

Country: **Austria**

Total number of plants: 25
 with co-firing: 5
 fossil fuels for co-firing:

Locations (+database No.):

Admont (1), Althofen (2), Attnang-Puchheim (3), Bruck an der Mur (4), Ebensee (5), Enns (6), Gamlitz (7), Graz (8), Graz (9), Güssing (10), Hard (11), Kundl (12), Lenzing (13), Lienz (14), Pischelsdorf (15), Reuthe (16), Sachsenburg (17), Seyring (18), St. Andrä (19), St. Gertraud (20), St. Veit (21), Steyrermühl (22), Stubenberg (23), Tamsweg (24), Zeltweg (25).

Year of construction

| Year of construction | No. | |
|----------------------|-----|------|
| before 1995 | 6 | 24 % |
| 1995 - 2000 | 2 | 8 % |
| after 2000 | 3 | 12 % |
| unknown | 14 | 56 % |

Type of power generation

| Type of power generation | No. | | Fuels | No.* | |
|--------------------------|-----|------|------------------------------|------|------|
| Steam turbine: | 11 | 44 % | Woodchips (forest residues): | 13 | 35 % |
| Steam engine: | 2 | 8 % | Woodchips (saw industry): | 8 | 22 % |
| Organic rankine cycle: | 5 | 20 % | Paper sludge: | 5 | 14 % |
| Stirling engine: | 1 | 4 % | Waste wood: | 2 | 5 % |
| Hot air engine: | 0 | 0 % | Bark: | 5 | 14 % |
| Gas engine: | 5 | 20 % | Peat: | 0 | 0 % |
| Gas turbine: | 0 | 0 % | Straw: | 0 | 0 % |
| Other (or n.a.): | 1 | 4 % | Other (or n.a.): | 4 | 11 % |

Character of plants

| Character of plants | No. | | Electric power | No. | |
|-----------------------|-----|------|----------------|-----|------|
| Testing plants: | 3 | 12 % | <1MW: | 10 | 40 % |
| Pilote plants: | 4 | 16 % | 1MW - <5MW: | 8 | 32 % |
| Demonstration plants: | 3 | 12 % | 5MW - 20MW: | 1 | 4 % |
| Commercial plants: | 15 | 60 % | >20MW: | 2 | 8 % |
| unknown: | 0 | 0 % | unknown: | 4 | 16 % |

*) double counting possible because some CHP plants might use more than one fuel

Name: ORC-EU-Thermieprojekt Admont

Database No. 1

| Basic Info | |
|-----------------------|-------------------------|
| Country: | Austria |
| Location: | Admont |
| Character of plant: | Commercial plant |
| Owner: | STIA Holzindustrie GmbH |
| Contact Person: | Mr. Josef Landschützer |
| Telephone: | +43/ 361/ 33500 |
| Fax: | +43/ 3613/ 335017 |
| email: | landschuetzer@stia.at |
| webpage: | n.a. |
| Year of construction: | 1999 |

| Technology | | Fuel | |
|-------------------------------------|------------------------|---------------------------|--------------------------|
| Type of power generation: | Organic rankine cycle | Total fuel input: | n.a. t/a |
| Electric power: | 0 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | 1,8 MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Woodchips (saw industry) |
| Annual production electricity: | 2,5 GWh/a | Share of fuel 1: | 100 % |
| Annual production heat: | 11,79 GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | 16,7 % | | |
| Thermal efficiency: | 75 % | Type of fuel 2: | - |
| Total efficiency: | 91,7 % | Share of fuel 2: | - % |
| Ratio electricity/ heat: | 0,22 | Input of fuel 2: | - t/a |
| Fuel power: | 2,4 MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | - t/h | Share of fuel 3: | - % |
| Steam temperature: | - °C | Input of fuel3: | - t/a |
| Steam pressure: | - bar | | |

| Costs | | Emissions | |
|-------------------------------|-----------------------------|---------------------------------|-------------------------|
| Investment costs: | 0,934 Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | 2,335 Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

bios-bioenergy.at

n.a.... not available

Name: CHP Tilly

Database No. 2

| Basic Info | |
|-----------------------|--------------------------|
| Country: | Austria |
| Location: | Althofen |
| Character of plant: | Pilote plant |
| Owner: | Tilly Holzindustrie GmbH |
| Contact Person: | Mr. Franz Stelzel |
| Telephone: | +43/ 4262/ 2143-22 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|--------------------------|
| Type of power generation: | Steam engine | Total fuel input: | n.a. t/a |
| Electric power: | 1 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | 7,4 % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | | |
| Annual production electricity: | n.a. GWh/a | Type of fuel 1: | Woodchips (saw industry) |
| Annual production heat: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Electric efficiency: | n.a. % | Input of fuel 1: | n.a. t/a |
| Thermal efficiency: | n.a. % | | |
| Total efficiency: | - % | Type of fuel 2: | - |
| Ratio electricity/ heat: | - | Share of fuel 2: | - % |
| Fuel power: | n.a. MW _{fuel} | Input of fuel 2: | - t/a |
| <i>Boiler (if steam technology)</i> | | | |
| Steam mass flow: | n.a. t/h | Type of fuel 3: | - |
| Steam temperature: | n.a. °C | Share of fuel 3: | - % |
| Steam pressure: | n.a. bar | Input of fuel3: | - t/a |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: CHP at HASAG furniture AG

