

REGIONAL BIOMASS ACTION PLAN

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ABSTRACT: In Upper Austria, renewable energy sources (RES) provide over 30% of the primary energy consumption. 14% of that comes from biomass and the share of renewable heating is 41%. Biomass has a high political priority and the regional government has adopted the target to reach 100% RES space heating and electricity by 2030. To achieve this ambitious goal a regional action is carried out. The O.Ö. Energiesparverband, the regional energy agency of Upper Austria, is mainly responsible for the implementation of the measures included in the action plan.

Keywords: bioenergy strategy, biomass resources, pellets, public awareness, space heating

1 BACKGROUND

Upper Austria is located in the Northern part of Austria bordering Bavaria and Czech Republic. It is a highly industrialised region and a leading technology and export region in Austria. The main economic sectors include metal and chemical industries as well as the tertiary sector and tourism.

In Upper Austria renewable energy sources have a high political priority. The first energy strategy and action plan were passed in 1994 leading to for example an increase in the share of RES from 25 to 30% and to a reduction of energy consumption in housing (private sector) of 30% in the year 2000.

From 2000-2010, the second part of the Upper Austrian energy strategy is being implemented and again ambitious targets – as for example doubling biomass and solar installations – were set. An energy efficiency programme accompanies the strategy.

A very important renewable energy source in the region is biomass which has a long tradition. About 14% of the primary energy consumption is biomass. The share of heat from renewables (heat from biomass, solar, geothermal, heat pumps, district heating - including heating of buildings, process heat and hot water provision) accounts for 41% of the of the total heat production (incl. district heating, in comparison it is about 11% in the EU).

Recently the regional government decided that by 2030 all electricity and space heating will be covered by renewables. Obviously, biomass has an important role to play in achieving this target.

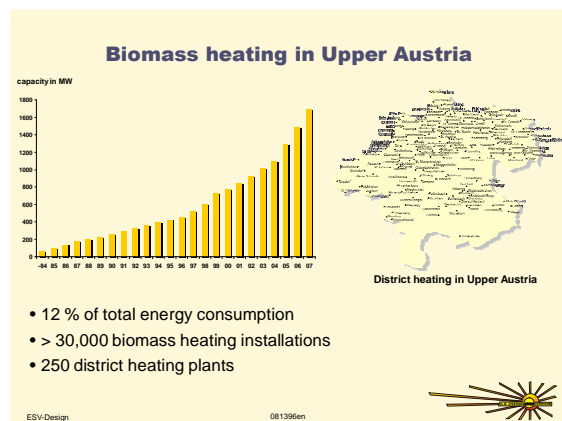


Figure 1: Biomass heating in Upper Austria

2 APPROACH

2.1 Energy Future 2030 - 4 scenarios:

The decision to go for 100% RES electricity and space heating was based on 4 scenarios: high – medium – stable – turning point for the sectors electricity, heat, transport and primary energy, which outline development of consumption, trends and potentials.

The possible scope for action shows the range from doubling energy consumption and dropping the share of RES down to 13% (high increase in consumption, no additional use of RES). On the other hand up to 60% RES, excluding transport, up to 100% RES is possible (harnessing maximum RES potential, decreasing consumption). The energy consumption can either come up to 120% or decrease by 28% (in relation to present consumption).

In terms of CO₂-emissions, this would mean that a wide range between 60 mio tons (high increase in consumption, no additional use of RES) and 8 mio tons (turning point scenario) by 2030 is possible (presently about 24 mio tons are emitted). For the scenario "stable" and harnessing maximum potential of RES, about 16 mio tons CO₂-emissions will be emitted by 2030.

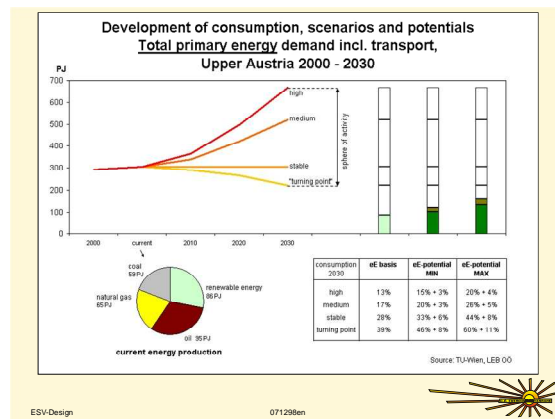


Figure 2: Total primary energy – scenarios 2030

2.3 The "turning point scenario"

In October 2007, the Upper Austrian government decided to go for the turning point scenario aiming among others at:

Targets 2030	
Electricity	100% electricity from RES
Heat	no fossil fuels reduction of heat demand by 39%
Transport	41% less fossil fuels
CO ₂ emissions	65% less CO ₂ emissions

Table I: Targets 2030 "turning-point" scenario

2.4 The "turning point scenario" for the heat sector

For the development of the heat consumption, again 4 scenarios were developed, taking into account the following development in heat consumption:

4 scenarios "heat sector - consumption"	
High	+ 0,5%
Medium	+/- 0%
Stable	- 0,5%
Turning-point	- 2%

Table II: Consumption scenarios 2030 heat sector

Depending on the use of RES potentials, the share of RES heat (including district heat) by 2030 can vary between 34% (present share of RES heat, high increase in consumption) and 100% (harnessing maximum RES potential, decreasing consumption).

The development of the scenario is based on the EU "Action Plan for Energy Efficiency" (COM(2006)545) and linked to the Upper Austrian Energy Efficiency Programme "Energie Star 2010".

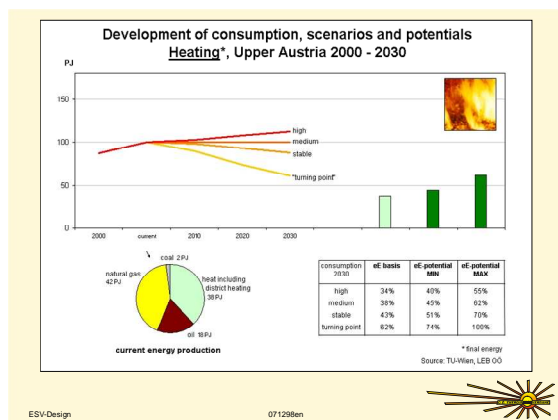


Figure 3: Scenarios 2030 – heat sector

3 SCIENTIFIC INNOVATION AND RELEVANCE

3.1 Dialogue platform

To ensure acceptance and identification with the "Energy Future 2030" strategy, for the first time a regional dialogue platform was established. It started with 2 information events including stakeholder workshops and online questionnaires with 200 and 150 participants. These more general information meetings are followed by workshops which are now carried out on a regular basis to develop the strategy further.

3.2 Biomass resources

For the development of the scenarios, the analysis of

RES potentials was a very crucial factor. Here a thorough examination, taking into account the input of stakeholders, was taken and the scenarios include only growth rates of RES that are economically feasible and taking into account future economic growth.

"Green heat" (incl. district heating)	38 PJ	->	62 PJ
Biomass heat	23 PJ	->	40 PJ
Heat pumps	1 PJ	->	2-3 PJ
Solar thermal	1 PJ	->	4 PJ

Table III: Potentials RES heat 2030

4 THE REGIONAL BIOMASS ACTION PLAN

To achieve the targets laid down in the "turning-point" scenario, among others, a regional biomass action plan is being carried out. It comprises a mix of measures and is based on the Upper Austrian "3 pillars strategy":

Legal measures:

Recently for example very strict regulations for the building sector were passed, including maximum consumption values for heating and the obligation to use solar energy for new residential buildings.

Financial measures:

Financial support programmes, which provided stable support conditions over the last years will be continued and enlarged.

Information measures:

Continuous information and awareness raising activities are required, for different target groups and including a set of instruments and tools to be able to reach the maximum of citizens and stakeholders.

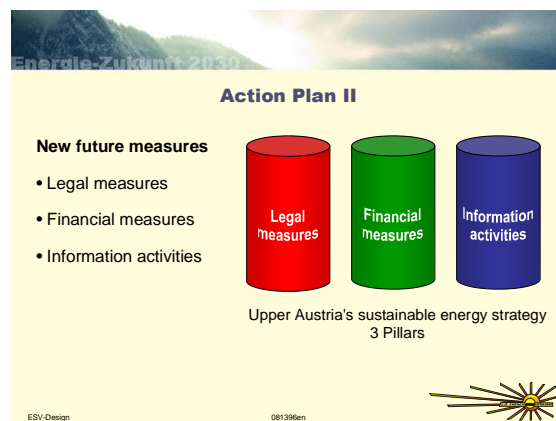


Figure 4: Upper Austrian "3 pillars strategy"

However, Upper Austria does not start from zero and can build on existing policies and measures. It was calculated that about 50% of the targets can be achieved by implementing the already adopted European Directives, as for example the EPBD, the Green Electricity Directive, the Biofuels Directive or the Directive on Energy End Use Efficiency and Energy Services.

