

Possibilities to increase the use of renewable energy in Hillerød

SECURE




Hillerød is geographically situated in North Zealand and part of the capital region of Denmark. The municipality covers 212.99 km² and has 46.500 inhabitants, with 30.000 living in the city of Hillerød.

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Hillerød kommune
in cooperation with EU's



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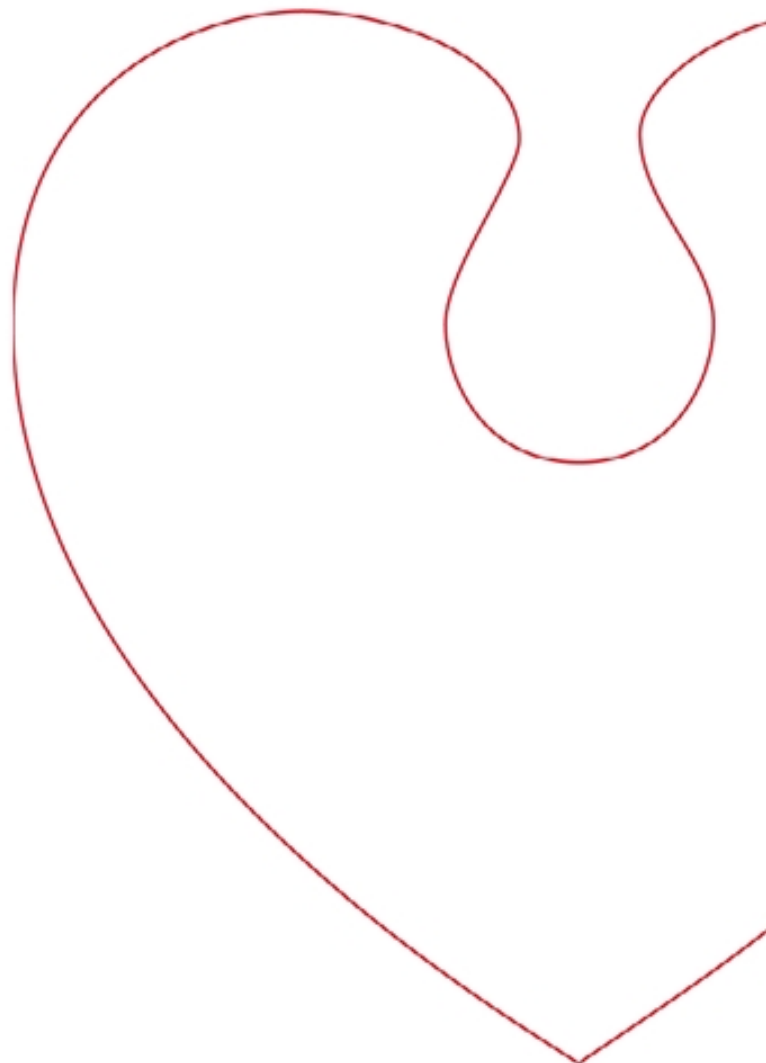
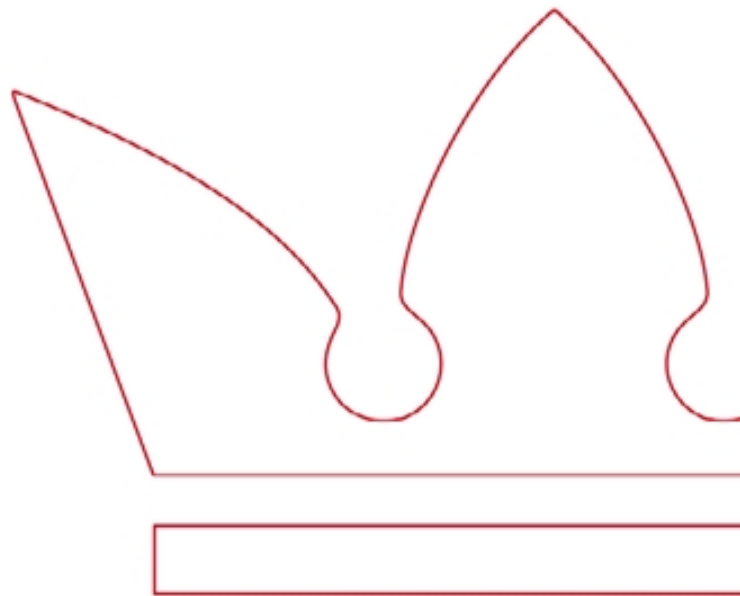
Preface

This report describes the possibilities to increase the use of sustainable energy in Hillerød.

