Transformation of the Austrian High-Efficiency Biomass Heating Market

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The Federal State of Upper Austria
Oberösterreich

Capital: Linz
Population: 1.38 million (similar to NH)
Area: 4.600 mi² (similar to CT)
Gross inland cons.: 305 PJ; 32 % renewables
Economic activities: industry, service sector, tourism,
25% of the Austrian industrial exports
Energy Action Plan of Upper Austria

<table>
<thead>
<tr>
<th>1994 - 1999</th>
<th>2000 - 2010</th>
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</thead>
<tbody>
<tr>
<td>• 30 % renewable energy (hydro, wood biomass, solar)</td>
<td>• double biomass &amp; solar: wood biomass 13 % (2007)</td>
</tr>
<tr>
<td>• energy consumption in new housing reduced by 30 %</td>
<td>• 1 % energy saving/year</td>
</tr>
<tr>
<td>• 15,000 jobs</td>
<td>• 1.5 % energy savings in the public sector/year</td>
</tr>
</tbody>
</table>

2010-2030
• 100 % space heating & electricity from renewable energy
• reduction of heat demand by 39 %
• minus 65 % CO₂ emissions
The Oekoenergie-Cluster Upper Austria (OEC)

- network of renewable energy & energy efficiency companies in Upper Austria
- 150 partner companies
- since 2000, managed by O.Oe. Energiesparverband
- www.oec.at
- main business fields:
  - biomass heating
  - solar heating
  - energy efficient buildings

• Turnover: 2.2 billion US $
• Employees: ~ 4,500
• Export share: > 50 %
"Booming Business"

• Investment in new buildings & production facilities:
  > 200 million US $

• New staff: > 500
Solar thermal, Biomass, Efficient Buildings
Biomass heating technologies

- automatic wood pellet heating systems
- biomass district heating networks
- large-scale combined heat and power plants
Biomass heating in Upper Austria

- 14% of total energy consumption
- > 35,000 biomass heating installations
- 270 biomass district heating plants
- > 40% of the municipalities mainly use biomass for heating

Target: doubling by 2010
Renewable Heating in Upper Austria

- covers 45% of the heating demand
- more than 140 million US$ investment in new installations annually
- reduces energy bill for imported fossil fuels by more than 700 million US$ annually
- employs more than 5,000

- to meet our objective of 100% renewable heating in 2030, heat demand has to be decreased by 39%
# Potentials - renewable energy sources 2030

## RES-el:

<table>
<thead>
<tr>
<th>Source</th>
<th>Potential 2030</th>
<th>2030 Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomass (electricity)</td>
<td>484 GWh</td>
<td>→ 1,370 GWh</td>
</tr>
<tr>
<td>Biogas</td>
<td>50 GWh</td>
<td>→ 600 GWh</td>
</tr>
<tr>
<td>Hydro power</td>
<td>11,700 GWh</td>
<td>→ 12,200 GWh</td>
</tr>
<tr>
<td>PV</td>
<td>5 GWh</td>
<td>→ 150 GWh</td>
</tr>
</tbody>
</table>

## RES-heat:

"Green heat" (incl. district heating)

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<th>2030 Potential</th>
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</thead>
<tbody>
<tr>
<td>&quot;Green heat&quot; (incl. district heating)</td>
<td>38 PJ</td>
<td>→ 62 PJ</td>
</tr>
<tr>
<td>Biomass (heat)</td>
<td>23 PJ</td>
<td>→ 40 PJ</td>
</tr>
<tr>
<td>Heat pumps</td>
<td>1 PJ</td>
<td>→ 2 - 3 PJ</td>
</tr>
<tr>
<td>Solar thermal</td>
<td>1 PJ</td>
<td>→ 4 PJ</td>
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</tbody>
</table>
Biomass innovation along the value chain

- innovation in policy
- innovation in R & D support and products
- innovation in business development support
- innovation in promotion, training and awareness raising

... based on the tradition of sustainable forestry and a longer-term vision for the economic development of farmers

... making Upper Austria one of the leading biomass regions in Europe and world-wide
Upper Austria's sustainable energy strategy

3 Pillars

Legal measures
"stick"

Financial measures
"carrot"

Information activities
"tambourine"
### Upper Austria's sustainable energy strategy – example biomass heating

#### Legal measures
- Renewable heating obligations (public buildings & buildings > 10,000 ft²)
- Inspection of boilers & AC systems
- Energy performance certificates
- Minimum requirements heating & cooling

#### Financial measures
- Soft loans for efficient renovation
- Grants for renewable heating
- Pilot projects
- Contracting
- Regional R & D programme

#### Information & training
- Energy advice
- Training & education programmes
- Campaigns & competitions, media activities
- Local energy action plans
- Publications
- Oekoennergie-Cluster

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**Policy Packages**
Training programmes along the value chain

Target groups for training:
- producers of equipment and materials
- installers and construction workers
- users of buildings and installations

New professional education:
- University degree "green energy engineers" (since 2002)
- "Green energy installers" (since 2002)

Trainings offered by O.Ö. Energiesparverband
- 25 courses/year, 70 training days
- 500 participants
- focus on energy efficient buildings & renewable heating
Biomass boiler producers – company headquarters in Upper Austria & OEC partners
European Pellet Conference 2010

www.wsed.at

3. – 4. 3. 2010, Wels / Austria

- European Pellets Conference
- Building Renovation – towards low Energy Consumption
- Solar Thermal Conference
- Energiesparmesse - trade show (1,600 exhibitors, 100,000 visitors)
The end of the oil-era?

- Oil-heating: 36% in 1999, < 0.01% in 2009
- Renewable energy technologies: 32% in 1999, > 85% in 2009