

All Energy 2010

Emissions - a barrier to
Biomass Heating Equipment ?

22/05/2010



Biomass All Energy2010

- Emissions Review /Background
 - Clean Air Act
 - Local Air Quality Management
 - Concerns
- Practical abatement options
- Ceramic Filtration
- Looking Ahead

Smoke Control

- UK Clean Air Act.
- Exempts Appliances or Fuel (or both).
- Ensure smokeless clean combustion.
- Little or no visible emission.
- Seeks to prevent 'Nuisance'.

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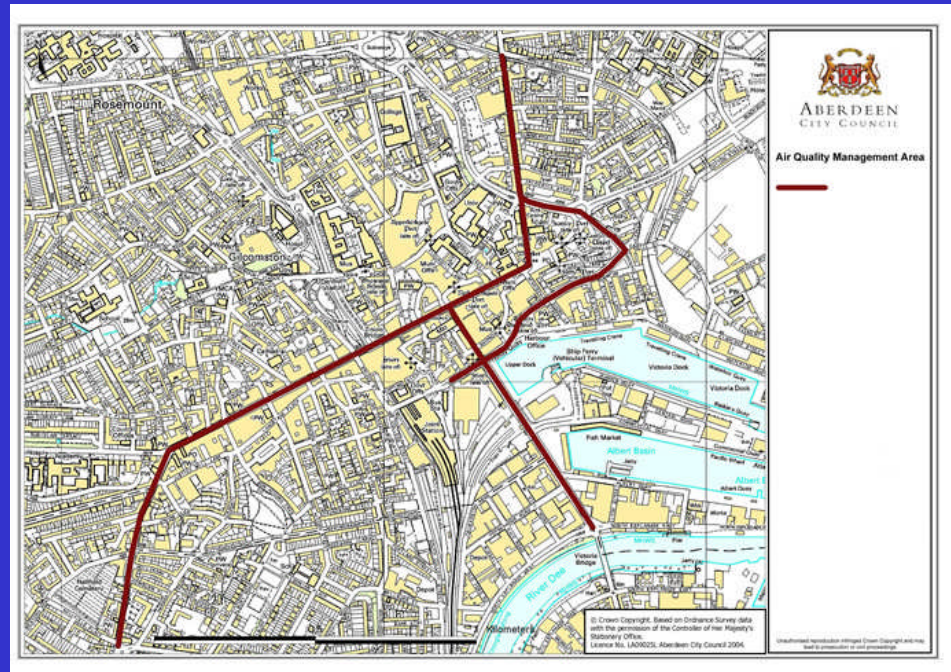
Air Quality Managed Area



- Ground level Concentrations of various Pollutants.
- From ALL potential sources.
- Includes Domestic/Commercial Heating Boilers.
- Managed locally.

237 Local Authorities have declared AQMAs

EG Aberdeen City Council
AQMA



Pollutants Declared – almost all either
NOx or PM or both

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Air Quality Issues with Biomass

- Particulate Matter
 - PM10 and PM2.5
 - Options
- NO_x
 - Currently No 'BATNEEC' technology