The report focuses on the possibilities which the municipality has on its own, and especially on the possibilities for involving citizens to create and increased energy awareness.

Further information can be found, on the Municipality Homepage www.hillerod.dk or by contacting energihandlingsplanen@hillerod.dk.

Enjoy the reading



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Create energy focus areas, where it is OK to build low-energy

Most people want to save energy if they are asked on the streets. They know the consequences of the global warming theories and they know they are the generation that has to change lifestyle if the next generations shall live on an earth as the one we know today. People are in general very positive but when it comes to the saving act, many people get cold feet. They are describing things like, "When they have finished the renovation of the kitchen, then they will put some solar collectors on the roof" etc. But the thing is that they never get that far.

The largest problem on the energy area is, that the "ordinary citizens" act as "the Jones". Even though they have some kind of dream, of living in a house that produces all the needed energy itself, fairly no one is building this kind of houses because they don't want to be the first in the street with this kind of house. They are a little afraid of the sub consequences of living in these houses; has all the building materials the same guarantee as in a "normal" house, what about ventilation in these kind of houses and what if our children gets sick of it, ... we once heard that... etc. and when they choose how to renovate their house or build a new one, they chooses the "normal" standard.

There is only one way to change this behaviour and it is done by the municipality. When the municipality is planning new city areas, they have to make energy focus areas, where they for example say, that they expect all dwellings to have solar collectors or PV's on the roof. The municipality has to tell the citizens that it is OK to build low energy houses, passive houses and use renewable energy sources.

A good idea is if the municipality creates a very visible and understandable icon in the energy focus area. This could be a large solar thermal system, a large PV system or a biomass boiler. These systems should be designed to match the demands in the energy focus area, so that for example the solar thermal system is designed to meet the DHW demand in summer time, and the PV system could for example match 50% of the electricity use on a sunny day.

The municipality should continue being aware of the energy focus area by following the energy use and the renewable energy production in many years after the focus area is completed. This should be communicated to the citizens in yearly newsletters and on the internet so that the citizens will get a community feeling and a feeling of responsibility for the energy use in their community.

The new building has to be better than the national maximum level, front runner

The municipality needs to be a front runner on the energy area to be taken seriously by the citizens. If the municipality uses a lot of renewable energy and are doing low energy renovations of their buildings, the other actors in the building sector will normally follow. In other words, most citizens don't want to live in houses that use a lot of energy, when they can see, that the municipality buildings have a better indoor climate, a lower energy use, and the monthly rates is the same or lower as theirs.

When the municipality is using solar collectors and PV's on their buildings without problems, most of the horror tales about these things will also be dead very fast, and then it probably will be accepted in the public to use these things.

It is important that the municipality has a clear politic about how their buildings shall be. For example could the policy say that all new buildings shall be 25% better, than the maximum energy level in the national building regulative, and 25% of the used energy shall be produced on the building. It could also say that building renovations shall be factor 10 renovations where it is possible.

Be open about the energy consumption in the buildings owned by the municipality

The energy consumption of houses is at least two things; the actual used energy and the energy that the house was calculated to use. These two amounts should be nearly the same size, but unfortunatley they are often far from each other. One of the better examples are the measurement on the energy use in the BO01 area in Malmø. These measurements showed that some of the houses used nearly 50 % more energy than they were supposed to.

The actual use of energy is therefore as important as the building standard itself, if the citizens also shall build low energy houses etc. One way of showing the energy consumption of a building is to use some kind of energy diploma, that shows how the use of energy has changed over the last 5 years, and compare with the energy amount of energy that the house was calculated to use. The diploma shall be visual in the hall of the buildings and of course on the internet.

If this was done in all municipality buildings then maybe the larger shops would start the same energy awareness and so on, but the important thing is that the municipality has to start the trend.

Make information meetings for the citizens

All kinds of energy information is found on the internet, but when the citizens shall do some larger investment in renewable energy sources, they often would like to speak with a professional about the best technologies, etc. It is somehow the same thing, as when they invest in a new kitchen. But there are nearly no companies that do this for free, and if the citizens first has to pay maybe 200 € to an architect or engineering company to be guided, then they often stop the idea before it is started. Another problem is if the citizens are guided by a engineering company, they have no opportunity to check the information in another company, as they do with a kitchen, unless they once again pay 200€.

The municipality shall either have their own supervisor who can help the citizens with questions about low-energy houses and renewable energy sources, or else have a contract with an engineering company, where the citizens can get help for free. And the supervisor shall of course always be objective and not be sponsored by a heating pump company or things like that.

