ instead of A. Country-specific databases, such as www.topprodukte.at, are helpful when you take your choice.

  The "energy star" is useful in assessing the energy consumption of office equipment (www.eu-energystar.org).

  Also watch the water consumption of electrical appliances: Washing machines should not use more than 12 litres of water per kg wash load. The water consumption of dishwashers is more difficult to establish. The water in dishwashers and washing machines is heated with expensive electric energy. It may be expedient to draw water, e. g. from a solar system. Cooling units must be operated without halogenated hydrocarbons (coolants, foams). Look out for eco-labels, such as the EU or the Austrian eco-labels.

- **Heating**

  If the central heating room is the 'hottest spot' in the building, it means that far too much energy is lost. Distribution pipelines, hot water tanks but also fittings need to be properly insulated. Heating temperatures should be lowered overnight or, as required, on individual floors (ror in unused rooms, and the supply temperature should be controlled in dependence of the ambient temperature. It goes without saying, that the heating system needs to be periodically serviced.

The following Friends-of-Nature Houses serve as best practice examples

Friends-of-Nature House "Les Falères" (F)

F-88310 Ventron (Vosges),
28, Chemin du Rupt du Moulin
Contact: Alice Egler, Tel.: +33 (0)329241961
richwiller@utan.asso.fr, www.utan.asso.fr

On 1 September 2002 – after a period of intensive planning and fund-raising – the solar photovoltaic plant was formally inaugurated with a big party. Since then, 15 m^2 of solar collectors in the roof linked to a 750 litre storage tank have supplied hot water, and 80 % of the annual hot water demand can be met with the help of solar energy. As a result, the annual amount of CO_2 emitted into the atmosphere has been reduced by ca 1550 kg every year.

Friends-of-Nature House Auf dem Hagen (D)

D-37079 Göttingen, Auf dem Hagen 38
Contact: Regina Nebel, Tel.: +49 (0)551 3793674, +49 (0)551 50419013
nfh@naturfreunde-goettingen.de, www.naturfreunde-goettingen.de

In 1998, Friends-of-Nature Göttingen built their low-energy clubhouse in compliance with ecological criteria. The building was constructed almost exclusively without external help. A solar heating system, supplying space heating and hot water, was installed on the roof and is coupled with a gas-condensing boiler. A ventilation system with heat recovery is designed to save a lot of energy. Guests are treated to organic food from regional farmers and from fair trade. A number of environmental education activities are run at the house: an eco-research station has been set up for children, the wood pellet heating system of the building serves as a "subject of study" for interested craftspeople from the region etc. No wonder that in the climate contest staged by Friends-of-Nature Germany, the house was awarded the first prize in the category 'overall concept' and the second prize in the category 'ecological and efficient energy system'! What is particularly remarkable is the fact that the house was almost entirely built without external help.

Neubau Mountain Hut (A)

A-5721 Piesendorf, Mittersiller Bundesstrasse 241,
Altitude: 2175 m
Contact: Torghele family, Tel.: +43 (0)6544 8181
schutzhaus-neubau@sbg.atm
www.schutzhaus-neubau.at

In 1995, the house was thoroughly rehabilitated. Coal heating was replaced by an electric block type storage furnace for space heating (floor heating). In this particular case, electric heating does make sense, since all the energy used is generated by a stand-alone, small-scale power station, which was also upgraded. Meanwhile the plant also powers a cableway that used to be run on gasoline. The hut is well insulated; local spruce timber was used to panel and furnish the interior rooms.

Camping Site Piriac-sur-Mer (F)

F-44420 Piriac-sur-Mer, Route de la Noë Malade
Contact: Tel.: +31 (0)40236179 (building)
Maryvonne Bonnin, Tel.: +33 (0)240009860
www.nfhouse.org

Possible improvements of the Piriac-sur-Mer camping site (Bretagne) were ventilated, with climate protection and the comfort of visitors in mind. The situation was analysed and it was decided that a thermal solar system would be used for generating hot water. Banking on "know-how transfer" among Friends of Nature – in the given case on the experience gathered by *Section Coueron* – the system was installed in 2005.

