

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

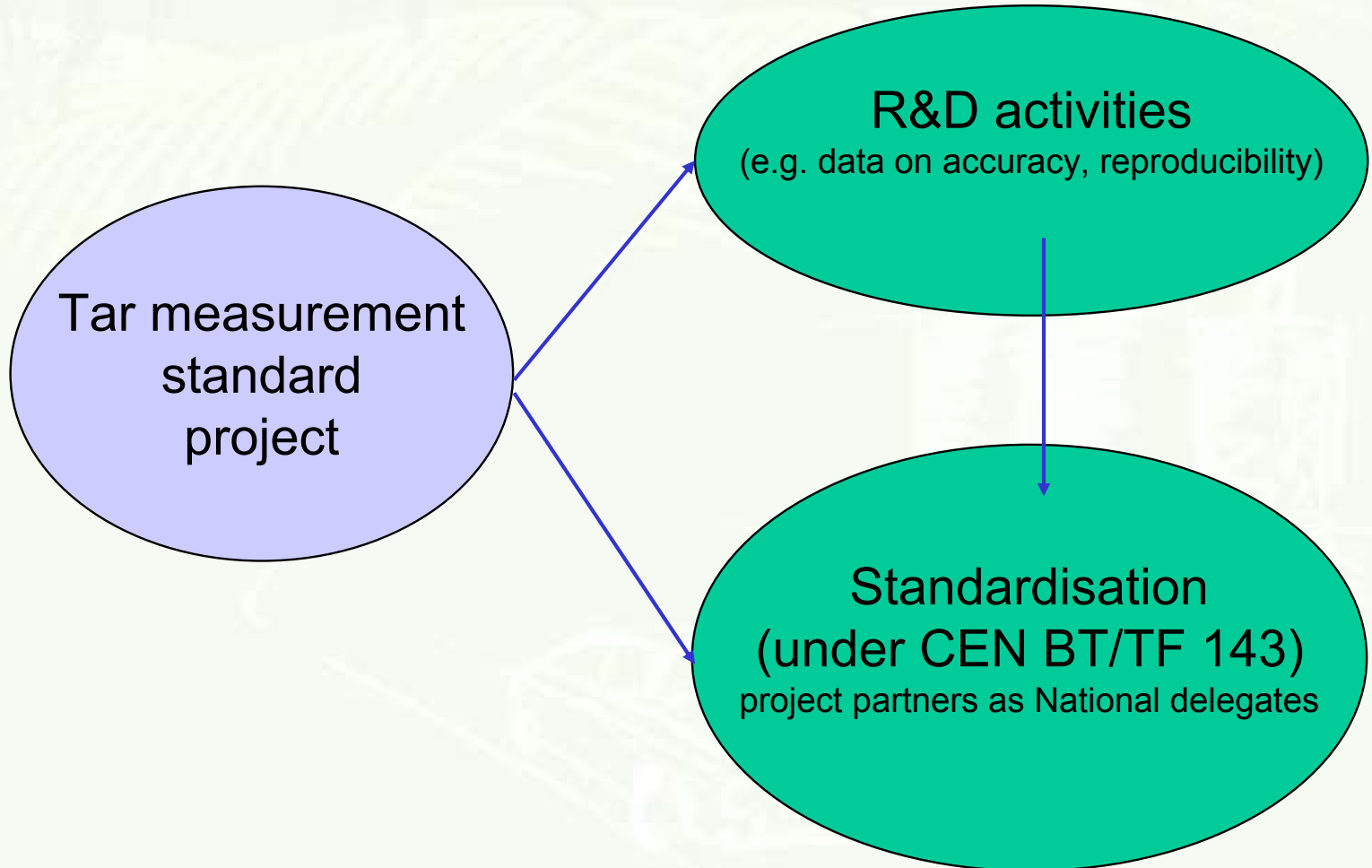
- **Standardisation** of the Tar Guideline (CEN Standard) for use as a measurement method itself and/or as the basis for comparison with other methods
- Dissemination and internalisation of the Standard