Database No. 3

| Basic Info | |
|-----------------------|---------------------------------|
| Country: | Austria |
| Location: | Attnang-Puchheim |
| Character of plant: | Commercial plant |
| Owner: | HASAG furniture AG |
| Contact Person: | Mr. Friedrich Manetsgruber |
| Telephone: | +43/ 7674/ 62671 |
| Fax: | +43/ 7674/ 62142 |
| email: | friedrich.manetsgruber@hasag.at |
| webpage: | www.hasag.at |
| Year of construction: | 1991 |

| Technology | | Fuel | |
|-------------------------------------|--------------------------|---------------------------|--------------------------|
| Type of power generation: | Steam engine | Total fuel input: | 5.005 t/a |
| Electric power: | 1 MW _{el} | Tot. lower heating value: | 4,3 kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Woodchips (saw industry) |
| Annual production electricity: | 0,55 GWh/a | Share of fuel 1: | 100 % |
| Annual production heat: | 0 GWh/a | Input of fuel 1: | 5.005 t/a |
| Electric efficiency: | 13,7 % | | |
| Thermal efficiency: | n.a. % | Type of fuel 2: | - |
| Total efficiency: | - % | Share of fuel 2: | - % |
| Ratio electricity/ heat: | - | Input of fuel 2: | - t/a |
| Fuel power: | 4,685 MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | n.a. t/h | Share of fuel 3: | - % |
| Steam temperature: | 120 °C | Input of fuel3: | - t/a |
| Steam pressure: | 1,3 bar | | |

| Costs | | Emissions | |
|-------------------------------|-----------------------------|---------------------------------|-------------------------|
| Investment costs: | 2,17984 Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | 3,406 Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

Friedrich Manetsgruber, owner information, Sept 2001, www.hasag.at

n.a.... not available

Name: CHP paper factory Norske Skog

Database No. 4

| Basic Info | |
|-----------------------|------------------------|
| Country: | Austria |
| Location: | Bruck an der Mur |
| Character of plant: | Commercial plant |
| Owner: | Norske Skog Bruck GmbH |
| Contact Person: | Mr. Harald Kramer |
| Telephone: | +43/ 3862/ 800-0 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|--------------|
| Type of power generation: | Steam turbine | Total fuel input: | n.a. t/a |
| Electric power: | n.a. MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | Y | | |
| Fuel conversion: | Combustion | | |
| Annual production electricity: | n.a. GWh/a | Type of fuel 1: | Paper sludge |
| Annual production heat: | n.a. GWh/a | Share of fuel 1: | n.a. % |
| Electric efficiency: | n.a. % | Input of fuel 1: | n.a. t/a |
| Thermal efficiency: | n.a. % | | |
| Total efficiency: | - % | Type of fuel 2: | Bark |
| Ratio electricity/ heat: | - | Share of fuel 2: | n.a. % |
| Fuel power: | n.a. MW _{fuel} | Input of fuel 2: | n.a. t/a |
| <i>Boiler (if steam technology)</i> | | | |
| Steam mass flow: | n.a. t/h | Type of fuel 3: | Coal |
| Steam temperature: | n.a. °C | Share of fuel 3: | n.a. % |
| Steam pressure: | n.a. bar | Input of fuel3: | n.a. t/a |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employes: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: CHP paper factory Solvay

Database No.

5

| Basic Info | |
|-----------------------|---------------------|
| Country: | Austria |
| Location: | Ebensee |
| Character of plant: | Commercial plant |
| Owner: | Solvay GmbH |
| Contact Person: | Mr. Siegfried Sturm |
| Telephone: | +43/ 6113/ 5411-221 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|--------------|
| Type of power generation: | Steam turbine | Total fuel input: | n.a. t/a |
| Electric power: | n.a. MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Paper sludge |
| Annual production electricity: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Annual production heat: | n.a. GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | n.a. % | | |
| Thermal efficiency: | n.a. % | Type of fuel 2: | - |
| Total efficiency: | - % | Share of fuel 2: | - % |
| Ratio electricity/ heat: | - | Input of fuel 2: | - t/a |
| Fuel power: | n.a. MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | n.a. t/h | Share of fuel 3: | - % |
| Steam temperature: | n.a. °C | Input of fuel3: | - t/a |
| Steam pressure: | n.a. bar | | |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employes: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: CHP "Donausäge"

