Best practices for energy-autonomous municipalities and regions - examples from Austria

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0,7 t CO_2/capita footprint

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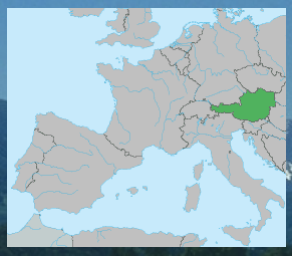
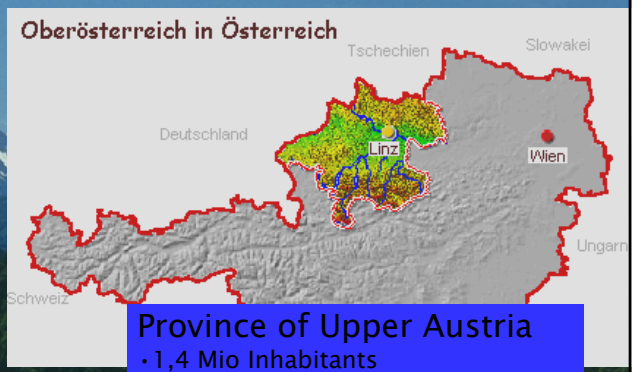


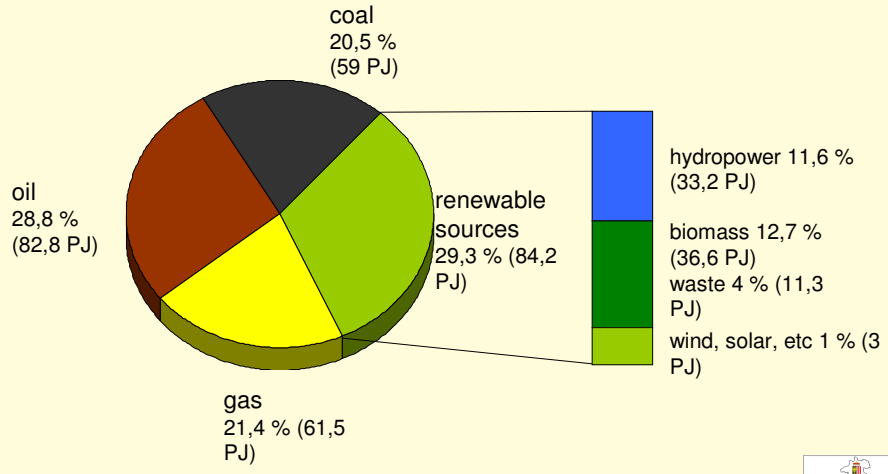


Austria
- 8,2 Mio Inhabitants
- 84.000 km²
- 9 Regions
- 2350 Municipalities

Province of Upper Austria
- 1,4 Mio Inhabitants
- 12.000 km²
- 15 districts
- 444 Municipalities

- central region – economic dynamic, industry, service sector
- south – tourist structures
- west, north, southeast – rural structures

primary energy consumtion Upper Austria 2007



ESV-Design

Source: Statistic Austria 2008

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Decisions by the regional government for energy sustainability

- **Support program "energy autonomy in municipalities" – grants up to 20.000 Euros per municipality; currently more than 120 municipalities are active**
- **Sustainable Regional Energy Scenario 2030**

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targets 2030 Upper Austria – project Energy 2030

	goal 2030
electricity	100% RES
Space heating	100% RES; -38% energy consumption
transport	30% RES; - 41% fossil energy demand
CO2	up to minus 65%

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targets 2030 Upper Austria – project Energy 2030

	2007	potential 2030
biomass	34 PJ	46-62 PJ
Hydropower Wind, PV	34-41 PJ 0,15 PJ	+1,8 PJ ?
solar (thermal)	1 PJ (1 mill. m^2)	4 PJ
heat pumps	1 PJ	2-3 PJ

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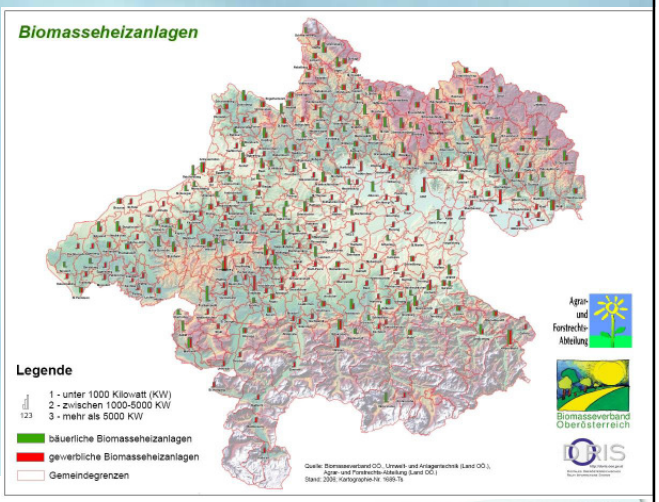
solid biomass – heating

530 biomass district heating installations

32.000 modern small scale units

4,3 mill. m³ biomass

CO2-reduction:0,9 mill. t



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LINZ AG STROM

35 MW BIOMASS-Power Plant inz AG (Linz)
50 MW BIOMASS-Power Plant Energie AG (Timelkam)

Linz AG biomass power plant:

- ~ investment: ca. 30 mill. €
- ~ transport by ship, railway and trucks
- ~ demand: ca. 300.000 m³ wood annually (efficiency 85%)
- ~ in operation since January 2006

examples in municipalities – Gutau (left), Unterweissenbach (right)

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Energy reference numbers (heat demand) of dwellings in the nine Austrian regions (kWh/m²a)

	new buildings	retrofitting
2006	43	80
2007	39	60
2008	37	58
Outlook next years	30	?

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Retrofitting rate of dwellings in Upper Austria

2005	1,3%
2006	1,55%
2007	1,6%
2008	1,9%
2009	2,5%

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conclusions

- Energy autonomy is a vision and good motivator
- Main element is energy efficiency
- A lot of activities on the level of the municipalities but framework conditions have to be set on higher levels
- Most regions (Länder) are active in developing p&m for energy autonomy
- Austria can succeed in energy autonomy because of the potential of RES and energy savings
- technology swift is necessary (e.g. e-mobility, CHP small scale units, smart grids, etc.)

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