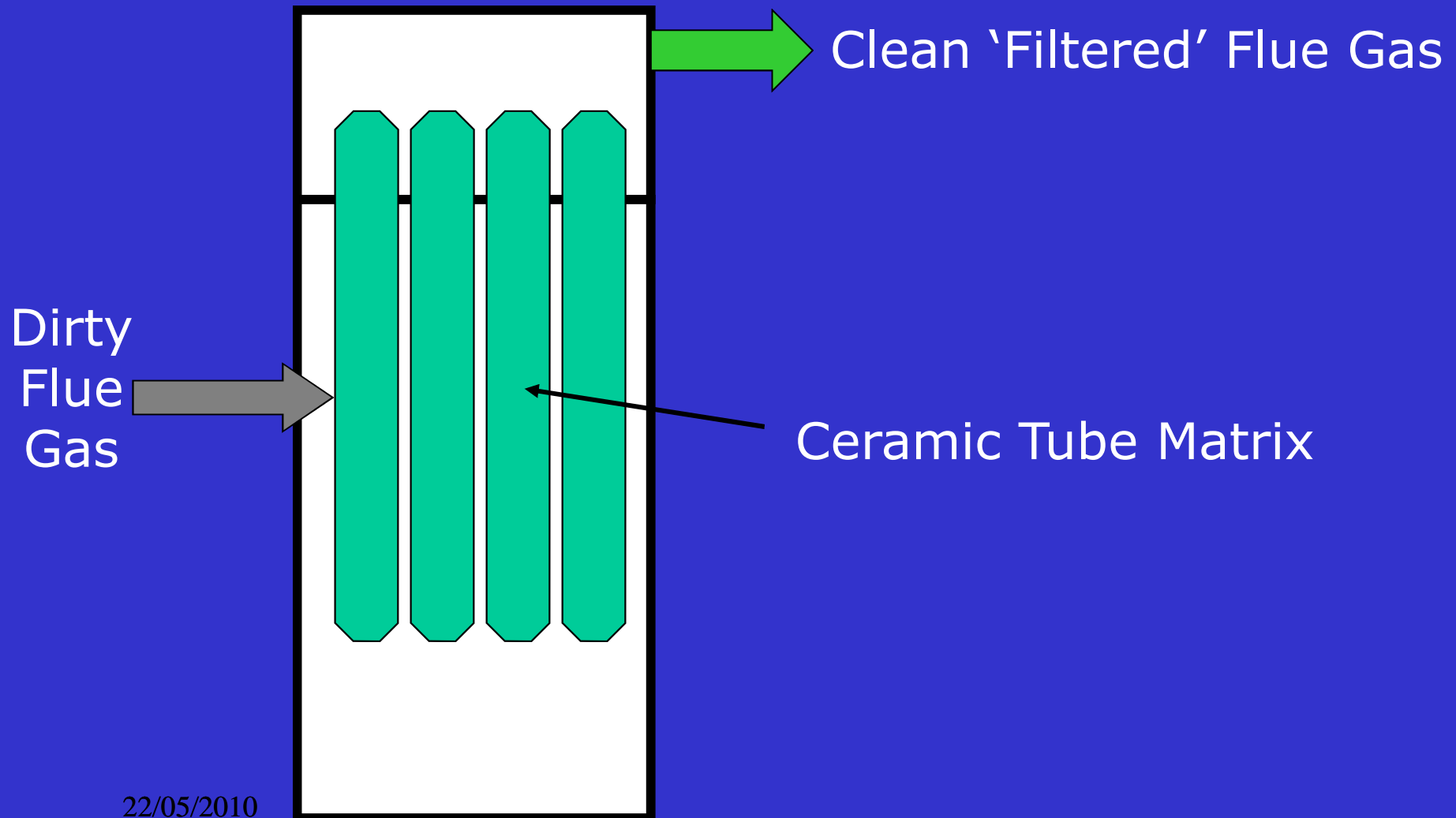
PM Abatement

- None - Good Design, Good Fuel Quality, Well Maintained
 - Acceptable PM emissions ??
- Cyclone
 - Ok, but only for >PM10
 - Cheap
 - Reliable ?
- Electrostatic Precipitators
 - Good, for sub PM10
 - Expensive (to buy and to run)
- Ceramic Filters
 - Good, for sub PM10
 - Affordable



