

Island of Pellworm

Climate friendly holidays

Renewable Energy Working Group Pellworm
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First of all, I want to give you some information about the island of Pellworm.

Pellworm is a small island situated in the north Frisian mud-flat and is surrounded by the Wadden Sea national park. The island covers an area of 37 square kilometers, and some parts lie about 1m below sea level. The island is protected by high dykes up to 8 and half meters high. About eleven hundred people live on the island, and the main economic sectors are agriculture and tourism. As in many other rural areas the agricultural economy is weak. The population has been decreasing for many years and more than 35 % of the inhabitants are 60 and older. Therefore the tax revenue is weak, and so the island is on a drip-feed of financial support from the government. The overall situation is comparable to that of many small islands all over Europe, and the disadvantaged areas (LFA= Less favoured areas).

The only resources that can be utilized and processed in Pellworm are wind, sun, and a small amount of biomass. So it's no surprise that for more than 30 years people on Pellworm have been engaged in the research and use of renewable sources of energy.

The first wind turbine for producing electricity was erected in 1924; the first test area for small wind turbines was built in 1979. By the middle of the 1980's the largest solar power plant in Europe was built on the island. A lot of research in using photovoltaic panels was carried out, many different solar panels were tested, and the first system for recycling solar panels was developed on Pellworm.

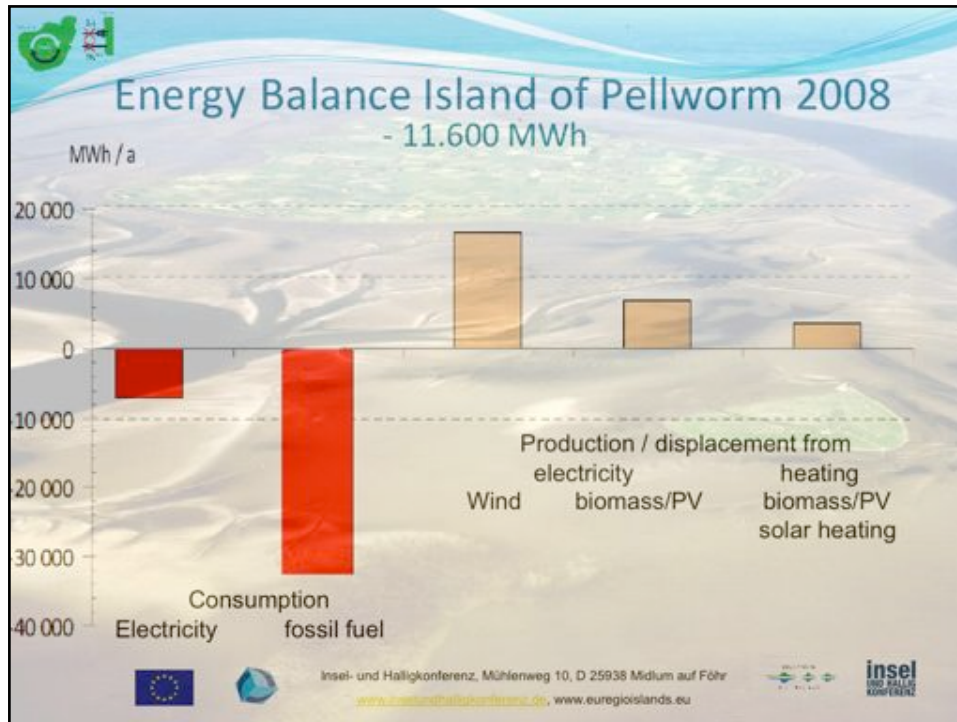
Since the mid 1990's people in Pellworm have been doing a lot of research on whether it might be possible to set up a CO2 neutral energy supply for the island. There have been two big studies financed by the European Union. A wind-farm was built on the island, followed by a biomass plant in 2002. We took part in the EXPO 2000 as a peripheral project with the topics being 'local heat supply' and 'underground heat storage'. (Aquiferspeicher)

So we have been busily occupied for many years on the use of different renewable energies and active climate protection. Over the past two years we have been engaged in adjusting the Pellworm Energy Program for the future. To do this we drew up our energy balance for the whole island. In co-operation with the political authorities in the island we announced our aims for the further reduction of CO2 emissions. In order to reach these goals we set up a master-plan which is due to be implemented by 2020. One module within our master-plan is optimizing the energy balance within the tourism sector. We want to work on this module together with partners from the Cradle-to-Cradle project

