AUSTRIAN STUDY TOUR REPORT

Woodheat solutions – IEE/07/726/SI2.499568


Keyword: Woodheat.
Abstract

Styrian Chamber of Agriculture and Forestry organized a 2 x 2 day study tour; one for buyers and one for sellers in March 22nd – 26th, 2010 as part of WP4 on Promoting and Applying Standards. 49 participants have participated on the seller’s tour and 44 on the byer’s tour (including the project partners).

Both study tours consisted of an indoor seminar and the visits of selected sites according the interests of the project partners. The main topics of the indoor seminars were the CEN/TS quality standards for solid biofuels, the quality management system for district heating systems and how standards are applied in Austria.

Co-operation with local entrepreuneurs and farmers as well as the manufacturer of high-tech mobile chipping machines and wood heating systems was excellent, which enabled successful organization and good interaction with the delegates. Delegates were very interested in the visited sites and became a good overview about the Situation in Styria.
Contents

Abstract .................................................................................................................................................. 2

1. Introduction ........................................................................................................................................ 4

2. Contents of the study tour in Austria .......................................................................................... 5
   2.1 Seminars ......................................................................................................................................... 9
       2.1.1 Presentations ............................................................................................................................ 10
           2.1.1.1 Summary: CEN TC335: Solid Biofuels – Mr. Rathbauer ................................................. 10
           2.1.1.2 Conclusion: Quality management of district heating systems – Mr. Moser ................. 11
           2.1.1.3 Conclusion: Securing quality Standards of wood fuels in Austria – Mr. Metschina .......... 11
       2.2 Site visits .................................................................................................................................. 12
           2.2.1 Manufacturers ....................................................................................................................... 12
               2.2.1.1 Komptech ...................................................................................................................... 12
               2.2.1.2 KWB – Biomass Heating Systems .................................................................................. 13
           2.2.2 Heating plants ...................................................................................................................... 15
               2.2.2.1 Heating plant in Straden ............................................................................................... 15
               2.2.2.2 Heating plant Kirchberg am Walde .............................................................................. 16
               2.2.2.3 Wood engery contracting project: 110 kW .................................................................. 18
               2.2.2.4 Energy cycle of Mureck ............................................................................................... 19
       2.2.3 Biomass trade centers .............................................................................................................. 22
           2.2.3.1 Biomass trade centre Hartberg ....................................................................................... 25
           2.2.3.2 Biomass trade centre Waldstein .................................................................................... 26

3. Feedback from participants ........................................................................................................... 28
   3.1 Croatia ........................................................................................................................................... 28
   3.2 Finland .......................................................................................................................................... 28
   3.3 Slovenia ........................................................................................................................................ 29
   3.4 United Kingdom ......................................................................................................................... 30
1. Introduction

As scheduled in the Annex 1 of the Woodheat Solutions project, Chamber of Agriculture and Forestry organized a 2 x 2 day study tour for sellers and for buyers in March 22nd – 26th, 2010.

23 people from the UK, 11 from Croatia, 11 from Slovenia, 2 from Austria and 1 from Finland participated in the sellers’ tour.
The byers’ tour consisted of 23 people from UK, 10 from Croatia, 8 from Slovenia and 2 from Austria.

The programm was discussed with the partners in advance and adjusted, in order to see the whole value added chain in the biomass production. The participants got an insight in the development of the Austrian biomass market in the recent years particularly of Styria. The participants had the chance to ask specific question directly at the face of biomass- and heat producers. Besides the practical demonstration (chopper, splitter, wood pump), the programm was rounded up by theoretical presentations to the topic of quality standards. Lest the cultural part get a raw deal, there was an evening programm set up to get in contact with other partners.
2. Contents of the study tour in Austria

The study tour week in Austria consisted of the following:

**TOUR FOR SELLERS (22 – 23 MARCH)**

Arrival on Sunday 21 March 2010. *Dinner:* in the city of Graz at 20:00

**Day 1: Monday, 22 March 2010**

Departure at 08:00 from hotel by bus

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 – 10:30</td>
<td>Komptech&lt;br&gt;Manufacturer of high-tech mobile chipping machines</td>
</tr>
<tr>
<td>12:00 – 13:30</td>
<td>Lunch (Straden)</td>
</tr>
<tr>
<td>13:30 – 15:00</td>
<td>District heating plant Straden 450 kW&lt;br&gt;A co-operative of farmers operate tree heating plants (450 kW, 200 kW, 600 kW). The 450 kW heating plant includes also a solar power plant for the production of hot-water in summer time.</td>
</tr>
<tr>
<td>17:00 – 19:30</td>
<td>Indoor seminar: Chamber of Agriculture and Forestry of Styria</td>
</tr>
<tr>
<td>17:00 – 17:15</td>
<td>Welcome through Mr. Zwettler (Head of Forestry Department of Styrian Chamber of Agriculture and Forestry)</td>
</tr>
<tr>
<td>17:15 – 18:45</td>
<td>CEN TC335: Solid Biofuels – Mr. Rathbauer (BLT – Biomass / Logistic / Technology) Quality management of district heating systems)</td>
</tr>
<tr>
<td>18:45 – 19:30</td>
<td>Quality management of district heating systems – Mr. Moser&lt;br&gt;(General Manager – BioEnergy Service)</td>
</tr>
<tr>
<td>20:00</td>
<td>Dinner in a restaurant in Graz</td>
</tr>
</tbody>
</table>
### Day 2: Tuesday, 23 March 2010

- **Departure at 08:00 from hotel by bus**

#### 09:00 – 11:00
**Biomass trade centre Hartberg: Production, transportation and distribution of wood chips and wood logs**

A BTC is a filling station for wood fuels! A co-operative of farmers provide high quality wood fuels like wood chips and wood logs to households, business enterprises and biomass heating systems.

#### 11:00 – 12:30
**District heating plant Kirchberg am Walde (600 kW)**

A co-operative of farmers provide heat to different customers. One of them is an agricultural school.

#### 13:00 – 14:00
**Lunch (Hartberg)**

#### 14:00 – 16:00
**Forestry in Austria**

What happens in Austrian forests? Demonstration event: whole tree harvesting.

#### 17:30
**Arrival at the hotel**

#### 20:00
**Dinner in a restaurant in Graz**
TOUR FOR BUYERS (25 – 26 MARCH)

Arrival on Wednesday 24 March 2010. Dinner: in the city of Graz at 20:00

Day 1: Thursday, 25 March 2010

Departure at 08:00 from hotel by bus

08:45 – 11:45  KWB – Power and Heat from Biomass GmbH

Manufacturer of small pellet-, wood chip and wood log heating systems (300 kW)

12:00 – 13:00  Lunch (St. Magarethen/Raab)

13:30 – 15:00  Wood energy contracting project: 110 kW
A co-operative of three farmers provide heat to an elementary school.

17:00 – 19:00  Indoor seminar: Chamber of Agriculture and Forestry of Styria

17:00 – 17:15  Welcome through Mr. Zwettler (Head of Forestry Department of Styrian Chamber of Agriculture and Forestry)

17:15 – 18:00  Quality management of district heating systems – Mr. Moser (General Manager – BioEnergy Service)

18:00 – 19:00  Securing quality Standards of wood fuels in Austria - Mr. Metschina (Styrian Chamber of Agriculture and Forestry)

20:00  Dinner in a restaurant in Graz
Day 2: Friday, 26 March 2010

Departure at 08:00 from hotel by bus

09:00 – 10:30  Biomass trade centre Waldstein: Production, transportation and distribution of wood chips and wood logs

A BTC is a filling station for wood fuels! A co-operative of farmers provide high quality wood fuels like wood chips and wood logs to households, business enterprises and biomass heating systems.

10:30 – 12:00  Forestry in Austria

What happens in Austrian forests?

13:30 – 14:30  Lunch (Mureck)

15:00 – 17:00  Energy cycle of Mureck (district heating system)

Three companies (biodiesel, district heating and biogas plant), all owned by farmers, constitute the "Mureck Energy Cycle" and supply the entire Mureck region with electricity, heat and fuel. Mureck has won the “World Energy Globe Award 2001” in the category “energy in a perfect cycle”.