»When produce is purchased from regional providers, haulage distances are shorter and CO_2 emissions lower.«

Climate protection begins in the region!

Buying from local providers and producers contributes in a major way to climate protection and boosts the regional economy.

Produce from the region

When produce is purchased from local and / or regional providers and producers, haulage distances are shorter and CO_2 emissions lower. Adjust your bill of fare to the season and use fresh ingredients from regional farmers. The heating of greenhouses consumes 60 times the energy required for free-range production and, most of the time, fossil energy sources are used which enhance the greenhouse effect.

The production of frozen food is also energy-intensive. Packaging is another energy guzzler: its production and disposal requires high energy input and considerable haulage effort. Opt for unpackaged goods, catering sizes or reusable containers, such as vegetable and fruit crates. Give preference to food that is produced organically in the region, which implies that no chemically / synthetically produced fertilisers and pesticides are used. Approximately 1.2 tons of CO_2 are emitted when producing one ton of fertilizer. Closed-loop farming combined with the use of organic fertiliser maintains soil fertility – and healthy soils bind CO_2.

At self-catering houses you can put together information on "climate-friendly" food for your guests and furnish them with directions on where to procure regional and / or organic produce, plus how to get there on bicycle, foot or by public transport.

Fair trade produce

Critical and climate-conscious consumers ought to make sure that food and luxury foods – such

as coffee, tea or bananas – from faraway countries are produced under fair conditions. Fair trade signifies that producers and workers get fair wages and are guaranteed decent working conditions. Many fair trade foods are being organically farmed. www.transfer.org, www.fairtrade.de, www.fairtrade.at, www.fairtrade.net

Local businesses

In order to shorten access and haulage trips to a minimum it is commendable to commission, as often as possible, local business and craftspeople with maintenance and repair jobs. As they are located in the vicinity, trips and waiting times – especially in emergencies – will be shorter and the regional economy will benefit.

The following Friends-of-Nature Houses serve as best practice examples

Friends-of-Nature House Ferchels Hopfen-Hof (D)

D-14715 Schollene, In Ferchels 30
Contact: Hella Ueberschaer, Tel.: +49 (0)39389 9689
hopfenhof@ferchels.de, www.ferchels.de

Hopfen-Hof is Germany's only Friends-of-Nature house with an organic farm of its own. Under the motto, "Take a bite – out of regional treats" the focus is on organic food. Guests are served meals made of organically produced ingredients, many of them from the home farm. Visitors can get a firsthand experience of organic farming and buy or taste the products in the farm shop. Energy supply from a solar thermal and photovoltaic system and wastewater treatment in a proprietary phyto-treatment pond make the building a best practice example of German Friends-of-Nature houses.

Holiday Home Luise Wyneken (D)

D-31582 Nienburg , Luise-Wyneken-Strasse4
Contact: Volker Selent,
Tel.: +49 (0)50 21 88 92 50
volker.selent@naturfreunde-nds.at,
www.naturfreundehaus-nienburg.de

Friends-of-Nature Nienburg are prioritising climate protection and typical regional food: At their holiday home they serve specialties from the region. With a view to spreading this excellent idea, the experience gathered at Nienburg was shared at a specialist meeting with people from Friends-of-Nature houses interested in the subject.

Koschutahaus (A)

A-9170 Ferlach, Altitude: 1279 m
Contact: Naturfreunde Landesleitung Kärnten,
Tel.: +43 (0)463 512860
lo-kaernten@naturfreunde.at, www.nfhouse.org

Guests at Koschutahaus can savour titbits prepared with organically farmed ingredients. They are in part provided by the tenant's own farm and in part purchased from regional organic farmers.