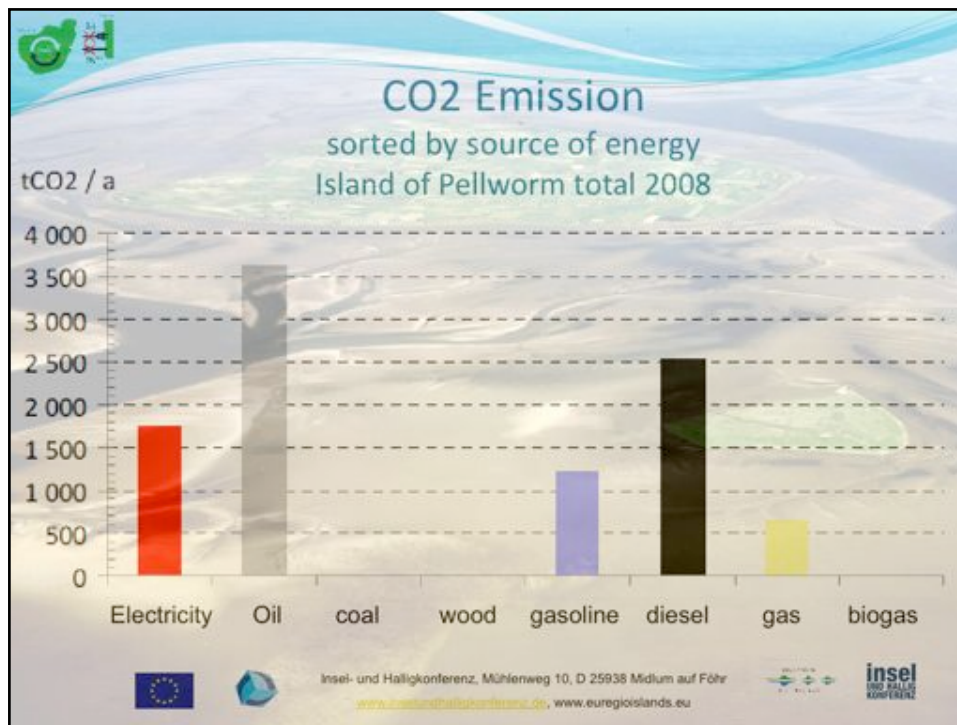


We have set up two main goals for the next decade 2010-2020. Because agriculture as to struggle a lot, and because of the lack of natural resources other than the wind-farm and biomass, as a third main pillar beneath agriculture and tourism Pellworm is going to become an energy-producing island. This is the only economic sector where extra money can be raised to stabilise the economic and social situation on the island. With the exception of the solar plant, all energy producing facilities are owned and run by large groups of Pellworm inhabitants, so the profits remain on the island. Together with developing the further use of renewable energy, we want to reduce the use of fossil fuel, and reduce the energy consumption of the island as a whole. This will be Pellworm's contribution to lowering the global CO₂ balance.

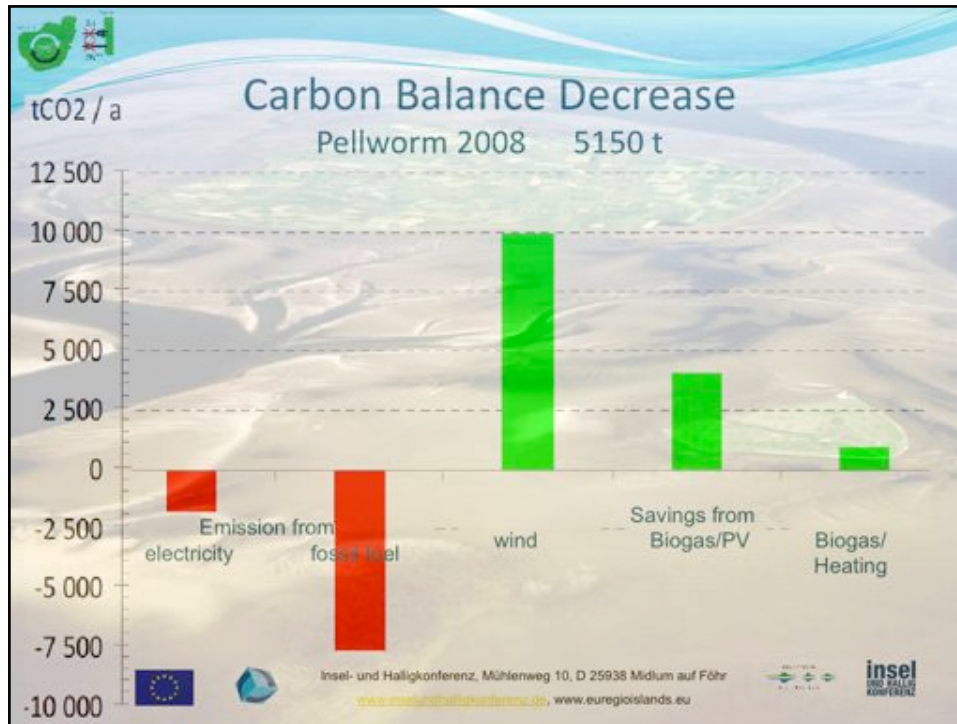
Before presenting our idea of climate-friendly holidays for better understanding I will give you some important information about the actual energy balance of the island of Pellworm.