It is also very important to have public meetings that focus on sustainable use of energy. This shall focus both on the use of energy in the building itself, in the way we use the building, and the extras

that can be put on to the buildings to make it more sustainable. These meting are especially important in new areas of the city, so that new building owners not only get there inspiration from an “old” architect.

The supervisor and the public meetings could be financed from the sale of land. Normally when the municipality sells land, the income shall pay for streets, green areas in the area, and the energy supply system. But why not also use some of the money to pay a supervisor that can help the new house owners.

Create long term results

All the good examples, the good stories and the good results shall be published, in the local media, so that all citizens learn what sustainable use of energy is and which side effects it gives, for example no mould in the corners, no condensation on the windows in the winter, a better indoor climate because the air is changed more often than in a “normal” house, etc.

But it is not only the good examples that shall be published. The bad stores and examples shall of course also be published, so the same mistake is not done twice.

In new building areas the energy consumption shall be measured and the good examples of low energy use, shall be used as front runner examples, and the bad examples shall have the opportunity to get a free energy check, so that eventually wrong construction parts can be found and replaced.

Energy saving campaigns

Campaigns are in general a good thing because at lot of people are reached, and the cost is often low compared to the case where a single employee shall reach the same results from his desk, only using the computer and the telephone. If the campaign also has some kind of competition, the effect often gets larger.

An energy saving competition can have different target groups among the citizens. The normal dwelling owner is a group which often is used. The competition in this group could be to win 1000€ for renewable energy technologies, to the dwelling that have saved the most energy. Another group is the persons in the schools, both the normal schools, but also the technical schools and the universities. They can compete about which class that implements most energy saving equipment and can document it, and the winning class can win maybe 1000€. The third group is the small stores, car dealers, etc. The important thing for this group is the commercial, which is equal to more customers. But the ideas is the same as for the other groups, the company or store that saves most energy will be awarded with a diploma and get a lot of advertising through that.

There can be made more kinds of energy saving campaigns: One which focuses on the largest energy savings over a period, another which focuses on the implementation of energy saving equipment. A campaign could also focus on the implementation of sustainable energy producing equipment and then hand out a kind of diploma to the building that has lowest energy frame, or produces most energy pr m² heated building.

The idea of making campaigns and give diplomas is a good concept, as long as the past results are not forgotten. Every year the campaigns must run again and every year a new winner must be found and the old winner must hand and over the diploma to the new one. Maybe the Mayor shall hand out the diplomas to symbolise that the municipality thinks that this energy saving thing, is a good thing.

The campaigns should not only be made to find a winner every year. Even though the competitions can be good for some thing, they are not good for everything, and there for the campaigns should also be against a specific energy consuming technical device. It could be circulation-pumps that were made before 1980. This kind of campaign could go out to all buildings that was build before 1980, were a letter tell the building owner that he could save maybe 15 € each year if he changed his circulation-pump to a model that the letter mentioned. Then the municipality could sell the replacement pump to a cheap price, because they could buy many at ones. This kind of campaign could be run maybe four times each year, with a new product every time.

Pollution and the economical consequences

Even though the citizens are well aware of the environmental consequences caused by a polluting life style base on fossil fuels, they normally don't combine this with their daily economics. Many citizens think that acting "sustainable" means that nearly everything gets a little more expensive and the product maybe even worse than the one which not is sustainable. An example could be the tire pressure campaigns where the municipality tell the citizens that if their tire pressure is too low they will use more gasoline and there tires will not last as long as they are supposed to. The campaign tells the citizens that these things are harmful to the environment. A lot of citizens don't care about these things and the best example would be a 21 year old guy. He would like to hear that his car will get a much better road grip if the tire pressure is correct, and as a bonus he will have a 5 % lower use of fuel, or he will drive 5 % longer on each liter of fuel, which equals 5% lower costs for fuel.

It is very important to speak the language that the citizens understand best and not only the one that we know they understand.

The municipality shall increase the awareness on how much each single citizen contributes to the total use of energy. If this is done by only one number most citizens will probably not care because their part is only a very little part of it, but if it is fragmented in age-groups for each 5 years, it maybe would give a little more sense to the citizens.

Showing the environmental technologies

A well known word in the city is architecture, and there are often exhibitions about the architecture of the new city hall or something like that. The architects can speak for a long time about every little corner of the building and the same things should be done about energy saving technologies. There shall be made exhibitions about how and where the insulation shall be in the walls, what the difference is between at mechanic and natural ventilation and so on. The environmental

technologies that are developed to the buildings should be shown. And all the good and bad stories about the technologies shall be told.

It is also important that the citizens can find information about low energy technologies when they need them. There shall be an energy and environmental web-pages with all the energy knowledge from the municipality, and it should be linked to from the first page on the municipality-web. The web information can not stand alone, and it is necessary to have a lot of the information as folders which can be handed out to the citizens.