Database No. 6

| Basic Info | |
|-----------------------|-------------------|
| Country: | Austria |
| Location: | Enns |
| Character of plant: | Commercial plant |
| Owner: | Mr. R. Rumpelmayr |
| Contact Person: | Mr. Steiner |
| Telephone: | +43/ 7223/ 852610 |
| Fax: | +43/ 7612/ 87701 |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | 1984 |

| Technology | | Fuel | |
|-------------------------------------|-----------------------|---------------------------|-----------------------------|
| Type of power generation: | Steam turbine | Total fuel input: | n.a. t/a |
| Electric power: | 3 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | 15 MW _{th} | Moisture content: | 40 % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | | |
| Annual production electricity: | 7 GWh/a | Type of fuel 1: | Bark |
| Annual production heat: | 43 GWh/a | Share of fuel 1: | n.a. % |
| Electric efficiency: | 11,9 % | Input of fuel 1: | n.a. t/a |
| Thermal efficiency: | 71,4 % | | |
| Total efficiency: | 83,3 % | Type of fuel 2: | Woodchips (forest residues) |
| Ratio electricity/ heat: | 0,17 | Share of fuel 2: | n.a. % |
| Fuel power: | 21 MW _{fuel} | Input of fuel 2: | n.a. t/a |
| <i>Boiler (if steam technology)</i> | | | |
| Steam mass flow: | n.a. t/h | Type of fuel 3: | - |
| Steam temperature: | 400 °C | Share of fuel 3: | - % |
| Steam pressure: | 40 bar | Input of fuel3: | - t/a |

| Costs | | Emissions | |
|-------------------------------|---------------------------|---------------------------------|-------------------------|
| Investment costs: | 7 Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | 2,8 Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

Rudolf Rumpelmayr, Owner information, Sept. 2001

n.a.... not available

Name: CHP Verein Weg der Natur

Database No.

7

| Basic Info | |
|-----------------------|----------------------|
| Country: | Austria |
| Location: | Gamlitz |
| Character of plant: | Pilote plant |
| Owner: | Verein Weg der Natur |
| Contact Person: | n.a. |
| Telephone: | +13/ 3453/ 4106-0 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|-----------------------------|
| Type of power generation: | Gas engine | Total fuel input: | n.a. t/a |
| Electric power: | 0 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Gasification | | |
| Annual production electricity: | n.a. GWh/a | Type of fuel 1: | Woodchips (forest residues) |
| Annual production heat: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Electric efficiency: | n.a. % | Input of fuel 1: | n.a. t/a |
| Thermal efficiency: | n.a. % | | |
| Total efficiency: | - % | Type of fuel 2: | - |
| Ratio electricity/ heat: | - | Share of fuel 2: | - % |
| Fuel power: | n.a. MW _{fuel} | Input of fuel 2: | - t/a |
| <i>Boiler (if steam technology)</i> | | | |
| Steam mass flow: | - t/h | Type of fuel 3: | - |
| Steam temperature: | - °C | Share of fuel 3: | - % |
| Steam pressure: | - bar | Input of fuel3: | - t/a |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employes: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: Stirling-engine at Joanneum

Database No. 8

| Basic Info | |
|-----------------------|-------------------------------|
| Country: | Austria |
| Location: | Graz |
| Character of plant: | Testing plant |
| Owner: | Joanneum Research |
| Contact Person: | Dr. Erich Podesser |
| Telephone: | +43/ 316/ 876338 |
| Fax: | +43/ 316/ 876191 |
| email: | erich.podesser@joanneum.ac.at |
| webpage: | www.joanneum.ac.at |
| Year of construction: | 1995 |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|-----------------------------|
| Type of power generation: | Stirling engine | Total fuel input: | n.a. t/a |
| Electric power: | 0 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | 0,037 MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Woodchips (forest residues) |
| Annual production electricity: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Annual production heat: | n.a. GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | 6,2 % | | |
| Thermal efficiency: | 74,6 % | Type of fuel 2: | - |
| Total efficiency: | 80,8 % | Share of fuel 2: | - % |
| Ratio electricity/ heat: | 0,08 | Input of fuel 2: | - t/a |
| Fuel power: | 0,05 MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | - t/h | Share of fuel 3: | - % |
| Steam temperature: | - °C | Input of fuel3: | - t/a |
| Steam pressure: | - bar | | |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employes: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

Dr. E. Podesser, "Entwicklung eines mit Holz betriebenen Stirling Kleinkraftwerdes", EVA 1998

n.a.... not available

Name: Biomass Testing Plant at the Technical University of Graz

Database No. 9

| Basic Info | |
|-----------------------|---------------------------|
| Country: | Austria |
| Location: | Graz |
| Character of plant: | Testing plant |
| Owner: | TU-Graz |
| Contact Person: | O.Univ.-Prof. Beate Reetz |
| Telephone: | +43/ 316/ 8737300 |
| Fax: | +43/ 316/ 8737305 |
| email: | n.a. |
| webpage: | wt.tu-graz.ac.at |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|-----------------------------|
| Type of power generation: | Gas engine | Total fuel input: | n.a. t/a |
| Electric power: | 0 MW _{el} | Tot. lower heating value: | 3,5 kWh/kg |
| Thermal power: | 0,11 MW _{th} | Moisture content: | 20 % wet |
| Co-firing: | N | | |
| Fuel conversion: | Gasification | Type of fuel 1: | Woodchips (forest residues) |
| Annual production electricity: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Annual production heat: | n.a. GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | 20 % | | |
| Thermal efficiency: | 44 % | Type of fuel 2: | - |
| Total efficiency: | 64 % | Share of fuel 2: | - % |
| Ratio electricity/ heat: | 0,45 | Input of fuel 2: | - t/a |
| Fuel power: | 0,25 MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | - t/h | Share of fuel 3: | - % |
| Steam temperature: | - °C | Input of fuel3: | - t/a |
| Steam pressure: | - bar | | |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