Vissershuis (B)

B-8670 Oostduinkerke
Contact: Ludwig Leijnen, Tel.: +32 (0)58511407
vissershuis@natuurvriendenhuis.be, www.nfhouse.org

At this Belgian Friends-of-Nature house special attention is paid to the origin of the coffee and tea served at the restaurant. All products come from fair-trade stores and bear the fair-trade label, so that guests can enjoy their coffee with a good conscience.

»If your house is easy to reach by bicycle or a popular cycling destination, you can inform your gests on the homepage or in brochures about the most attractive routes.«

On the way to a climate-friendly future

Transport is one of the principal sources of CO_2 emissions. Friends-of-Nature houses can respond with low-impact mobility in their own field of activity and they can act as disseminators, drawing the attention of their guests to the issue and either provide low-impact access trips or pitch the idea to visitors.

Encourage guests to take their access trips by public transport

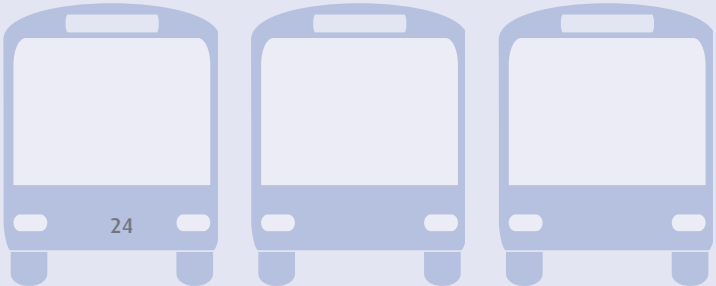
Inform your guests on the option of reaching your house by public transport. Indicate the nearest bus stops and / or railway stations, or stops and stations at the starting points of walking paths to your house. You can provide the information on the homepage, in brochures about your house but also on booking confirmations etc.

A pick-up service providing transport from railway stations or bus stops to holiday homes will, no doubt, be highly appreciated by guests upon their arrival. Cooperating with taxi companies is a possible option. If you wish to impress on your guests how much you appreciate their opting for a low-impact access trip, reward them with a small present: When guests present public transport tickets, let them have a little something, such as give-aways typical of the region, a free drink, possibly a reduction on their overnight stay.

Put up public transport time-tables in your house, so that guests can check-out convenient connections for their return trips. This is a service that will also be welcome on mountain huts, as it give hikers a chance to plan their descent in time for the departure of their bus or train.

Facilitate the switch to bicycle

If your house is easy to reach by bicycle or a popular cycling destination, you can inform your guests on the homepage or in brochures about the most attractive routes. Cyclists will certainly welcome a shed where they can park their bikes and where, in an emergency, they will find repair tools.



Holidaying without private car at Friends-of-Nature houses

With special offers you can motivate your guest to dispense with their cars while staying at your house. Inform them about excursions they can take using public transport. Selling the tickets at your place will be appreciated as a special service. For Friends of Nature who wish to take cycling trips from your house or your hut, you should provide a bike rental service and offer cycling trail maps either free or for sale.

Motivating staff to opt for eco-friendly mobility

Working times permitting, your staff can contribute their bit to climate protection by opting for public transport or for bicycle trips to work. Staff will, no doubt, welcome the free use of available rental bikes. Motivate staff to switch to bus or cycle with money incentives (e. g. partial payment of tickets or bonuses). Ride sharing would suggest itself for people living in neighbouring places and working similar hours.

Corporate mobility management

Purchasing trips or errands, for which a car is indispensable, ought to be coordinated, so as to save both miles driven and working time. These are matters that can be discussed and planned in periodic staff meetings.

If you have no vehicle, e. g. minivan, of your own and consider purchasing one, you should opt for cars with alternative drive trains running on alternative fuels (e. g. hybrid cars, electric vehicles ...).

Filling station for a Swedish hybrid fleet

Hybrid vehicles

"Hybrid" is the Greek word for mixed, of dual origin. Accordingly, hybrid vehicles have two types of drives powered by two types of energy. Most widespread is the combination of combustion engine (diesel or petrol) and electric motor with a storage unit in the form of a battery or fuel cell. What you get is less consumption of fossil fuel, higher output at low torques and less CO_2 emission.

