

# TAR MEASUREMENT STANDARD



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**BIO-ENERGY**  
**ENLARGED PERSPECTIVES**

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# Project description

- Partners

- ECN - NL (co-ordinator)

- Biomass Technology Group B.V. (BTG) - NL

- Danish Technological Institute (DTI) - DK

- Environment Engineering Limited (EMC) - UK

- Kungl Tekniska Hogskolan (KTH) - S

- Netherlands Standardisation Institute (NEN) - NL

- Netherlands Agency for Energy and Environment (Novem) - NL

- Verenum - CH

- Technical Research Centre of Finland (VTT) - FIN

- Duration: 36 months

- Starting date: 01 December 2002

# Project description

- Background

Starting point = Guideline for the measurement of tars and particles from biomass gasification gases (Tar Guideline)

- Objectives

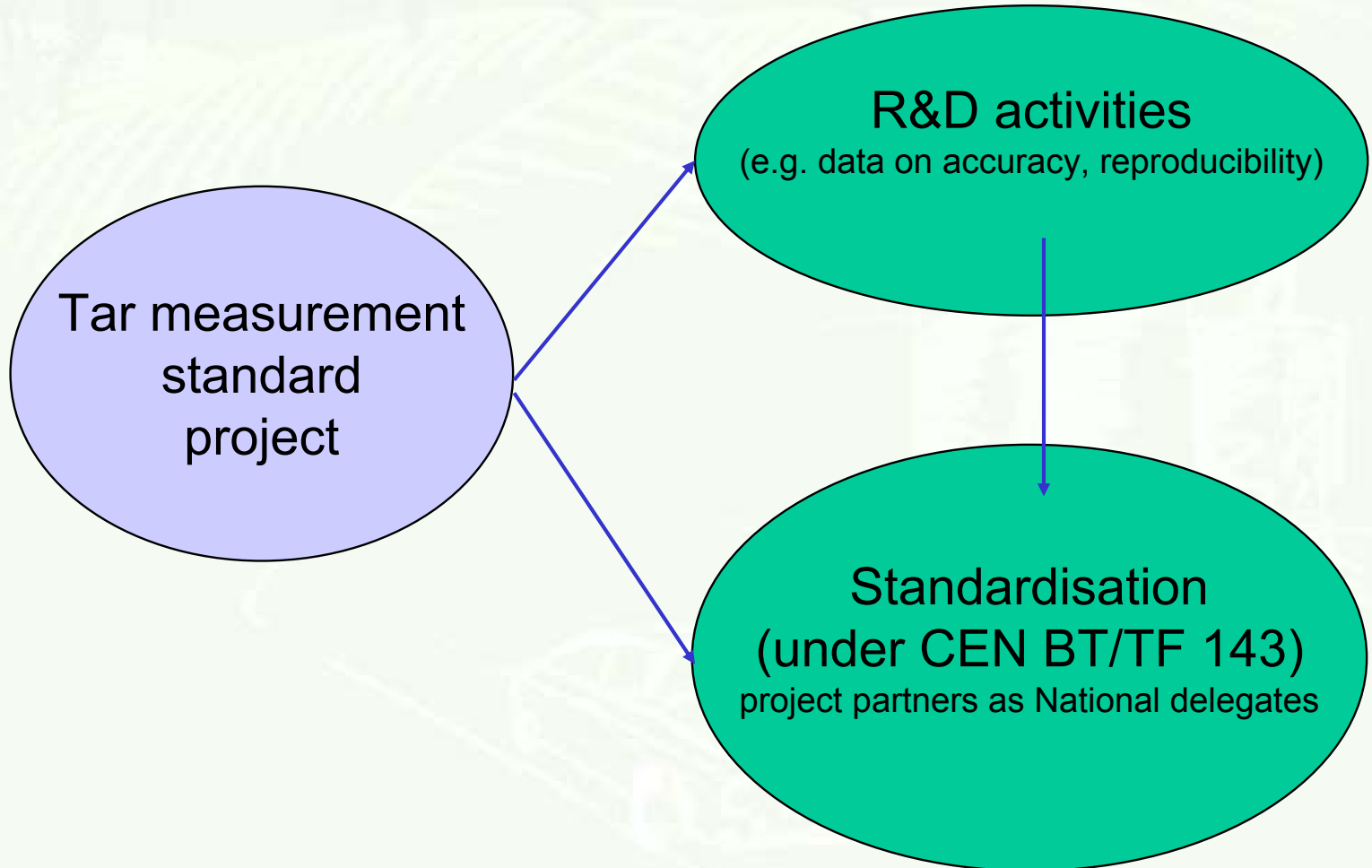
- **Standardisation** of the Tar Guideline (CEN Standard) for use as a measurement method itself and/or as the basis for comparison with other methods
- Dissemination and internalisation of the Standard

# Why standardisation ?

- Standardisation = quality
- With a common method on tar measurements, technical performance of biomass-gasification systems can be better defined in terms of:
  - tolerances
  - guarantees on performance, life time, etc.