www.tu-graz.ac.at

n.a.... not available

Name: Biomass Power Station Güssing

Database No. 10

| Basic Info | |
|-----------------------|--------------------|
| Country: | Austria |
| Location: | Güssing |
| Character of plant: | Pilote plant |
| Owner: | Güssing GmbH |
| Contact Person: | Ing. Reinhard Koch |
| Telephone: | +43/ 3322/ 44623 |
| Fax: | +43/ 3322/ 4462333 |
| email: | fwgue@bnet.at |
| webpage: | n.a. |
| Year of construction: | 2001 |

| Technology | | Fuel | |
|-------------------------------------|----------------------|---------------------------|-----------------------------|
| Type of power generation: | Gas engine | Total fuel input: | n.a. t/a |
| Electric power: | 2 MW _{el} | Tot. lower heating value: | 2,9 kWh/kg |
| Thermal power: | 4,5 MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Gasification | Type of fuel 1: | Waste wood |
| Annual production electricity: | n.a. GWh/a | Share of fuel 1: | n.a. % |
| Annual production heat: | n.a. GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | 25 % | | |
| Thermal efficiency: | 56,3 % | Type of fuel 2: | Woodchips (forest residues) |
| Total efficiency: | 81,3 % | Share of fuel 2: | n.a. % |
| Ratio electricity/ heat: | 0,44 | Input of fuel 2: | n.a. t/a |
| Fuel power: | 8 MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | - t/h | Share of fuel 3: | - % |
| Steam temperature: | - °C | Input of fuel3: | - t/a |
| Steam pressure: | - bar | | |

| Costs | | Emissions | |
|-------------------------------|-----------------------------|---------------------------------|-------------------------|
| Investment costs: | 10,684 Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | 5,342 Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employes: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

Power production from biomass with gas engines, VDI Report 1588

n.a.... not available

Name: Heating plant Hard

Database No. 11

| Basic Info | |
|-----------------------|--------------------------|
| Country: | Austria |
| Location: | Hard |
| Character of plant: | Demonstration plant |
| Owner: | Biostrom Erzeugungs GmbH |
| Contact Person: | n.a. |
| Telephone: | +43/ 5574/ 79596 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|-----------------------------|
| Type of power generation: | Organic rankine cycle | Total fuel input: | n.a. t/a |
| Electric power: | 1 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Woodchips (forest residues) |
| Annual production electricity: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Annual production heat: | n.a. GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | n.a. % | | |
| Thermal efficiency: | n.a. % | Type of fuel 2: | - |
| Total efficiency: | - % | Share of fuel 2: | - % |
| Ratio electricity/ heat: | - | Input of fuel 2: | - t/a |
| Fuel power: | n.a. MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | - t/h | Share of fuel 3: | - % |
| Steam temperature: | - °C | Input of fuel3: | - t/a |
| Steam pressure: | - bar | | |

| Costs | | Emissions | |
|-------------------------------|-----------------------------|---------------------------------|-------------------------|
| Investment costs: | 10,68 Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | 10,68 Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employes: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: CHP Pfeifer

Database No. 12

| Basic Info | |
|-----------------------|----------------------------|
| Country: | Austria |
| Location: | Kundl |
| Character of plant: | Commercial plant |
| Owner: | Pfeifer Holzindustrie GmbH |
| Contact Person: | Mr. Pfeifer |
| Telephone: | +43/ 5338/ 7337 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|-----------------------------|
| Type of power generation: | Steam turbine | Total fuel input: | n.a. t/a |
| Electric power: | 2 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | 6,5 MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Woodchips (forest residues) |
| Annual production electricity: | n.a. GWh/a | Share of fuel 1: | n.a. % |
| Annual production heat: | n.a. GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | n.a. % | | |
| Thermal efficiency: | n.a. % | Type of fuel 2: | Woodchips (saw industry) |
| Total efficiency: | - % | Share of fuel 2: | n.a. % |
| Ratio electricity/ heat: | - | Input of fuel 2: | n.a. t/a |
| Fuel power: | n.a. MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | n.a. t/h | Share of fuel 3: | - % |
| Steam temperature: | n.a. °C | Input of fuel3: | - t/a |
| Steam pressure: | n.a. bar | | |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: CHP Lenzing

