

Pre-normative research: The barriers fall

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Objective of Work Package 8

Cluster pre-normative research and
standardisation

Bring together projects, eventually integrate the
work of national and European Standards
Bodies

Foster dialogue between various research and
development teams

Content

- Background
- Problems
- Results
- Details
- What will come

Standardisation issues

- Electrical connection
- Economic benefit
- Efficiency calculation
- Carbon Dioxide Emissions
- Metering

Where did we start

2002

- UK G83 draft ready – interconnection
- D CHP law – duty to connect,
remuneration, subsidy

- EU - CEN Workshop Agreement on
interconnection standard
- CHP Directive draft

Other groups

- UK Distributed Generation Coordination
Group (2002)
- Micropower Council (2004)
- NL COGEN NL micro-CHP working group
(2001)
- EU COGEN Europe Working Group
Micro-CHP (2003)

Background: national differences (privilege of backwardness)

- UK huge interest from appliance manufacturers, network operators and government, regulations coming in place
- NL no need to hurry
cogeneration is a declining business
- D well regulated financial environment, profit from promotion of Renewable Energy, experience with Senertec 5 kW units

Achievements

- Many concepts for implementation of micro-cogeneration, mainly in the UK
- Proper references for micro-cogeneration in CHP Directive
- Possibly solutions for interconnection standard
- CE certification of micro-CHP appliance under the Gas Appliance Directive and related standards

CE certification of micro-CHP appliance

No micro-CHP product standard

Micro-CHP appliance to comply with

- Gas Appliances Directive
- Machinery Directive
- Low Voltage Directive
- Electromagnetic Compatibility Directive
- Pressure Equipment Directive

CE certification of micro-CHP appliance

Practice:

Use relevant generally applicable standards
and local national requirements
(NO_x emissions, efficiencies,
installation requirements, grid connection)

Critical issues

- Safety of electronics
- Burning of European gases

CHP Directive

- To increase European CHP energy production to 18% by 2010
- Facilitate the access of micro-cogeneration units (< 50kWe)

CHP Directive

- Guarantee access of CHP to grid under equitable conditions and guarantee conditions for competition
- Report progress & report on potential for expanding CHP
- Evaluate Micro-CHP for new buildings
- Realistic connection fees
- Possible tax exemptions through the Taxation of Energy Products Directive

Emissions Directive:

DIRECTIVE 2003/87/EC OF THE EUROPEAN
PARLIAMENT AND OF THE COUNCIL

of 13 October 2003

establishing a scheme for greenhouse gas
emission allowance trading within the
Community and

amending Council Directive 96/61/EC

Emissions Directive

Establishes a scheme for trading of greenhouse
gas emission allowances within the Community

Will be piloted on CO₂ emissions in 2005-2007,

first allocation plans are in force in 2005

Will include emissions from combustion of

CHP units of fuel input > 20MW

Emissions Directive

Will include emissions from any CHP unit that is on an industrial site (e.g. refinery, steel works or paper mill)

Power plant owner can sell leftover allowances, while on-site CHP producer has to buy additional allowances

Potentially can make CHP uncompetitive in a emissions allowance market

Emissions Directive needs to be amended to account for actual carbon savings by CHP

Interconnection standard

Issues solved

- Easy installation
 - fit and inform (plug and play)
- Certified installer
(although certification is still country specific)

Interconnection standard

Issues outstanding

- Isolator accessible from the outside
- Loss of Mains detection
 - which detection methods

Annexes with national deviation

Metering

Problems with metering

- Who installs the meter
(necessary for export metering)
- Minimise cost by permitting installer
- Either go to very frequent meter reading
or use standard profiles
 - profiles in use for PV (e.g. NL)
 - profiles being researched (e.g. BEAMA UK)

Economic benefit

COGEN Europe WG Micro-CHP research

Economic model input

- Details of the micro-CHP unit
- Operational data
- Cost (capital, operational)
- Subsidies
- Tax exemptions

Output: savings, simple payback

Pre-normative research grows

IEA/ECBCS Annex 42: The Simulation of Building-Integrated Fuel Cell and Other Cogeneration Systems

Energy Performance of Buildings Directive: standards how to value the energy efficiency of various heating systems
micro-CHP has a high priority

ECBCS = Energy Conservation In Buildings And Community Systems

What to expect in the near future

IEA ECBCS Annex 42: simulation models

COGEN Europe WG Micro-CHP:

Fact Sheets with current national key regulation

CEN TC228-WG 4 (Heating Systems in Buildings):
prEN on efficiency calculation

CLC/TC8x: EN 50438 interconnection standard

CHP Directive Annex III:

reference values, calculation methods,
analysis of national potential

Future activities

Energy services directive

Labelling directive

Appliances - New Appliance Directive

– Replaces Boiler Efficiency Directive

More Involvement from German Organisations

Dispatch of Energy on Utility's Demand,
Virtual Power Plant

Standardisation with Larger Units

Finally

Up to the next barriers