A **Standard** strengthens the tar measurement method and promotes its wider acceptance

# Approach



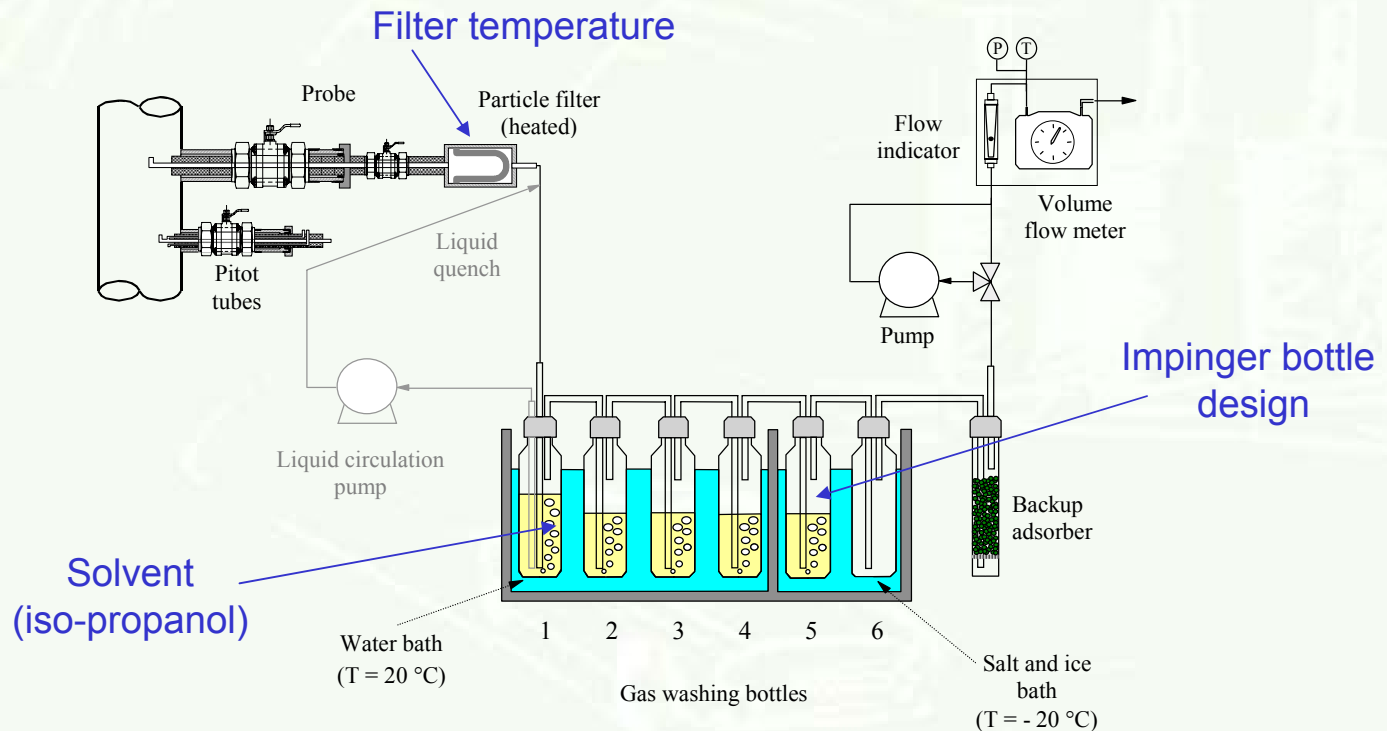
# R&D starting points (1)

- The Guideline (version 3.3), see [www.tarweb.net](http://www.tarweb.net)
  - Describing necessary equipment and procedures for sampling, post-sampling and analysis of tars
  - Suitable for tar measurement at different types of gasifiers (updraft, downdraft, fluidised-bed), and at a wide range of conditions (0 - 900°C, 0.9 - 60 bars) and concentrations (1 mg/m<sup>3</sup><sub>n</sub> - 100 g/m<sup>3</sup><sub>n</sub>)
  - Enabling simultaneous measurement of particles and soot

# R&D starting points (2)

- What has been optimised:

...+ GC / gravimetric analysis



# R&D required for standardisation

- In general:

R&D to acquire data on accuracy and reproducibility of the Guideline method



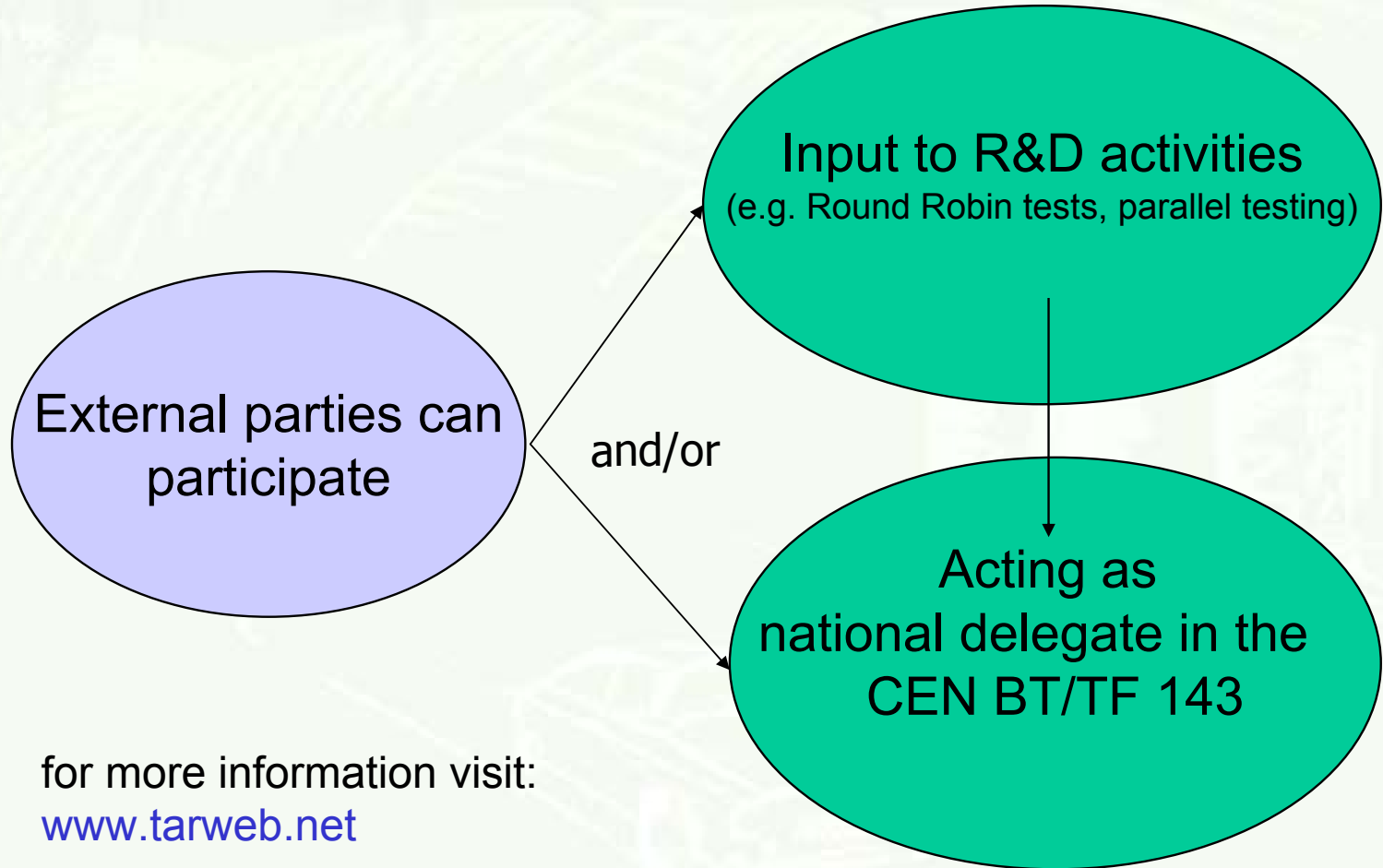
# Main project R&D activities

- Round Robin on GC analysis
  - synthetic samples
  - real tar samples (updraft and downdraft/fluidised-bed gasification)
- Round Robin on gravimetric tar analysis
  - real tar samples (updraft and downdraft/fluidised-bed gasification)
- Parallel measurement
  - raw and clean gas
  - updraft and downdraft/fluidised-bed gasifier
- Determine performance Guideline performance at low tar concentrations ( $1-100 \text{ mg/m}^3_n$ )

# Tar measurement standardisation

- Current status
  - Official work of CEN BT/TF 143 has started
  - First draft version of the Standard available
  - Standardisation trajectory defined
  - Revision of GC analysis procedure based on the initial outcome of the on-going Round Robin tests

# Please join !



for more information visit:  
[www.tarweb.net](http://www.tarweb.net)