Database No. 13

| Basic Info | |
|-----------------------|----------------------|
| Country: | Austria |
| Location: | Lenzing |
| Character of plant: | Commercial plant |
| Owner: | Lenzing AG |
| Contact Person: | Mrs. S. Probst |
| Telephone: | +43/ 7672/ 701-0 |
| Fax: | +43/ 7672/ 701-2231 |
| email: | s.probst@lenzing.com |
| webpage: | www.lenzing.com |
| Year of construction: | 1994 |

| Technology | | Fuel | |
|-------------------------------------|------------------------|---------------------------|--------------|
| Type of power generation: | Steam turbine | Total fuel input: | n.a. t/a |
| Electric power: | n.a. MW _{el} | Tot. lower heating value: | 5,2 kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | Y | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Paper sludge |
| Annual production electricity: | n.a. GWh/a | Share of fuel 1: | n.a. % |
| Annual production heat: | n.a. GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | n.a. % | | |
| Thermal efficiency: | n.a. % | Type of fuel 2: | Bark |
| Total efficiency: | - % | Share of fuel 2: | n.a. % |
| Ratio electricity/ heat: | - | Input of fuel 2: | n.a. t/a |
| Fuel power: | 110 MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | Coal, oil |
| Steam mass flow: | 129 t/h | Share of fuel 3: | n.a. % |
| Steam temperature: | 500 °C | Input of fuel3: | n.a. t/a |
| Steam pressure: | 79 bar | | |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

Power Plants 1997, www.lenzing.com

n.a.... not available

Name: Heating plant Lienz

Database No. 14

| Basic Info | |
|-----------------------|----------------------------|
| Country: | Austria |
| Location: | Lienz |
| Character of plant: | Commercial plant |
| Owner: | Stadtwärme Lienz GmbH |
| Contact Person: | Dipl.-Ing. Heinz Reisinger |
| Telephone: | +43/ 4852/ 604-2211 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | 2002 |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|-----------------------------|
| Type of power generation: | Organic rankine cycle | Total fuel input: | n.a. t/a |
| Electric power: | 1 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | 13 MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Woodchips (forest residues) |
| Annual production electricity: | 7,2 GWh/a | Share of fuel 1: | 100 % |
| Annual production heat: | 60 GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | 18 % | | |
| Thermal efficiency: | n.a. % | Type of fuel 2: | - |
| Total efficiency: | - % | Share of fuel 2: | - % |
| Ratio electricity/ heat: | - | Input of fuel 2: | - t/a |
| Fuel power: | n.a. MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | - t/h | Share of fuel 3: | - % |
| Steam temperature: | - °C | Input of fuel3: | - t/a |
| Steam pressure: | - bar | | |

| Costs | | Emissions | |
|-------------------------------|-----------------------------|---------------------------------|-------------------------|
| Investment costs: | 23,11 Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | 23,11 Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employes: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: CHP Alois Hofer

Database No. 15

| Basic Info | |
|-----------------------|-----------------|
| Country: | Austria |
| Location: | Pischelsdorf |
| Character of plant: | Testing plant |
| Owner: | Alois Hofer |
| Contact Person: | Mr. Alois Hofer |
| Telephone: | +43/ 3113/ 3157 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|-----------------------------|
| Type of power generation: | Gas engine | Total fuel input: | n.a. t/a |
| Electric power: | 0 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Gasification | | |
| Annual production electricity: | n.a. GWh/a | Type of fuel 1: | Woodchips (forest residues) |
| Annual production heat: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Electric efficiency: | n.a. % | Input of fuel 1: | n.a. t/a |
| Thermal efficiency: | n.a. % | | |
| Total efficiency: | - % | Type of fuel 2: | - |
| Ratio electricity/ heat: | - | Share of fuel 2: | - % |
| Fuel power: | n.a. MW _{fuel} | Input of fuel 2: | - t/a |
| <i>Boiler (if steam technology)</i> | | | |
| Steam mass flow: | - t/h | Type of fuel 3: | - |
| Steam temperature: | - °C | Share of fuel 3: | - % |
| Steam pressure: | - bar | Input of fuel3: | - t/a |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employes: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: Biomasse CHP Reuthe

Database No. 16

| Basic Info | |
|-----------------------|----------------------------|
| Country: | Austria |
| Location: | Reuthe |
| Character of plant: | Commercial plant |
| Owner: | Vorarlberger Kraftwerke AG |
| Contact Person: | Dr. R. Mathis |
| Telephone: | +43/ 5574/ 8040 |
| Fax: | +43/ 5574 601-500 |
| email: | mathis@vkw.at |
| webpage: | www.vkw.at |
| Year of construction: | 1995 |

| Technology | | Fuel | |
|-------------------------------------|------------------------|---------------------------|-----------------------------|
| Type of power generation: | Steam turbine | Total fuel input: | n.a. t/a |
| Electric power: | 1 MW _{el} | Tot. lower heating value: | 4,65 kWh/kg |
| Thermal power: | 6,3 MW _{th} | Moisture content: | 8-12 % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Woodchips (forest residues) |
| Annual production electricity: | 4,7 GWh/a | Share of fuel 1: | 35 % |
| Annual production heat: | 29 GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | 12,9 % | Type of fuel 2: | Woodchips (saw industry) |
| Thermal efficiency: | 65,3 % | Share of fuel 2: | 65 % |
| Total efficiency: | 78,2 % | Input of fuel 2: | n.a. t/a |
| Ratio electricity/ heat: | 0,20 | Type of fuel 3: | - |
| Fuel power: | 9,8 MW _{fuel} | Share of fuel 3: | - % |
| <i>Boiler (if steam technology)</i> | | Input of fuel3: | - t/a |
| Steam mass flow: | 10 t/h | | |
| Steam temperature: | 445 °C | | |
| Steam pressure: | 32 bar | | |

| Costs | | Emissions | |
|-------------------------------|-------------------------------|---------------------------------|-------------------------|
| Investment costs: | 4,484 Mio € | CO: | 50 mg/Nm ³ |
| Spec.investment costs (elec): | 3,54466 Mio€/MW _{el} | NO _x : | 250 mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | 25 mg/Nm ³ |
| Subsidies: | 0,897 Mio € | C _x H _y : | 30 mg/Nm ³ |
| Number of employees: | 3 | SO ₂ : | n.a. mg/Nm ³ |