Co-work and team-work

Co-work is a key-word in the work with energy savings. Most of the heavy energy consuming installations can be replaced with new low energy equipment, and the energy consumption of most buildings can be lowered a lot as well in this way. But the thing is, that if the workers that replaces the old installations with new ones, and the workers that renovates the houses, not are aware of the low energy policy in the municipality, they often install the device that they have in their car, and often this is not the cheapest nor the most energy efficient.

It is the same thing with new houses. If the municipality is not working together with the architects and the construction companies that draws and builds the new houses, their energy class will often be the highest possible. Even though it is cheaper for the coming building owners if the buildings had been low energy houses.

The co-work could be done by establishing a platform or forum, both on the energy webpage and in the real life. This platform should contain employees from different sectors of the municipality, private stakeholders, and persons from the constructions companies that builds in the municipality. They shall meet twice each year and discuss how the best energy saving activities shall go on. This will also give some kind of group pressure on new construction companies.

If there is some problem about some new initiatives they can also be discussed before they become problem in the real life.

The co-work shall not only be together with persons from the private sector. It is also important for the work that is done inside the municipality. Often there is an engineer or someone like that, who is doing most of the work with the energy saving. This can be a problem because technical persons think in a too technical way, and many "normal" people outside the technical group don't dare to say that their work is difficult to understand. The problem starts more pronounced when the technical words is presented to the citizens. Then most of the citizens only understand very little and therefor the effect is not as it supposed to be.

It is very important that all energy saving work is established among employees with different educational background. It helps the citizens to understand the work and the deeper meaning behind it.

Another thing that is good to do is to co-work with other municipalities about energy saving projects. This co-work can often help in the very difficult situations and then the co-work can be a cheap way of getting help. Even though the employees in the municipality are very smart, their

work can't be better than the knowledge of the smartest person, and then the only way of getting better is to co-work with other municipalities.

The co-work can also be done international through international projects.

Do the work for the citizens

Some citizens want to save energy in the best way, and they really don't care how the work is done. An example could be the circulation pump; the house owner wants to change it but he doesn't care which company produces the new one, as long as it is a "low energy pump" and he gets a product guarantee of 5 years. He is a hard working guy so he doesn't have the time to contact a worker, check the price, check the work to see if it is done probably and so on.

The municipality shall offer to do this kind of work for this kind of citizens. They can have a contractor that gets a fixed price for a specific kind of work, ex. change a circulation pump, and then the citizen only has to contact the energy supervisor by the municipality if he wants to save energy.

It is important to make it easy to save energy because if it is too difficult, the citizens will not do it.

A possibility is that the municipality develops "package solutions" for energy savings. These should be small-scale services at a reasonable fixed price with a content that is easy to understand.

Examples are:

- Change of circulation pump
- Change of windows
- Solar thermal system including installation and financing via the bill from the supply company, and performed by an installer cooperating with the municipality
- Blowerdoor test and thermographic analysis of a house to check for leakages and cold bridges.
- Extra insulation in walls or roof
- Mechanical ventilation system including installation

Agreed document and demands from the municipality

One efficient way to create a new part of a city with a focus on low energy buildings and extensive use of renewable energy is to sell land with special demands. Land is often sold with demands on the way the house should look (colors) and the materials used (for example bricks and clay tiles). The people buying land are used to such demands. It is also possible to demand that the house is built to a low energy class (for example 25% less energy demand than normal). This can be supplemented with requirements for use of for example solar thermal collectors and environmental demands to materials, like not using PVC.

One way to make demands is to demand that the buildings get a label such as for example the Nordic Eco label called the Swan. The label has both energy and environmental demands, and is checked by a third-party organisation. This is easy to understand for the people buying the

buildings, who are used to select every-day products with eco labels such as washing powder and soap.

It is only possible for the municipality to make such demands, if the municipality owns the land that is being sold. Often new city areas is old farm land which is owned by farmers. When the land is turned into a city zone, the farmers can sell to whom they prefer and the municipality cannot make demands on energy consumption. For such an area the municipality always creates a “local plan”, which must be followed by the builders and land owners. But the local plan cannot contain specific demands on energy use or renewables – it can only contain intentions. The municipality can then negotiate with the builders and try to convince them of following the intentions.

When the municipality owns the land and has the possibility of making demands, there must be political support for that decision. Politicians may be afraid that it will be more difficult to sell land with such demands, even though that experiences show that this is not the case. Instead the politicians have to focus on the positive stories in the media that such demands will create.