18:30  Arrival at the hotel

20:00  Dinner in a restaurant in Graz
2.1 Seminars

Each study tour (for sellers and for buyers) contained additional to the visited sites an indoor seminar, which was held in the Chamber of Agriculture and Forestry. The main topic was the quality management of district heating systems. After the presentations participants had the possibility to ask the experts and discuss about the standardization of solid biofuels and quality management of district heating systems in Austria. All delegates were very interested and impressed by the way quality management is held in Austria, because they do not know it in this way from their countries. Discussion was also characterized by questions about implementation in practice in the countries of the delegates. All participants shared the opinion of efficient use of biomass in future. All in all it was a fruitful interaction between the referents and the delegates.
2.1.1 Presentations

2.1.1.1 Summary: CEN TC335: Solid Biofuels – Mr. Rathbauer

- Over the last decade a real big effort has been done for the development of standards for Solid Biofuels.
- The main document as a framework is the EN 14961-1:2010-02-01.
- Several product standards for solid biofuels for non-industrial use have been elaborated.
- WG 3 – 5: more than 30 determination Standards On the ISO level the TC 238: Solid Biofuels has been established in the year 2008.
- The available standards should be used in practice and feedback is needed for the update.
2.1.1.2 Conclusion: Quality management of district heating systems – Mr. Moser

There is a significant potential to improve the efficiency of district heating systems with essential impact on:

- Environmental issues (emissions)
- Biomass fuel consumption
- Other energy demand (especially electricity demand)
- Long term availability and lifetime

2.1.1.3 Conclusion: Securing quality Standards of wood fuels in Austria – Mr. Metschini

CEN/TC Survey Results - Quality Wood (I)

- Respondents, both merchants and customers, view the CEN-standard for firewood a positive development
- Newer customers, particularly those living in urban areas, are more interested in having a written document of the purchased product
- Merchants claimed that standards should not hinder normal firewood trading that is based on experience and long tradition.
- it is good that (volume) units and measurements are standardized so that customers and merchants understand them in the same way
CEN/TC Survey results – Quality wood (II)

- Merchants do not suggest any strict or uniform product specification but are willing to provide basic written information of their products on demand.
- The specification should include the wood species, volume (stacked-m3 preferred), moisture and storing instructions.
- The energy content of the unit of traded firewood could be included, if it can be defined with trustworthy means. Hardly any trader measures the energy content because there has not been need for it so far.

2.2 Site visits

2.2.1 Manufacturers

2.2.1.1 Komptech

Komptech is a leading international technology supplier of machinery and systems for the mechanical and biological treatment of solid waste and for the treatment of biomass as a renewable energy source.

After a short presentation about the company and their product range (they produce mobile and stationary machines with shredding, separation and
Participants were impressed by the way Komptech is setting a great value to securing quality standards. It was also interesting for them to see, how different materials from non forest areas such as root stocks, waste wood untreated and green waste and woody biomass from forests (trunks, forest wood residues, bark and root stocks) are prepared with different machines for the use in biomass heating plants.

2.2.1.2 KWB – Biomass Heating Systems

With it`s fully automatic biomass heating systems, KWB has focused it´s business for years on the use of renewable and efficient sources of energy. Heating with pellets, woodchip or firewood also opens up possibilities for achieving considerable savings.

The product range: Today the product range encompasses pellet, woodchip and firewood boilers as well as individual extraction and storage systems for every spatial situation. All boilers are fitted with the KWB-Comfort 3.0 microprocessor controller, a modern, easy-to-operate control system. The
output range form 10 kW to 300 kW. This means the system meets the heating needs of low-energy houses, single and multi-family dwellings and even regional heating, e.g. for housing developments or public buildings.

After a presentation about the energy situation in Austria and especially in Styria delegates had the possibility to visit the whole production process and in a showroom they could see, how this boilers are used in practise. Mister Pock managed to explain the function in a practically orientated manner.
2.2.2 Heating plants

The heating plants visited during the study tour gave a good overview about the different heating plants in Styria.

2.2.2.1 Heating plant in Straden

General

The heating plant in Straden was built to supply the Elementary school, the House of culture, the Kindergarten, the Rectorate building, the restaurant “Jägerwirt” and three family houses. The main reasons for building this heating plant were according to the operator environmental und economical reasons.