Source:

www.verbund.at, Zeitschrift des Österreichischen Verbandes für Elektrotechnik: Mathis 1996: Mathis R: Bau und Betrieb einer biomassebefeuelten Wärme-Kraft-Kopplung, Elektro- und Informationstechnik, (1996)

n.a.... not available

Name: CHP Sachsenburg

Database No. 17

| Basic Info | |
|-----------------------|---------------------|
| Country: | Austria |
| Location: | Sachsenburg |
| Character of plant: | Demonstration plant |
| Owner: | n.a. |
| Contact Person: | n.a. |
| Telephone: | n.a. |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | 2001 |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|-------------|
| Type of power generation: | Steam screw-type engine | Total fuel input: | n.a. t/a |
| Electric power: | 1 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | 4,5 MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Bark |
| Annual production electricity: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Annual production heat: | n.a. GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | 11,5 % | | |
| Thermal efficiency: | 74 % | Type of fuel 2: | - |
| Total efficiency: | 85,5 % | Share of fuel 2: | - % |
| Ratio electricity/ heat: | 0,16 | Input of fuel 2: | - t/a |
| Fuel power: | n.a. MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | 8,3 t/h | Share of fuel 3: | - % |
| Steam temperature: | n.a. °C | Input of fuel3: | - t/a |
| Steam pressure: | 24 bar | | |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

project partner

n.a.... not available

Name: CHP Chemometall Seyring

Database No. 18

| Basic Info | |
|-----------------------|-------------------------------------|
| Country: | Austria |
| Location: | Seyring |
| Character of plant: | Commercial plant |
| Owner: | Chemometall Anlagengerichtungen KEG |
| Contact Person: | Mr. Helmut Hoch |
| Telephone: | +43/ 2246/ 27815 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|--------------------------|
| Type of power generation: | Organic rankine cycle | Total fuel input: | n.a. t/a |
| Electric power: | 1 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | | |
| Annual production electricity: | n.a. GWh/a | Type of fuel 1: | Woodchips (saw industry) |
| Annual production heat: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Electric efficiency: | n.a. % | Input of fuel 1: | n.a. t/a |
| Thermal efficiency: | n.a. % | | |
| Total efficiency: | - % | Type of fuel 2: | - |
| Ratio electricity/ heat: | - | Share of fuel 2: | - % |
| Fuel power: | n.a. MW _{fuel} | Input of fuel 2: | - t/a |
| <i>Boiler (if steam technology)</i> | | | |
| Steam mass flow: | - t/h | Type of fuel 3: | - |
| Steam temperature: | - °C | Share of fuel 3: | - % |
| Steam pressure: | - bar | Input of fuel3: | - t/a |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: Biomass-Plant St. Andrä

Database No. 19

| Basic Info | |
|-----------------------|--------------------------------------|
| Country: | Austria |
| Location: | St. Andrä |
| Character of plant: | Commercial plant |
| Owner: | Verbund Elektrizitätserzeugungs GmbH |
| Contact Person: | Dipl.-Ing. Josef Tauschitz |
| Telephone: | +43/ 463/ 202/ 32570 |
| Fax: | +43/ 463/ 202/ 32424 |
| email: | tauschwitz@verbund.at |
| webpage: | www.verbund.at |
| Year of construction: | 1995 |

| Technology | | Fuel | |
|-------------------------------------|------------------------|---------------------------|-------------|
| Type of power generation: | Steam turbine | Total fuel input: | n.a. t/a |
| Electric power: | 124 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | 65 MW _{th} | Moisture content: | 55 % wet |
| Co-firing: | Y | | |
| Fuel conversion: | Combustion | | |
| Annual production electricity: | 27,4 GWh/a | Type of fuel 1: | Bark |
| Annual production heat: | 0,8 GWh/a | Share of fuel 1: | n.a. % |
| Electric efficiency: | 38,2 % | Input of fuel 1: | n.a. t/a |
| Thermal efficiency: | 2 % | | |
| Total efficiency: | 40,2 % | Type of fuel 2: | Waste wood |
| Ratio electricity/ heat: | 19,10 | Share of fuel 2: | n.a. % |
| Fuel power: | 325 MW _{fuel} | Input of fuel 2: | n.a. t/a |
| <i>Boiler (if steam technology)</i> | | | |
| Steam mass flow: | n.a. t/h | Type of fuel 3: | - |
| Steam temperature: | n.a. °C | Share of fuel 3: | - % |
| Steam pressure: | n.a. bar | Input of fuel3: | - t/a |

| Costs | | Emissions | |
|-------------------------------|-----------------------------|---------------------------------|-------------------------|
| Investment costs: | 285 Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | 2,298 Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