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



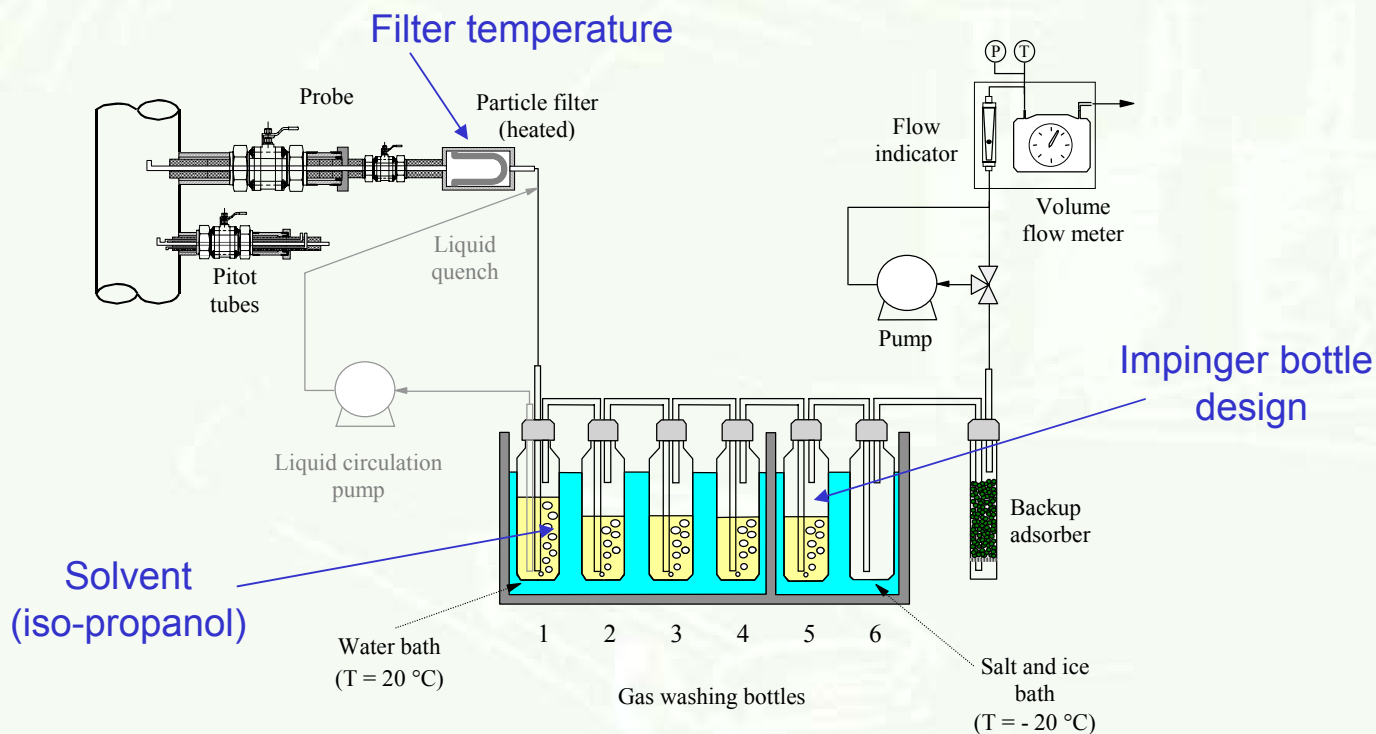
R&D starting points (1)

- The Guideline (version 3.3), see www.tarweb.net
 - 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/m³_n - 100 g/m³_n)
 - Enabling simultaneous measurement of particles and soot

R&D starting points (2)

- What has been optimised:

...+ GC / gravimetric analysis



Impinger train design

R&D required for standardisation

- In general:

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

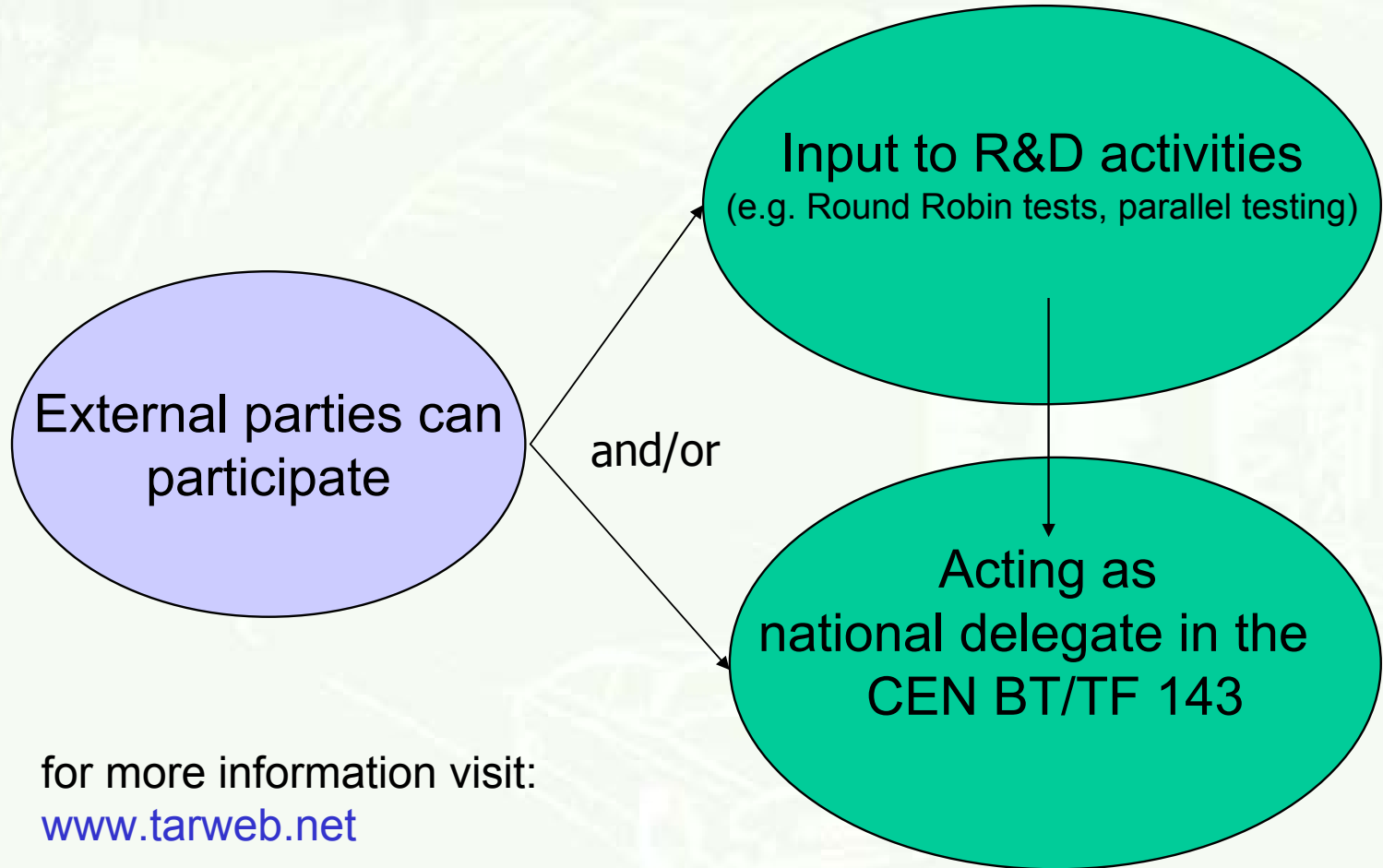
Main project R&D activities

- 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