Hoval CF Biomass Filter

Hoval

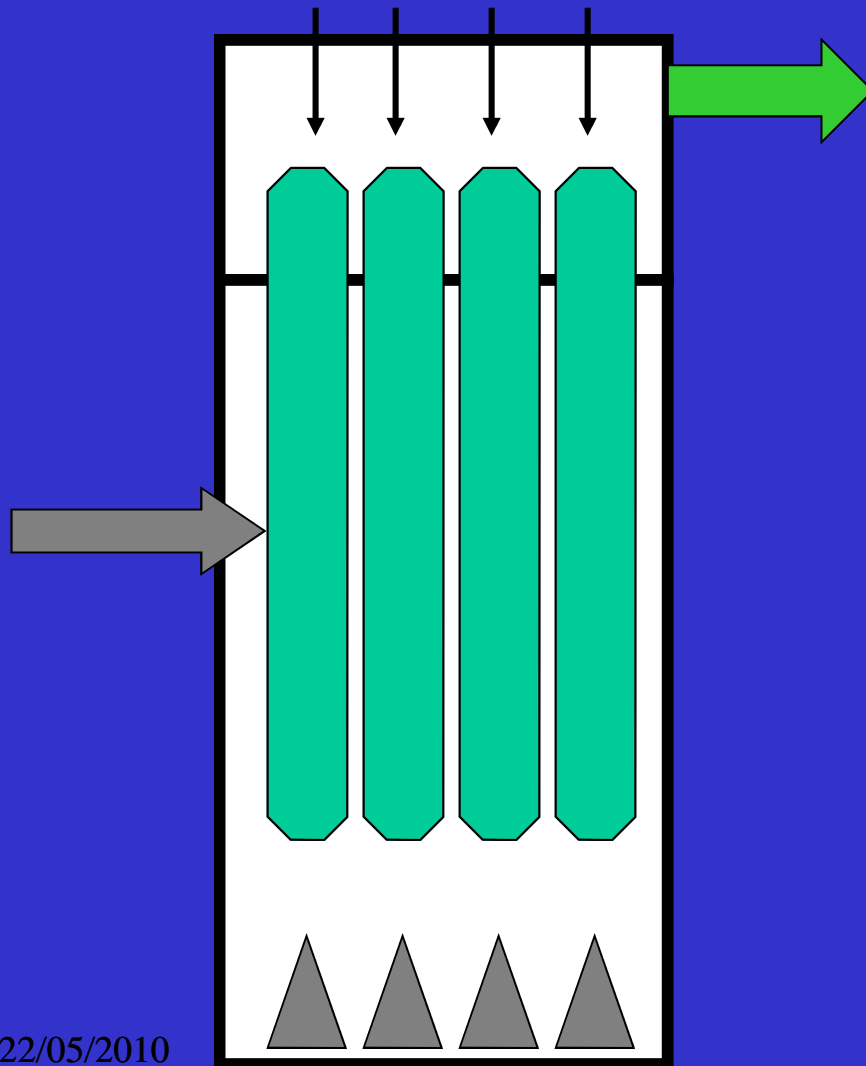


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Hoval CF Biomass Filter

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Compressed Air



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How Much ?

300 hours operation (2 x 500kW)
Chip Boiler

Looking Ahead

Air quality strategies emerging (mainly related to road transport issues).

But with reference to domestic and commercial heating systems

Biomass boilers get a special mention

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Policy 8 – Using the planning process to improve air quality

Vision

A planning process that ensures that no new development has a negative impact on air quality in London.

Policy

The Mayor will ensure that new developments in London shall as a minimum be ‘air quality neutral’ through the adoption of best practice in the management and mitigation of emissions.

Proposals

The Mayor will use his planning powers to:

- Require new biomass boilers in AQMAs for PM₁₀ to be fitted with suitable PM emission reduction technology.
- Apply emissions limits for both PM and NO_x for new biomass boilers across the whole of London.

Air Quality Neutral

Limits ??

Reversal of original proposals (2009) that was set to prohibit the use of <500kW biomass boilers

Limits ??

Those mentioned in the RHI are generous (i.e. not onerous).

NO_x 150 g/GJ (or 150 mg/MJ)

PM 30 g/GJ (or 30 mg/MJ)

London/AQMA limits will (have to) be substantially lower.

We believe < 2 g/GJ is readily achievable with a CF unit.

In Summary

- Adverse impact on Air Quality has been a barrier to Biomass take up.
 - Fuel quality, design and operation of the equipment critical in minimising impact.
- Technology emerging that offers a potential solution for PM's.
 - Which is ('NEEC')
- Filter provides a reliable 'physical' barrier.