Facts

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of heat</td>
<td>430kW</td>
</tr>
<tr>
<td>Length of heat pipe</td>
<td>500 m</td>
</tr>
<tr>
<td>Consumption per year</td>
<td>500.000 kWh</td>
</tr>
<tr>
<td>Fuel</td>
<td>Woodchips</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Fuel storage room</td>
<td>100 m³</td>
</tr>
<tr>
<td>Annual wood chips consumption</td>
<td>800 m³</td>
</tr>
<tr>
<td>Hot water storage tank</td>
<td>1000 litre</td>
</tr>
<tr>
<td>Investment costs</td>
<td>500.000 €</td>
</tr>
<tr>
<td>Operation started</td>
<td>2008</td>
</tr>
</tbody>
</table>

### 2.2.2.2 Heating plant Kirchberg am Walde

![Image of the heating plant Kirchberg am Walde with a group of people gathered in front of it.]
General

The heating plant in Kirchberg am Walde was built to supply the Agricultural school including the boarding school and the residential house for teachers, the School-market-garden and the Repair and assembling shop.

Facts

<table>
<thead>
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<th>Purchase of heat</th>
<th>540 kW</th>
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<td>Length of heat pipe</td>
<td>500 m</td>
</tr>
<tr>
<td>Consumption per year</td>
<td>750,000 kWh</td>
</tr>
<tr>
<td>Fuel</td>
<td>Woodchips</td>
</tr>
<tr>
<td>Fuel storage room</td>
<td>1200 m³</td>
</tr>
<tr>
<td>Hot water storage tank</td>
<td>Is not existing – the rest of the heat is used to supply the school with warm water</td>
</tr>
<tr>
<td>Investment costs</td>
<td>385,000 €</td>
</tr>
<tr>
<td>Operation started</td>
<td>1997</td>
</tr>
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</table>
2.2.2.3 Wood energy contracting project: 110 kW

**Facts**

<p>| | |</p>
<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Purchase of heat</td>
<td>289 kW</td>
</tr>
<tr>
<td>Length of heat pipe</td>
<td>65 m</td>
</tr>
<tr>
<td>Consumption per year</td>
<td>330,000 kWh</td>
</tr>
<tr>
<td>Fuel</td>
<td>Woodchips</td>
</tr>
<tr>
<td>Fuel storage room</td>
<td>130 m³</td>
</tr>
<tr>
<td>Annual wood chips</td>
<td>500 m³</td>
</tr>
<tr>
<td>consumption</td>
<td></td>
</tr>
<tr>
<td>Hot water storage</td>
<td>2000 litre</td>
</tr>
<tr>
<td>tank</td>
<td></td>
</tr>
<tr>
<td>Investment costs</td>
<td>88,750 €</td>
</tr>
<tr>
<td>Operation started</td>
<td>2009</td>
</tr>
</tbody>
</table>
2.2.2.4 Energy cycle of Mureck

General

Bioenergie Mureck comprises SEEG Mureck, Nahwärme Mureck and Ökostrom Mureck. These three companies constitute the "Mureck Energy Cycle" and supply the entire Mureck region with electricity, heat and fuel.

The energy and protein producer SEEG of southern Styria and the district heating supplier Nahwärme Mureck operate a biodiesel plant and a biomass plant to supply the down of Mureck with energy.

Some 510 farmers of the region are members of SEEG. They cultivate rapeseed and supply their harvest to SEEG. SEEG uses the rape to produce biodiesel of EN14214 quality. The farmers receive the biodiesel (380 litres per 1000 kg rapeseed) and rapeseed cake (620 kg per 1000 kg rapeseed) produced from the rape for their own use. The rapeseed cake serves as protein feed for livestock.

As the world's first, and for a long time only, company, SEEG makes biodiesel out of used cooking oil. Communities and food-serving businesses can become members of this cooperative. The used cooking oil is collected and turned into biodiesel (850 litres biodiesel from 1000 kg used cooking oil). This biodiesel is returned to the members for use in their own vehicles. More than 100 communities and the public transport operator of Graz are part of this cycle.
Nahwärme Mureck GmbH operates a biomass heating plant. The heat is supplied by two 2-MW heating furnaces. Currently, 200 buildings are hooked up to this network - its length measures approx. 13 km - and output amounts to approx. 7 MW.