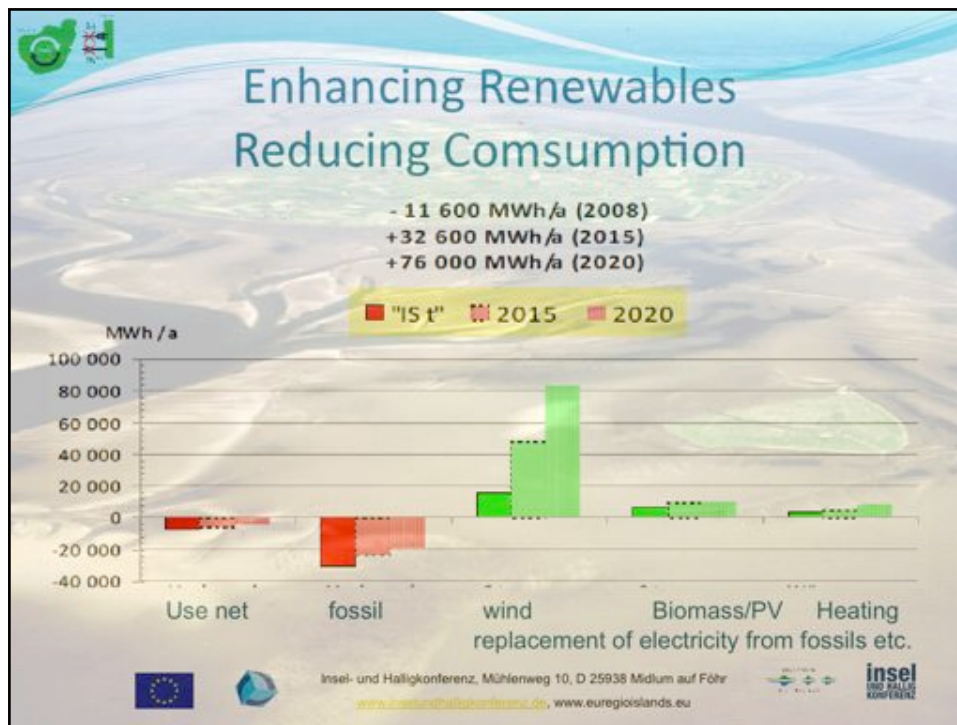
If we have a look at the overall energy consumption of the Island of Pellworm (electricity, heating, traffic and so on) the energy balance of Pellworm is negative by now. The actual energy consumption of Pellworm is about 11,600 MWh higher than the energy production. If you have a look at the graphics, you will see there is still a high consumption of fossil fuel.



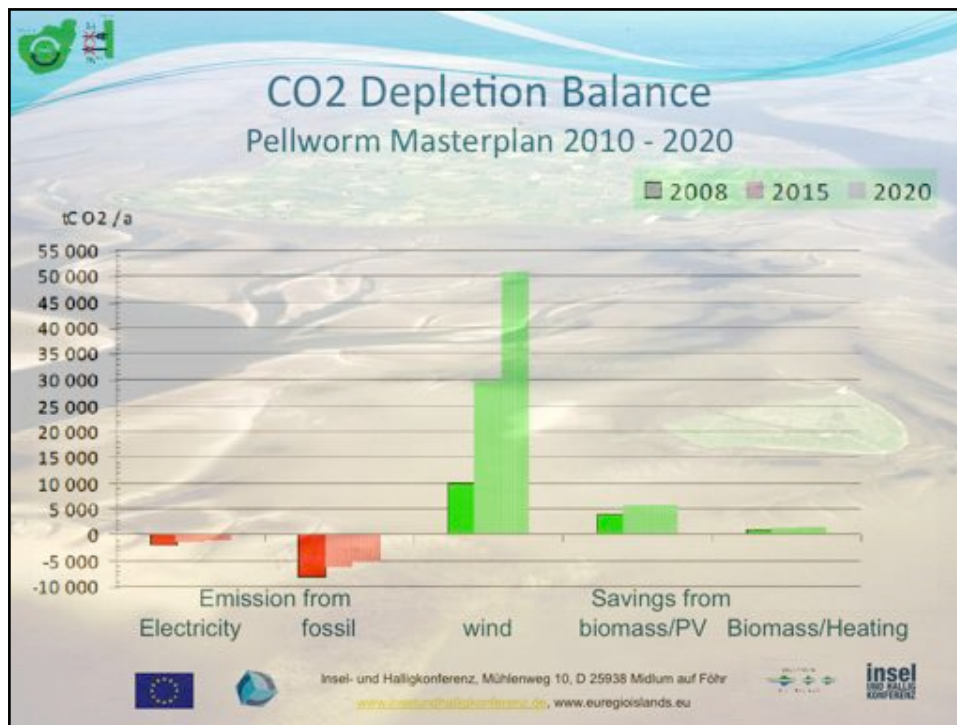
Looking at the CO2 emissions resulting as a consequence of the high amount of fossil fuel used, there's a lot of CO2 emission following the use of oil, gasoline and diesel. You will wonder why the CO2 emissions caused by electricity are quite low. This is a consequence of the high amount of nuclear sourced electricity which is contained in the electricity offered by our supra regional (electric) energy supplier.