Günter R. Simader, Gerhard Moritz, The Analysis Report of Plant No. 16, VTT Energy

n.a.... not available

Name: CHP Pulp & Paper

Database No. 20

| Basic Info | |
|-----------------------|--------------------------|
| Country: | Austria |
| Location: | St. Gertraud |
| Character of plant: | Commercial plant |
| Owner: | Grantschach Pulp & Paper |
| Contact Person: | Mr. Franz Tauber |
| Telephone: | +43/ 4352/ 530-0 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|--------------|
| Type of power generation: | Steam turbine | Total fuel input: | n.a. t/a |
| Electric power: | n.a. MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | Y | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Paper sludge |
| Annual production electricity: | n.a. GWh/a | Share of fuel 1: | n.a. % |
| Annual production heat: | n.a. GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | n.a. % | | |
| Thermal efficiency: | n.a. % | Type of fuel 2: | Coal, oil |
| Total efficiency: | - % | Share of fuel 2: | n.a. % |
| Ratio electricity/ heat: | - | Input of fuel 2: | n.a. t/a |
| Fuel power: | n.a. MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | n.a. t/h | Share of fuel 3: | - % |
| Steam temperature: | n.a. °C | Input of fuel3: | - t/a |
| Steam pressure: | n.a. bar | | |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: CHP Funder Wood-Industry

Database No. 21

| Basic Info | |
|-----------------------|---------------------------|
| Country: | Austria |
| Location: | St. Veit |
| Character of plant: | Commercial plant |
| Owner: | Funder Wood-Industry GmbH |
| Contact Person: | n.a. |
| Telephone: | +43/ 4212/ 494-274 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|-----------------------------|
| Type of power generation: | Steam turbine | Total fuel input: | n.a. t/a |
| Electric power: | 3 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | 8,4 MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | | |
| Annual production electricity: | n.a. GWh/a | Type of fuel 1: | Woodchips (forest residues) |
| Annual production heat: | n.a. GWh/a | Share of fuel 1: | n.a. % |
| Electric efficiency: | n.a. % | Input of fuel 1: | n.a. t/a |
| Thermal efficiency: | n.a. % | | |
| Total efficiency: | - % | Type of fuel 2: | Woodchips (saw industry) |
| Ratio electricity/ heat: | - | Share of fuel 2: | n.a. % |
| Fuel power: | n.a. MW _{fuel} | Input of fuel 2: | n.a. t/a |
| <i>Boiler (if steam technology)</i> | | | |
| Steam mass flow: | n.a. t/h | Type of fuel 3: | - |
| Steam temperature: | n.a. °C | Share of fuel 3: | - % |
| Steam pressure: | n.a. bar | Input of fuel3: | - t/a |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employes: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: CHP paper-factory Steyrermühl

Database No. 22

| Basic Info | |
|-----------------------|---------------------|
| Country: | Austria |
| Location: | Steyrermühl |
| Character of plant: | Commercial plant |
| Owner: | Steyrermühl AG |
| Contact Person: | Mr. Horst Buchegger |
| Telephone: | +43/ 7613/ 8900-0 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|--------------|
| Type of power generation: | Steam turbine | Total fuel input: | n.a. t/a |
| Electric power: | 15 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | | |
| Annual production electricity: | n.a. GWh/a | Type of fuel 1: | Paper sludge |
| Annual production heat: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Electric efficiency: | n.a. % | Input of fuel 1: | n.a. t/a |
| Thermal efficiency: | n.a. % | | |
| Total efficiency: | - % | Type of fuel 2: | - |
| Ratio electricity/ heat: | - | Share of fuel 2: | - % |
| Fuel power: | n.a. MW _{fuel} | Input of fuel 2: | - t/a |
| <i>Boiler (if steam technology)</i> | | | |
| Steam mass flow: | n.a. t/h | Type of fuel 3: | - |
| Steam temperature: | n.a. °C | Share of fuel 3: | - % |
| Steam pressure: | n.a. bar | Input of fuel3: | - t/a |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: CHP Ekkehard Grübl

Database No. 23

| Basic Info | |
|-----------------------|---------------------|
| Country: | Austria |
| Location: | Stubenberg |
| Character of plant: | Pilote plant |
| Owner: | Ekkehard Grübl |
| Contact Person: | Ing. Ekkehard Grübl |
| Telephone: | +43/ 664/ 4039255 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|-----------------------------|
| Type of power generation: | Gas engine | Total fuel input: | n.a. t/a |
| Electric power: | 0 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | n.a. MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Gasification | | |
| Annual production electricity: | n.a. GWh/a | Type of fuel 1: | Woodchips (forest residues) |
| Annual production heat: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Electric efficiency: | n.a. % | Input of fuel 1: | n.a. t/a |
| Thermal efficiency: | n.a. % | | |
| Total efficiency: | - % | Type of fuel 2: | - |
| Ratio electricity/ heat: | - | Share of fuel 2: | - % |
| Fuel power: | n.a. MW _{fuel} | Input of fuel 2: | - t/a |
| <i>Boiler (if steam technology)</i> | | | |
| Steam mass flow: | - t/h | Type of fuel 3: | - |
| Steam temperature: | - °C | Share of fuel 3: | - % |
| Steam pressure: | - bar | Input of fuel3: | - t/a |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employes: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: Heating plant Tamsweg