Nahwärme Mureck operates a co-generation plant with an output of 140 kW by making electricity from biodiesel. The electrical energy is fed into the public grid and the heat is fed into the existing district heating network of Mureck. In case of a power cut, we have our own electricity supply.

To secure the supply of electricity required, a biogas plant with an electrical output of 8,000 MWh and a similar heat output operates since spring 2004. The raw material used is farm animal manure and renewable raw materials as well as by-products from biodiesel production.

The ambitious project of Mureck, a member community of the association for climate protection, which aims to achieve 100% energy supply with fuel, electricity and heat from renewable energy has been launched and will reach its goal within only a few years. The five energy cycles that have been
networked secure the enterprise’s economic stability and are of vital significance for the entire region both in terms of ecology and social politics. Using raw material from the region to cover the energy supply and supplying renewable energy offers the following advantages:

- Environmental preservation (45000 to CO2 reduction per year)
- Safety
- Comfort
- Added value
- High quality of life

The Mureck Energy Cycle is therefore a highly promising and sustainable energy concept. The emulation of this project is essential from an ecological, economic and socio-political perspective. With its Mureck Energy Cycle, SEEG in Mureck was selected from among 1,200 entries and awarded 1st prize, the WORLD ENERGY GLOBE 2001.

All in all the visit of the heating plants gave a good overview, how some communities managed to get energy-self-sufficient and to keep their added value in the region.
2.2.3 Biomass trade centers

In Austria, biomass combustion technology has achieved an exceptionally high level. In the last few decades, the market has developed enormously and offers a broad range of efficient and environmentally-friendly heating systems. Modern wood heating systems offer the same comfort and convenience to consumers as heating systems designed for fossil fuels, meaning that what was once a persuasive argument against their use is no longer so important. In recent years, fuel wood has started to be used to a significant extent to supply heat in agricultural and timber processing companies as well as to fuel micro and local heating networks. In addition, fuel wood increasingly finds its way into our living rooms in the form of tiled and wood burning stoves.

At present, firewood and forest wood chips are predominantly marketed on an informal level. Similarly, pellet suppliers are not at all easy to locate. Fuel wood and forest wood chips are, for the most part, collected by individuals and sold on a “word of mouth” basis. This makes the procurement of fuel more difficult for those customers (private individuals, companies, etc.) who themselves have no woodland and no direct access to forest owners or fuel suppliers. In spite of the enormous availability of resources, for this reason it has not, to date, been possible to dismiss those who criticise the sector as being unable to ensure security of supply. An appropriate supply infrastructure with local interim storage and marketing facilities that would make it possible to supply customers quickly and easily is currently lacking.
The central marketing idea of the “Styrian Biomass Centres” concept consists in the construction of a collective rural marketing channel for biomass fuels and energy services in Styria. Regional biomass centres will market all kinds of biomass fuels supplied by farmers. The main product ranges are fuel wood, split logs and wood chips. In addition, it may be possible to supplement this by trading wood pellets. The first pellet factory producing pellets from forest wood chips opened its doors recently in Upper Austria. In future, other biomass fuels such as whole plant pellets or grass pellets, which are pelletised either directly in the field or at the biomass centre, could also be incorporated into the range of products. As a second string to their bow, it is intended that these regional biomass centres should also act as energy service providers wherever possible and become involved in wood energy contracting projects and biomass heating plants. Above all, this should be the case in those communities where to date no other rural groups have been set up to run projects of this nature.

In essence, every biomass centre pursues the following aims:

- Setting up regional supply centres (biomass centres) in the districts of Styria offering fuel wood, forest wood chips, other biomass fuels and energy services;
- Marketing under a standardised word/image mark that should evoke associations such as safety, security, reliability, regional value, quality, etc. in the customer’s mind;
- Safeguarding the security of supply;
- Obvious, visible presentation as a provider of biomass of all kinds;
- Guaranteeing consistent quality standards (fuel quality, provision of services);
Promotion of services such as fuel delivery, involvement in wood energy contracting projects, expert advice on the subject of “heating with wood”.