The following Friends-of-Nature Houses serve as best practice examples

Rahnenhof (D)

D-67316 Hertlingshausen
Contact: Stephan Schenk, Tel.: +49 (0)6356 96250-0
kontakt@naturfreundehaus-rahnenhof.de
www.naturfreundehaus-rahnenhof.de

Rahnenhof has opted for solar thermal energy and photovoltaic systems; it goes without saying that the building is thermally insulated; water is used efficiently, which makes for smallest possible wastewater volumes. Eco-friendly mobility is another priority. Certified as "Bett & Bike" (Bed & Bike) accommodation (a quality label conferred by the *Allgemeine Deutsche Fahrrad-Club*) Rahnenhof welcomes bikers and provides a number of facilities for them: Bicycles can be parked in a weatherproof garage and a small repair shop is available in case of emergency. Trail maps are on stock, providing guests with information on the most attractive excursions in the region.

Bärenhäusl (D)

D-95119 Naila, Ortsteil Culmitz , Bärenhäuser Nr. 3
Contact: Peter Gemeinhardt, Tel.: +49 (0)9281 65362
baerenhaus@naturfreunde-hof.de
www.naturfreunde-hof.de

The pro-climate motto of the house is, "Nature-friendly mobility! All on board!". Touring bikes are available free of charge. Timetables of regional public transport, trail maps and guidebooks as well as tips and information on excursions and leisure-time activities are available at the house. Upon request, volunteers guide rambling groups. Such an array of options makes it easy to dispense with your private car and switch to eco-friendly means of transport! Since 1978, the building's energy technology has been consistently updated. An energy audit conducted in 2005, revealed that the available potential had been exhausted to the full.

Gföhlberghütte (A)

A-3170 Hainfeld, Kasberg
Contact: Leopold Dworak, Tel.: +43(0)2773 46978
www.nfhouse.org

At the moment, the house is difficult to reach by public transport. However, this is supposed to change in the foreseeable future! The communes in the vicinity of the Gföhlberg have teamed up and are planning a shuttle service by minivan, meeting hikers at the nearest railway stations and taking them to the starting points of hiking trails (and back). The plan is supposed to be submitted as an EU-project and will hopefully get EU funding.

Biodiesel

"Biodiesel" is the term used for biofuels, primarily made from vegetable oils. In Central Europe the principal feedstocks are rapeseed and sunflower oil, in tropical countries palm oil and soybean oil.
"Biodiesel" is not necessarily organic. It is true that fuels made from plants emit less CO_2 during combustion than petrol or standard diesel. But eco-assessments need also to take account of the production, processing and the origin of fuel. Most of the time, the oil plants are intensively farmed with known, negative effects on the environment and on people's health – especially the health of those working the land. Moreover, crop production for biofuels is competing with food production.
When using biodiesel, the focus should be on both the eco-friendly and the regional aspect: Regional vegetable oil presses process the products of local farmers; the side products are used as animal feed. When the oil plants are grown on fallow land, there is no competition with food crop production.
Hence, you will need to establish from case to case, where the biodiesel comes from and how it was produced. Regional eco advisory boards will be able to come up with the required information.

Do good and talk about it!

Are you actively involved in climate protection? Then make it known to others and to your guests! Bring home to the outside world that Friends-of-Nature houses are committed to climate protection! Your image will definitely benefit, and with climate protection activities you can promote your house and make it better known.

Information for guests

Set a good example! Showcase what your personal contribution to climate protection looks like. You can familiarise your guests with your pro-climate activities through brochures and other advertising material. In your house you can use information sheets and boards and seek direct exchange with interested visitors.

Motivate your guests to take pro-climate action. This can be achieved by setting best practice examples, by talking to them or by keeping information material (fold-out brochures etc.) on stock at your house or hut. You can be sure to find open ears among the nature loving patrons of Friends-of-Nature houses.