The regional biomass action plan includes among others, the following measures:

4.1 Pellets campaign

A pellets campaign was started recently to support

market development of the pellets market after a difficult year due to high prices and mild winter. Among others the campaign includes the development of a new website which is the platform for all information and awareness raising activities (www.pelletskampagne.info), new brochures, billboards all over the region. A "pellets competition" was carried out which met with high response and especially schools submitted remarkable projects as for example a "pellets city" built entirely from pellets.

4.2 Energy advice

Biomass heating is a very important topic at the more than 15,000 energy advice sessions, O.Ö. Energiesparverband is carrying out annually. Additionally about 300 energy audits for companies are done, where information about biomass use is given.

4.3 Events

Besides information events and workshops with stakeholders to develop the action plan, an international conference ("Renewable heating and cooling") and an international Pellets-Forum (5-6 March 2008, Wels) were held.

4.4 Training

Regular training seminars (e.g. training courses for energy advisers and energy management in businesses), include information on biomass use and a training course for the installation of large-scale pellets heating plants is being carried out.

4.5 Media

All this is accompanied by intensive media activities in regional press and TV. Continuously press releases are issued and articles published. Additionally direct mailings are frequently used to inform about the activities going on.

4.6 Cooperation partners

The leading pellets companies in Upper Austria are partners of the activities. They contributed for example actively to the development of the pellets campaign and were partners of the event "Pellets Forum".

5 OEKOENERGIE-CLUSTER (OEC)

The importance of "green energy companies" in our region is reflected in the network of green energy businesses, the "Ökoenergie-Cluster" (OEC), which is managed by the O.Ö. Energiesparverband.

Presently 145 businesses are partners of the network. With a total turn-over of 1,570 mio € and 4,000 employees, this sector is no longer a niche market. For example, in the last two years, around 100 mio € was invested in new buildings and production facilities and more than 500 new staff members were employed.

The partners are active in the renewable and energy efficiency sectors, the majority of them are active in the biomass field. About 40% of them are technology producers, 40% are planners, distributors or consultants and about 20% are R&D or training institutions.

The OEC provides a platform for green energy businesses and supports them for example in marketing and exporting.

5 CONCLUSIONS

As a result of the scenarios developed in the frame "Energy Future 2030" strategy process, it can be summarized that without further action, by 2030

- total energy consumption would more than double
- the share of renewables would decrease from around 30 % to 13 % and
- CO₂ emissions would be at 2.5 times of today's value.

To avoid such a development, the political decision was taken to aim at the turning point scenario which means to achieve by 2030:

- 100 % electricity from renewable energy sources
- no fossil fuels for heating
- 39 % less heat demand
- 41 % less fossil transport fuels
- minus 65 % CO₂

The "Energy Future 2030" scenarios show that 100% RES heat in Upper Austria is technically and economically possible. The regional biomass action plan is one important initiative to achieve this goal.

6 RESULTS

Presently, there are 30,000 modern automatic biomass heating installations and 250 biomass district heating networks in operation in Upper Austria.

The development in the heating market in the sector of single family houses - a very important sector with half of the population living there - was very successful:

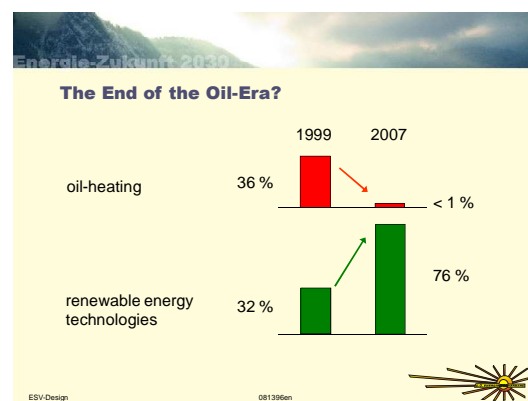


Figure 5: Development of oil-heating installations

- oil-heating installations in new one family houses decreased from 36 % in 1999 to less than 1 % in the year 2007 and
- the share of renewable energy heating installations in new-built single family houses increased in the same time period from 32 % to 76 %.

Now this development has to be carried on to other sectors as well.