The first practical implementation of the “regional biomass centre” concept was the Waldstein Biomass Centre in 2005. Over 60 forest farmers successfully took up the challenge of collectively processing and marketing biogenic fuels. At present, three biomass centres supply the Styrian population all year round with high-quality fuel. Besides private households, other customers of the biomass centres include the operators of local and district heating plants. The Styrian Chamber of Agriculture and Forestry, together with the Styrian Forest Owners’ Cooperative, is promoting the establishment of further biomass centres with the aim of ensuring that supply in Styria becomes state-wide.

The concept of the Styrian biomass centres has also found favour in other neighbouring countries. In the context of the EU “Biomass Trade Centres” project, the successful Styrian model is now being implemented in Italy, Slovenia and Poland (www.biomasstradecentres.eu).
2.2.3.1 Biomass trade centre Hartberg

As for all biomass trade centers the securing quality is very important and a main argument for the customers to buy their wood fuels, the biomass trade center applies a special measurement process to determine the water content in log woods.

Mister Schiller showed in a demonstration, how this wood moisture meter is working. In Hartberg the log wood is sold according to the energy content. That means, that the price is determined by the actual content of water. The confidence of the customers is mainly strengthened by this method. This demonstration found delegates approval, because they really appreciated the practical relevance.

**Facts:**

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<th>Date opened</th>
<th>October 2009</th>
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<tbody>
<tr>
<td>Raw material supply</td>
<td>50 members; 3,000 hectares</td>
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<tr>
<td>Sales volumes</td>
<td>14,000 loose cubic metres of wood chips 800 stacked cubic metres of split logs</td>
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<tr>
<td>Product range</td>
<td>Wood chips, split logs, pellets planned in future</td>
</tr>
<tr>
<td>Heating oil substitution per heating season</td>
<td>1.2 million litres</td>
</tr>
<tr>
<td>Greenhouse gas production per heating season</td>
<td>3,775 t CO₂</td>
</tr>
<tr>
<td>Target group</td>
<td>Heating plants, hotel and restaurant trade, private customers</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Service</td>
<td>Delivery and pick-up</td>
</tr>
<tr>
<td>Invoiced by...</td>
<td>Weight and water content</td>
</tr>
</tbody>
</table>

2.2.3.2 Biomass trade centre Waldstein

In Waldstein delegates had the possibility to see a Demonstration of the full production process from log wood and wood chips. They could also see how wood chips are blown into the storage room with a wood chip trailer called “Holzpumpe” (wood pump).

This trailer is equipped with a material transport blower, a filter element and two pipes 20 metres in length. The wood chip capacity of the trailer is about 40 cubic metres. With the new wood chip trailersystem woodchip supply becomes easier and more convenient, which in turn makes wood chip heating systems more attractive for private homeowners.

Facts:

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<tr>
<td>Raw material supply</td>
<td>60 members; 2,200 hectares</td>
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| **Sales volumes** | 7,000 loose cubic metres of wood chips  
400 stacked cubic metres of split logs |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product range</strong></td>
<td><strong>Wood chips, split logs</strong></td>
</tr>
<tr>
<td><strong>Heating oil substitution per heating season</strong></td>
<td>0.6 million litres</td>
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<tr>
<td><strong>Greenhouse gas production per heating season</strong></td>
<td>1,887 t CO₂</td>
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<tr>
<td><strong>Target group</strong></td>
<td>Heating plants, hotel and restaurant trade, private customers</td>
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<tr>
<td><strong>Service</strong></td>
<td>Delivery and pick-up</td>
</tr>
<tr>
<td><strong>Invoiced by...</strong></td>
<td>Loose and stacked cubic meters</td>
</tr>
</tbody>
</table>
3. Feedback from participants

3.1 Croatia

Austrian study tour was held at the middle of Woodheat solutions project and therefore we had almost no problem with attracting delegates to the tour. One reason for that was that we include majority of people that attended Finland study tour to give them overview and present know-how from Austria.

Since Austria we had ten workshops done and some of them were followed by local TV stations and newspaper so WhS had some good promotion in Croatia. Referring to good promotion we had delegates which contacted us if they can participate. This was very interesting and it shows us that interest in wood biomass is increasing and WhS is partly responsible for this positive trend.

