DEVELOPMENT OF RENEWABLE ENERGIES IN EUROPE

MAP

Güssing is a small town with 4.000 inhabitants and capital city of the region Güssing with 27.000 inhabitants.
Former Güssing was the poorest region of Austria but with the development of renewable energies the prosperity came to Güssing.

CIRCUIT OF ENERGY

20 years ago the region of Güssing had to buy a lot of fossil energy sources in addition for the energy production (heating, electricity, fuels). This resulted in a drain of money of 36 Mio EUR.
By using our own renewable resources in our own energy production plants and selling these forms of energy to our own population the money circulates within our region. This model is not new; it is used since decades in the area of drinking water and sewage. That means that people know this model and they use it.

NETWORK EEE

The European Centre of renewable Energies Güssing (EEE) became a huge network and also a network manager.
The EEE is linked to every energy production plant of the whole region (35 plants), with the two research institutes in Güssing (national and international institute), coordinates research work at the plants, educates people from whole Europe on the area of renewable energies at the education centre, works together with regions of whole Europe on energy concepts on the services sector (more than 100 EU projects with 500 partners) and organises the eco-tourism in Güssing (50.000 visitors per year).

THE TRIANGLE OF GÜSSING

The research was always incorporated since the beginning of the development of renewable energies in Güssing. At first there were Austrian research institutes like the Technical University for Vienna (Prof. Hofbauer) but in the course of time a lot of international research institutes came to Güssing.
In a cooperation research-plant operator-industry a lot of new technologies were developed which can be used worldwide.
Big partner make sure that research grants are brought in and organise the distribution. In Güssing founded companies sell these developed technologies and bring an added value to the region.

GENERAL CONDITIONS

The development of renewable energies is moving forward rapidly. In the years 1990 to 2000 the production of heat out of biomass (district heating) and die production of bio diesel out of rape seed was in the front. Since the year 2000 the focus was on the production of efficient production of electricity out of biomass. Main topics were the thermal and biological gasification. Many projects got started and unfortunately a lot of failed. On both fields plants were developed in Güssing and they count as the best worldwide. At the same time the expansion of wind power was started. Since the year 2004 it also was started to use other bio fuels beside the bio diesel, e.g. bio ethanol. Also the solar power was forced. First just the thermal use over solar panels and

proper in the last years intensively the photovoltaic technology is used (Güssing has a huge PV-production factory).
The EU and their member states started to invest in new fuel technologies because of the increasing prices of oil and the running out of oil resources. They made new general conditions for decreasing the dependence of oil and natural gas imports in the future. The increasing number of automobiles and truck in Europe (there will be twice as much automobiles in the year 2020 than today) maintained to an intense expansion of fuel production. Because of that bio fuels (bio diesel and bio ethanol) are not so efficient at the production, have problems of quality and are in compete with the food production and for that they are intensely criticised, it is tried to find new possibilities with a high invest of money.

FUELS OF THE FUTURE
The disadvantages of bio fuels can be balanced with synthetic fuels. In addition synthetic fuels can be produced in form of gas (BioSNG) and also liquid (BtL). Synthetic fuels are produced out of coal, oil and natural gas worldwide but it is also possible to produce it out of biomass. The bases for this are efficient gasifying technologies, cleaning steps and adaptation of existing conversion technologies. Through the use of the whole plant or rather the use of agricultural and forestry waste products, the efficiency is four times higher as of bio fuels. The clarity of synthetic fuels is higher than of fossil fuels.
At the moment there are two strategies in Europe. Shell, VW and Mercedes chose the way of big plants (500 MW) with the problem of the biomass logistic and the efficiency of 40%. Güssing chooses the way of the local small scale plant (max. 50 MW) but with an efficiency of 85%. At the moment the first demonstration plants go into operation and we will see which strategy will enforce.
Experts expect that in the year 2012 the synthetic fuels will displace the biological fuels.
Another advantage of BioSNG is that it can be fed into the gas grid and it can be transported optional.

STRATEGY OF THE FUTURE
The strategy in Güssing is the local energy production with the available resources (waste materials) our region. With the help of thermal and biological gasification as a compact energy centre I can produce every form of energy what is need in the region after the conversion of biomass into gas – heat, electricity, synthetic natural gas for the gas grid or for gas stations, liquid fuels or for the future also hydrogen.

This future you can already visit in Güssing