Impressions will be particularly graphic and lasting if they are related to the situation in your house: On your menu you can, for example, inform guests about the origin of ingredients, possibly comparing the "ecological footprint" of regional products with that of products imported from remote countries. This will transform your standard menu into a "pro-climate menu", listing good food and providing food for thought.

Information, training and motivation of staff

The people working at your house have a major share in effectively implementing climate protection measures. Measures taken can only be a hundred percent effective, your the staff is fully informed, motivated and actively involved! Information on pro-climate activities can be passed on at periodic meetings where co-workers will come up with their own ideas for improvements or even for entirely new measures. To step up motivation, strongly commit-

»You can familiarise your guests with your pro-climate activities through brochures and other advertising material.«

ted co-workers can be rewarded with small bonuses or presents. Co-workers need to be at the disposal of guests for all manner of information – and should, for example, be able to come up with the departure times of buses or trains.

Events

Climate fêtes, action days, open door days etc. provide opportunities for familiarising large numbers of people with the concept of "climate protection". It goes without saying that such events require a lot of organisational input; on the other hand they certainly have a "sustainable" effect: On the one hand, because interested visitors tend to become actively involved and can thus be more easily motivated to take up pro-climate ideas; on the other hand, because you, as the organiser of the event, and your house will benefit from the media presence and the word-of-mouth propaganda of enthusiastic guests.

Public and media relations

Cultivate contacts with the (local) press, ensuring a regular flow of current reports.

Experience exchange with other houses and huts

No need to reinvent the wheel! Get in touch with those responsible for other Friends-of-Nature houses and exchange experience. This is how you can pick up new ideas and discover ways for further improvement or maybe enter into mutually beneficial cooperation.

Ecological footprint

The ecological footprint concept was developed in 1994 by Mathis Wackernagel, Switzerland, and William E. Rees, Canada. The ecological footprint designates the area required by a person to procure the necessaries of life – i. e. for planting food crops, producing clothes, economic goods etc. The area required depends on a person's life style. Worldwide, the average per capita ecological footprint is 2.2 hectares. However, when the earth's surface is divided by the global population, the per capita area amounts to 1.8 hectares. This implies that planet earth is incapably of meeting the requirements of the world population. So it is for each individual to rethink his / her life style and make it more sustainable.

www.footprintwork.org, www.footprint.ch, www.footprint.at, www.mein-fussabdruck.at

The following Friends-of-Nature House serves as best practice example

Climate network

Given that "climate protection" covers a vast area, the content of the present brochure must needs be limited to hints and suggestions. There is a common Internet platform www.nfhouse.org (in future: www.naturfreunde-haeuser.net) for all Friends-of-Nature houses actively involved in climate protection. The idea is to provide a forum for the exchange of experience and information on technical, organisational and financial issues as well as for establishing contact and initiating joint ventures. Friends of Nature lead the way by knotting a "climate network"!

Friends-of-Nature House Vehrte (D)

D-49191 Belm-Vehrte, Engelriede 1
Contact: Reinhard Mai, Tel. +49 (0)541 707340
verein@nf-os.de, www.naturfreunde-osnabrueck.de/haus.html

The Vehrte Friends-of-Nature house serves, as it were, as the information centre of the Osnabrück Friends-of-Nature organisation. Educational activities are focused on energy and climate protection. An information brochure is complemented by opportunities for the live experience of climate protection, for getting involved and learning from it. On two action days, those interested were invited to gather information on eco-friendly energies and gentle tourism. A solar cooker, a charcoal fridge and a wind turbine were used to demonstrate how so-called regenerative energy sources can be utilised. Visitors were impressed and took back many ideas of how to contribute their bit to climate protection.

www.friendsofnaturehouses.net

Shortly online:

the new Web Portal for Friends-of-Nature Houses

Key information about your Friends-of-Nature House – accessible in the twinkling of an eye to nature lovers all over the world!

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INTERNATIONAL

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