Database No. 24

| Basic Info | |
|-----------------------|-----------------------------------|
| Country: | Austria |
| Location: | Tamsweg |
| Character of plant: | Commercial plant |
| Owner: | Fernwärmeversorgungs GmbH & Co.KG |
| Contact Person: | n.a. |
| Telephone: | +43/ 664/ 3389125 |
| Fax: | n.a. |
| email: | n.a. |
| webpage: | n.a. |
| Year of construction: | n.a. |

| Technology | | Fuel | |
|-------------------------------------|-------------------------|---------------------------|--------------------------|
| Type of power generation: | Organic rankine cycle | Total fuel input: | n.a. t/a |
| Electric power: | 0 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | 1,8 MW _{th} | Moisture content: | n.a. % wet |
| Co-firing: | N | | |
| Fuel conversion: | Combustion | Type of fuel 1: | Woodchips (saw industry) |
| Annual production electricity: | n.a. GWh/a | Share of fuel 1: | 100 % |
| Annual production heat: | n.a. GWh/a | Input of fuel 1: | n.a. t/a |
| Electric efficiency: | n.a. % | | |
| Thermal efficiency: | n.a. % | Type of fuel 2: | - |
| Total efficiency: | - % | Share of fuel 2: | - % |
| Ratio electricity/ heat: | - | Input of fuel 2: | - t/a |
| Fuel power: | n.a. MW _{fuel} | | |
| <i>Boiler (if steam technology)</i> | | Type of fuel 3: | - |
| Steam mass flow: | - t/h | Share of fuel 3: | - % |
| Steam temperature: | - °C | Input of fuel3: | - t/a |
| Steam pressure: | - bar | | |

| Costs | | Emissions | |
|-------------------------------|----------------------------|---------------------------------|-------------------------|
| Investment costs: | n.a. Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | n.a. Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employees: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

TU-Graz: "Analyse und Systematisierung existierender und vorgesehener KWK-Anlagen", 2001

n.a.... not available

Name: Biomass-Plant Zeltweg

Database No. 25

| Basic Info | |
|-----------------------|--------------------------------------|
| Country: | Austria |
| Location: | Zeltweg |
| Character of plant: | Demonstration plant |
| Owner: | Verbund Elektrizitätserzeugungs GmbH |
| Contact Person: | Dipl.-Ing. Josef Tauschitz |
| Telephone: | +43/ 463/ 202/ 32570 |
| Fax: | +43/ 463/ 202/ 32424 |
| email: | tauschwitz@verbund.at |
| webpage: | www.verbund.at |
| Year of construction: | 1997 |

| Technology | | Fuel | |
|-------------------------------------|---------------------------|---------------------------|-----------------------------|
| Type of power generation: | Steam turbine | Total fuel input: | n.a. t/a |
| Electric power: | 137 MW _{el} | Tot. lower heating value: | n.a. kWh/kg |
| Thermal power: | 10 MW _{th} | Moisture content: | 30 % wet |
| Co-firing: | Y | | |
| Fuel conversion: | Combustion | | |
| Annual production electricity: | 81 GWh/a | Type of fuel 1: | Woodchips (forest residues) |
| Annual production heat: | 7,24 GWh/a | Share of fuel 1: | n.a. % |
| Electric efficiency: | 40,9 % | Input of fuel 1: | n.a. t/a |
| Thermal efficiency: | 3 % | | |
| Total efficiency: | 43,9 % | Type of fuel 2: | Coal |
| Ratio electricity/ heat: | 13,63 | Share of fuel 2: | n.a. % |
| Fuel power: | 335,13 MW _{fuel} | Input of fuel 2: | n.a. t/a |
| <i>Boiler (if steam technology)</i> | | | |
| Steam mass flow: | n.a. t/h | Type of fuel 3: | - |
| Steam temperature: | 535 °C | Share of fuel 3: | - % |
| Steam pressure: | 187 bar | Input of fuel3: | - t/a |

| Costs | | Emissions | |
|-------------------------------|-----------------------------|---------------------------------|-------------------------|
| Investment costs: | 305 Mio € | CO: | n.a. mg/Nm ³ |
| Spec.investment costs (elec): | 2,226 Mio€/MW _{el} | NO _x : | n.a. mg/Nm ³ |
| Fuel costs: | n.a. €/t | Particles: | n.a. mg/Nm ³ |
| Subsidies: | n.a. Mio € | C _x H _y : | n.a. mg/Nm ³ |
| Number of employes: | n.a. | SO ₂ : | n.a. mg/Nm ³ |

Source:

Biomassevergasung im Kraftwerk Zeltweg, Forschung im Verbund, Schriftenreihe Band 55, www.verbund.at

n.a.... not available