



Agenzia nazionale per le nuove tecnologie,
l'energia e lo sviluppo economico sostenibile

Stati Generali ANFUS

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IMPRESS 2: Metrology for Air Pollutant Emissions

"This project has received funding from the EMPIR programme co-financed by the Participating States and from the European Union's Horizon 2020 research and innovation programme"

European Directives are setting increasingly stringent Emissions Limit Values (ELVs) for key pollutants to mitigate **~400 000 premature deaths** and **€300 - €949 billion p.a.** of costs attributable to air pollution. This project will deliver the underpinning research enabling a metrologically robust framework of documentary Standard Reference Methods to allow full enforcement.

Economic and Societal Drivers

- The EC recognises "–400 000 premature deaths and associated health costs of €300 - €949 billion p.a. attributable to air pollution" ¹.
- ~€169 billion p.a. of the above cost is attributable to Europe's 10 000 largest polluting facilities ².
- 64% of the EU's urban population is exposed to particulate matter (PM) above WHO guidelines: residential biomass boilers/space heaters are, "the most important contributors to total PM emissions in the EU" ³.

Directive Requirements and CEN Needs

- A Standard Reference Method (SRM) is a European (CEN) standard produced to support a Directive that has been independently validated.
- SRMs are not voluntary, have legal meaning, and set mandatory measurement standards.

Conventional Combustion

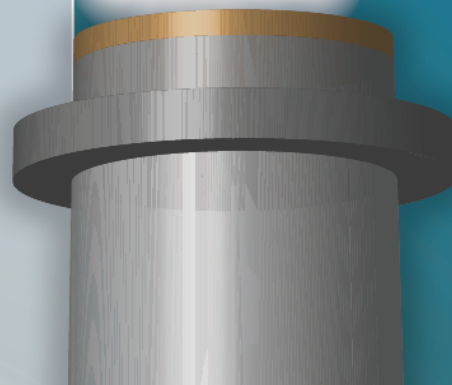
- There are no SRMs for NH₃, formaldehyde or HF.
- Existing SRMs have not been tested / validated for:
 - Enforcing 80% lower HCl ELVs;
 - Low concentration dust measurements.
- Uncertainty work associated with flow SRM incomplete:
 - Sensor obscuration and wall deceleration;
 - Little evaluation to date for narrow ducts (key to MCP Directive).

Biomass Combustion

- No SRMs for semi-volatile organic compounds (SVOCs), organic gaseous carbon (OGC), polyaromatic hydrocarbons (PAHs) or PM.
- No real-time, on-line technique capable of apportioning CO₂ emissions between fossil and biomass fuels in co-firing stations.

Future Directive Needs

- To meet WHO air quality guidelines by 2050 increasingly stringent legislation will continue to be introduced. Therefore, work must start now innovating the next generation of techniques.

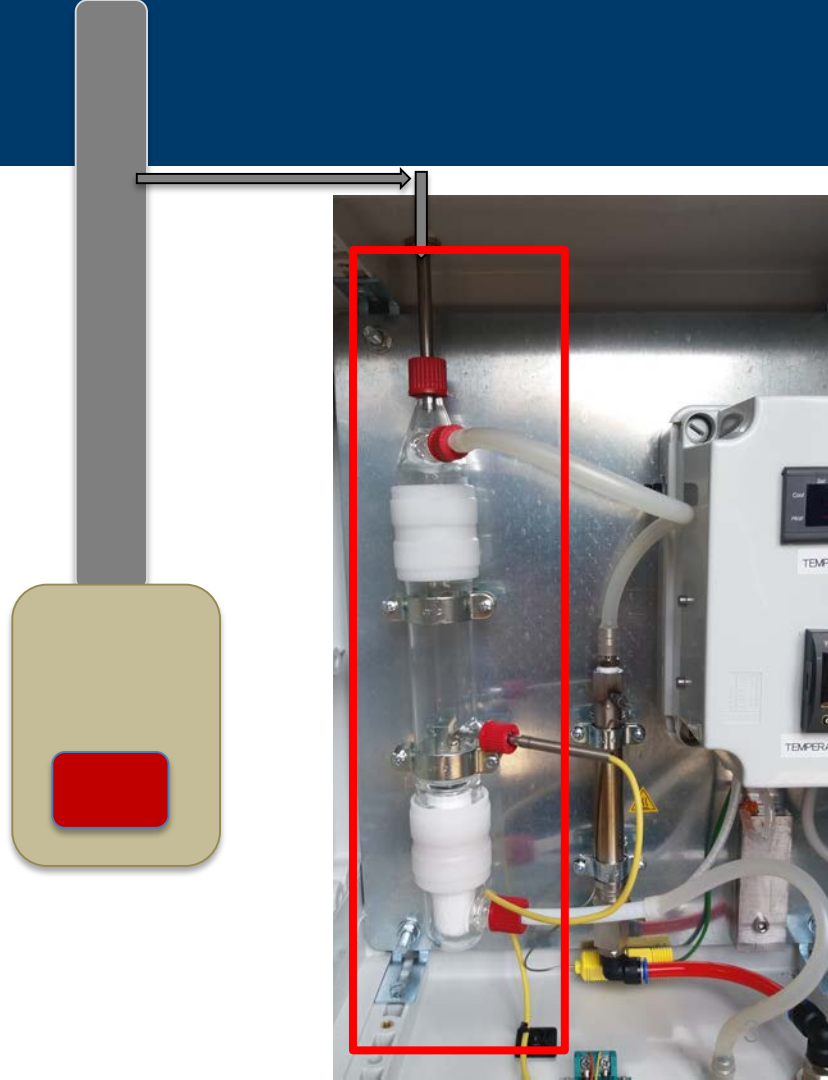




IMPRESS II

Attività principale WP2 - biomassa:

- ✓ Ricognizione dei metodi di campionamento per i composti organici semivolatili
- ✓ Test di confronto per il metodo EN-PME-TEST
- ✓ Messa a punto di un **nuovo sistema di campionamento a diluizione** (ENEA e Innovhub – SSI) per la misura del particolato condensabile



Progetto Metro Pizza



PAROLE CHIAVE

- ✓ Pizza più buona
- ✓ Risparmio energetico
- ✓ Aria più pulita



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ARLUNO



COMUNE DI
BOLLATE



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CASSANO D'ADDA



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NERVIANO



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PERO



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