Feedback from participants both sellers and buyers was very good. It was interesting and educative to learn about Austrian technologies. All of participants got really detailed information on every visited site. Croatia is at very beginning in wood chips production and this kind of knowledge to all participants can only help to improve our own technologies and methods of using wood biomass.

Austrian study tour was a success, program was interesting and presentations were excellent.

3.2 Finland

According to the project plan the role of the Finnish participant(s) was to observe and assist the Austrian partners during the tour. The Finnish delegate was able to participate only in the first part of the tour, namely the tour for suppliers.
In general, the tour was very well organized and sites were carefully chosen. Beautiful weather was naturally a fantastic bonus to the trip. It was very interesting to visit a successful machine manufacturer and thriving woodheat enterprises including wood chip suppliers. The quality control of wood fuels was well presented in the wood yards visited. Evening seminars provided a good overview of the process of developing standards wood fuels.

Because the first tour was primarily for wood fuel suppliers, the focus could have been more on how to procure and produce wood chips of good quality, instead of showing many energy plants using wood chips. It would have been very useful to see best practice examples and discuss the whole supply chain of wood chips. This would include site management, harvesting methods, chipping, transport, seasoning/drying of energy wood and storage.

### 3.3 Slovenia

Austria is Slovenian neighbour country and important and reference country for wood use. For study tour we selected 22 participants, 12 for I sellers and 10 for buyers study tour. Participants were selected among the participants from workshops and other activities. Slovenian participants, mainly potential investors in wood biomass production chain were high motivated to get information from Austrian experiences in using and producing wood biomass. Based on participant’s feedbacks which evaluate study tour as very useful or useful, also SFI as project partner can agree with them.

From partner view we can say that study tour was from preparation to implementation well organize, as a partner we received all information needed so we can mark study tour as very useful and very well organize.
3.4 United Kingdom

Delegates from a broad cross section of potential users of woodfuel and potential suppliers of woodfuel and/or heat attended the study tour. They included farmers, foresters, estate owners, mechanical and electrical engineers, Councillors, Council officers and conservation bodies.

All were impressed with the positive way in which wood is being used as a sustainable fuel, particularly by groups of local land owners selling heat to local customers. They were also impressed by the knowledge and technology which has been developed to use wood effectively and efficiently.

**Key lessons learnt:**

- The use of wood was embedded in the Austrian culture. We need to find ways to increase the understanding of the general population in the UK.
- The benefits of ‘local’ supply: co-operation, understanding, local jobs and carbon savings.
- Add value to your product and ‘sell heat’ (direct to the customer) if you can.
- The opportunity for farmers, foresters, estates, or groups to diversify their businesses, particularly in their local area making use of their existing infrastructure.
- The value and importance of trust and mutual understanding between buyers and suppliers.
- The value of the Austrian Quality Management system for installing district heating systems. (i.e. helps ensure that the systems are well designed and installed effectively)
- Understanding the whole process of seasoning woodfuel (from understanding how to measure moisture content to producing high quality woodfuel as chips, logs or pellets).
- The importance, value and opportunities of a fuel delivery infrastructure from Tree Stations to pump lorries.
• The benefits of selling wood based on calorific value (weight x moisture content).
• The concept of ‘tree stations’ (as collation, seasoning and retail centres). Possibility to build on the farm shop or recycling centre approach in England.
• Building greater flexibility into heat supply systems using two different sized boilers and/or including solar thermal arrays. (Allows system to cope with varying demands of customers throughout the year)
• Appropriate length of district heating systems. Standards had been set to reduce excess heat loss in the heat mains.
• The high value businesses (and knowledge) that have evolved in relation to woodfuel from boiler manufacturers like KWB to chipper suppliers like Komptech.
• The negative impacts of whole tree harvesting (about a 20% drop in woodland growth rates!)
• The complete service – Mureck! (Local heat, biogas, biodiesel and electricity)

Delegates would like to offer their sincere thanks to our hosts, Thomas and Christian of the Styrian Chamber of Forestry and Agriculture. They had clearly put immense effort into organising the tour and ensuring that everything ran smoothly. Their enthusiasm and professionalism was greatly appreciated.