Industry – Opportunities for the Use of Renewable Heat in Industry & Policy Support needed

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Management organization
Board of Directors of the Viessmann Group
Viessmann Group

- **1917**: Company foundation
- **12,000**: Employees
- **2.2 Billion EUR turnover**
- **27**: Production companies in 11 countries
- **74**: Countries with sales activities and distribution partners
- **120**: Branches worldwide
- **56**: Percent of turnover derived from export activities

Branches

Distribution partners
Heating technology
for domestic buildings and district heating from 2-2000 kW

- Boiler (Oil/Gas)
- CHP-units, Fuel Cell heating
- Hybrid devices
- Heat pumps
- Biomass-boilers (Pellets, Woodchips, Logwood)
- Solar and PV Systems
- Accessories
Comprehensive product range
For all areas of application and energy sources

Detached or two-family houses
Large residential buildings
Commerce and industries
Local heating networks

Oil
Gas
Solar
Biomass
Natural heat

Heating technology
Industrial solutions
Cooling technology

Comprehensive product range from 1 kW to 120 MW
The Viessmann range of services

Consulting/design concept
- Advice on technology and fuel type
- Best solution recommended from an ecological and economical standpoint
- Information about national and international legislation and regulations
- Plant analysis
- Viability studies

Implementation
- Design, basic and detailed engineering, site planning
- Manufactured with a high level of pre-assembly to minimise time on site
- Delivery and installation
- Trouble-free commissioning
- Comprehensive output tests
- As-built documentation

Maintenance/service/training
- 24/7 customer service
- Training at the Viessmann Academy
- Remote monitoring and diagnosis
- Conversion and modernisation
- Service, maintenance and repairs
- Performance of inspections and examinations
- Delivery and installation of spare parts
- Boiler hire
Energy generating systems in industry and commerce
Comprehensive range of services developed from a single source

- **Industrial boiler system for:**
  - Steam up to 120 t/h
  - Power up to 50 MW<sub>el</sub>
  - Heat up to 120 MW<sub>th</sub>
  - Fuel: Oil/Gas, residual oils and fat

- **Biomass plants for**
  - Steam up to 50 t/h
  - Power up to 15 MW<sub>el</sub>
  - Heat up to 50 MW<sub>th</sub>

- **CHP units for**
  - Power up to 530 kW<sub>el</sub>
  - Heat up to 660 kW<sub>th</sub>

- **Heat pump systems for**
  - Heating/cooling up to 2 MW<sub>th</sub>

In the four areas of steam, power, heating and cooling, **Viessmann** offers a comprehensive range of products and services for industry and commerce.
Conditions
for successful plant engineering with RE

- Guaranteed energy demand
- Optimized for the location
- Reliable technology
- Regional value chains
- Price for heating on market level
- Minimized capital costs
- Optimized management of permissions
- Optimized operating costs
- Optimized fuel and waste management

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Use of Renewable Heat/Cold (RH)

Key factors of economic success

- Heating price
- Productivity (annual full load hours)
- Capital costs
- Fuel costs
Design for local and regional demands
Mix of technologies needed to match the needs of different customers (domestic buildings and industrial customers)

- Handing over station
- Local heat network
- Heating plant
- Biomass boiler
- Biogas boiler
- Biogas plant
- Control technology
- Solar system
- CHP Unit

Industry – Opportunities for the Use of Renewable Heat in Industry & Policy Support needed
Design for local and regional demands
Optimized plant design
Steam | Power – B. Braun, Germany
Biomass cogeneration plant for power and process steam supply

Specification
- Output 24 t/h
- 3.5 Mw_el
- 14.7 t/h
- Working overpressure 65 bar
- Hot steam temperature 485 °C
- Fuel Biomass
- Year of commissioning 2015
- Branch Pharmaceutical sector

Scope of delivery
- Water tube boiler
- Emission measurement
- Air condenser
- Discharge combustion
- Flue gas cleaning
- Pipelines
- Water treatment
- Heating and boiler
- Fuel storage and transport
- Steam turbine
- Compressed air generation
- Electro and control technology
- Process control technology

Services
- Engineering
- Purchasing
- Manufacturing
- Project management
- Installation
- Commissioning
Power – heating plant in Memmingen, Germany
Local heating of a central heating with biomass firing

**Specification**
- **Output**
  - Biomass boiler: 3300 kW\textsubscript{th}
  - CHP unit: 140 kW\textsubscript{el} / 207 kW\textsubscript{th}
- **Temperature**: 90 °C / 70 °C
- **Fuel**: Biomass, Natural gas
- **Year of commissioning**: 2010
- **Branch**: Communal energy supply

**Scope of delivery**
- Biomass boiler
- Combined heat and power unit
- Economizer
- Buffer storage
Project Erftverband
Use of residual heat from waste waters in heat pumps

- Investment costs: 650,000 EUR
- Cost savings: 58,000 EUR/a
- Heat output: 620 kW th
Project Erftverband

Use of residual heat from waste waters in heat pumps
Final Energy Consumption Germany*
Industry, Trade, Business, Commercial Activity > 40%

8648 PJ
Final Energy Consumption

Industry 2.508
Transport Sector 2.629
Domestic Home 2.212
Trade, Business or Commercial Activity 1.298

(*BMWI 01/2016)
Final Energy Consumption Germany*
Percentage of process heat > 22%

8648 PJ

≈ 40% savings potential

(*BMWI 01/2016)
Sales figures domestic boilers 2009 - 2015*
RE sales drop and rise of oil/gas boilers due to oil price level in 2014, 2015

Domestic market:

Industrial market:
- sales drop of RE
- no beneficial effects on sales figures of energy solutions with Oil/Gas

(*BDH 2015)
Use of Renewable Heat/Cold (RH) in industrial environments
Barriers to the use of Renewable Heat/Cold (RH)

- Fuel costs (RH) unsteady
- Heating prices not always competitive (due to low price for Oil)
- High capital costs, used to short pay back periods
- Customers are used to and satisfied with conventional solutions
- Knowledge of end-customers about RH
- Image of RH
- Complex planning and engineering
- Technological barriers (high temperature level needed)
- No regulatory incentives
- Changes/Interventions of production processes are not wanted
Use of Renewable Heat/Cold (RH) in industrial environments
Approaches and Policy Support needed

- Change of cost structure in favour of RH (e.g. internalization of external environmental costs)
- Ensuring/ Improvement of cost stability
- Incentives for the replacement of heating systems (different for the target groups domestic heating and industrial heating)
- Image campaign: heat from RH/ RE
- Better training of multipliers (e.g. planners)
- Liberalization of heating networks
Thank you for your attention