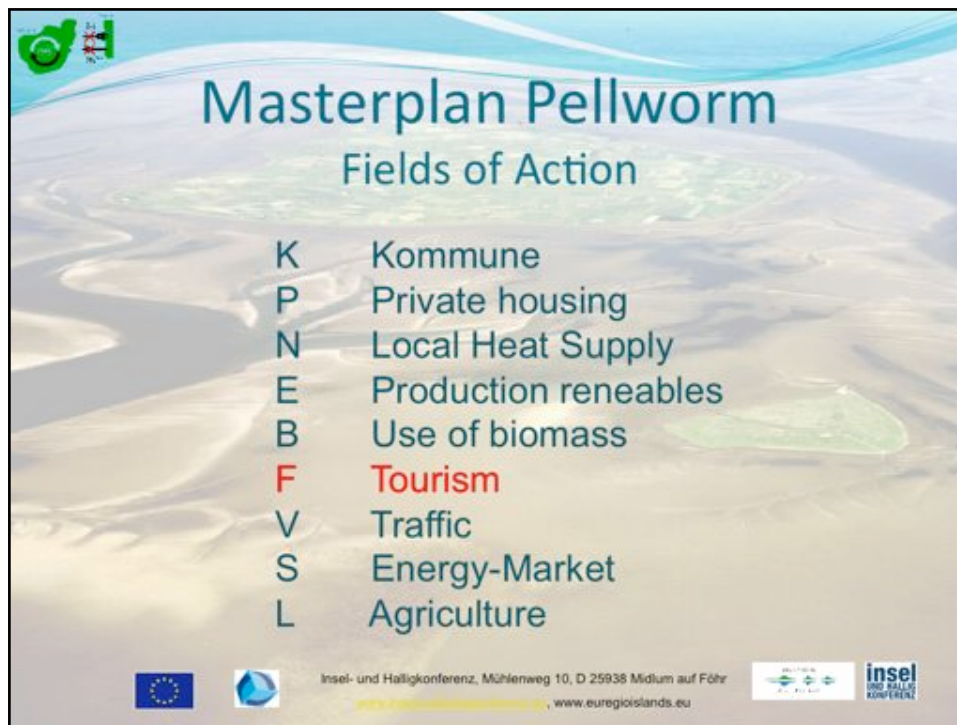
Nevertheless Pellworm already has a negative CO₂ balance by now. Every year we save about 5150 tonnes of CO₂ more than what's been caused by energy consumption, and the main reason is the high amount of energy produced from renewable resources, mainly wind.



Let's have a look at the masterplan for 2020. For our overall energy consumption we need an energy import of 11,600 MWh. In 2020 we are going to have a surplus of 76,000 MWh. This seems at first sight to be astonishing, but the goal will be a realistic one within the given time frame when we take into consideration much effort in the saving of energy, and repowering of the wind-farm.



One result of this will be an improvement in our CO₂ balance. As I pointed out, already by now the island has a positive CO₂ balance. Starting with the actual savings of more than 5000 tons CO₂ per year in 2010 we want to save more than 50,000 tons CO₂ in 2020.



You can imagine that this ambitious programme will need a lot of effort in many diverse areas.

We divided the development plan into a number of different working sectors. These are:

the local authority area

private housing

optimising and developing local heat supply

developing the use of renewable energies as mentioned and optimising the use of biomass

traffic

setting up a local energy market and implementing it in the supra-regional scale

energy efficiency in agriculture and other important fields of action

An one of the first will be tourism.