Presentation of DANETV
Danish Centre for Verification of Climate and Environmental technologies

Meeting between DANETV and ETV China, 7th November 2011

By Thorkild Q Frandsen, DANETV

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Our understanding of ETV

- Proof of performance of environmental technologies
- Independent and credible documentation
- Voluntary –not implemented through legislative requirements
- Relevant for innovative, green technologies ready for market
- Relevant for product groups without certification or type approval programmes, etc.

Verifying that performance claims put forward by technology producers are complete, fair and based on reliable test results.

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Characteristics of ETV

- Promotes marketing of green technologies internationally
- Fast and flexible – vendor proposes performance parameters
- No fail/pass criteria (no minimum requirements for effects)
- Quality assurance and documentation
- ETV concept already well-known in USA, Canada and Asia
- EU ETV pilot programme expected operational from 2012

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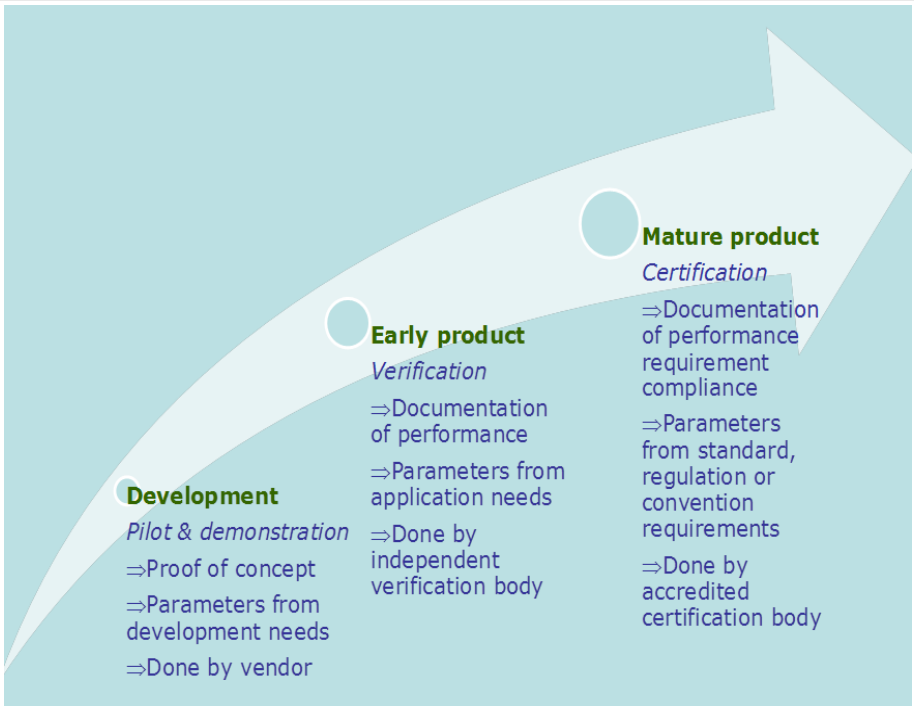

Demonstration vs. ETV vs. Certification

	Pilot and demonstration	Environmental technology verification	Product certification
Technology phase →	Late development of product	Product ready for sale	Technology established on market
Documentation reference →	Industry practice	EU ETV[1] US EPA ETV	EN 45011 ISO/IEC Guide 65:1996 ISO/IEC Guide 67:2004
Purpose →	Proof of concept and suggestions of improvement	Documentation of performance	Documentation of performance compliant with accepted requirements
Provided by →	Vendor	Verification and test body	Certifying body
Status →	Not independent	Independent	Independent
Performance parameters and requirements	Parameters set by the vendor of one product	Parameters set by the vendors of a technology/product group and relevant to the users →	Parameters and quantitative requirements set in performance standard or similar normative document for the technology/industry
Required additional features	None	None →	Surveillance of product compliance after certification
Optional additional features	None	None →	Inspection of production facilities

Who benefits from ETV?

Proof of performance promotes the use of innovative, green technologies.

Implementing smarter environmental technologies is in the interests of

- the industry,
- technology users
- the environment

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Danish Centre for Verification of Climate and Environmental technologies

- A Danish ETV initiative established in 2008
- Supported by the Danish Ministry of Science, Innovation and Higher Education
- Methodology similar to EU ETV General Verification Protocol
- A cooperation between 5 institutes:
  - DHI
  - FORCE Technology
  - Danish Technological Institute
  - DELTA
  - AgroTech

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ETV in function: DANETV

Many technology areas covered by DANETV

- Water treatment and monitoring
- Air pollution monitoring and abatement
- Environmental technologies in agriculture
- Renewable energy and energy efficiency technologies

Status for verifications

- 15 verifications completed
  - ETV-statements available on the DANETV-website
- 4 verifications ongoing

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DANETV examples of completed ETVs

Water treatment
- Treatment of water re-circulating over swimming pools (CoMeTas)
- Production of drinking water from surface water (ROS, Sweden)

Air cleaning
- Removal of hydrocarbons from polluted air (Danmil)
- Removal of aerosols from oil mist (Simas)

Environmental technologies for agriculture
- Reduction of odour and ammonia emissions from pig houses (Rotor)
- Separation of slurry (SB Engineering)

Energy
- Pretreatment of biomass for increased biogas production (GFE)
- Reduction of energy consumption in cooling cabinets in stores (Danfoss)

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Experiences from the work

of the DANETV test bodies and verification bodies

Feed-back from the
the technology suppliers
= ETV customers

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Benefits during early phases of the ETV process

Dialogue between technology supplier and verification body

- Agree on the specific application of product to be verified
- Discuss performance claims taking into account:
  - State-of-the art for the specific product group
  - Legislative requirements
- Discuss test parameters and overall test set-up
- Evalute whether the product is ready for the market / ETV
- In some cases a need for further development is identified
  - ETV is postponed but in the end a better product is the result

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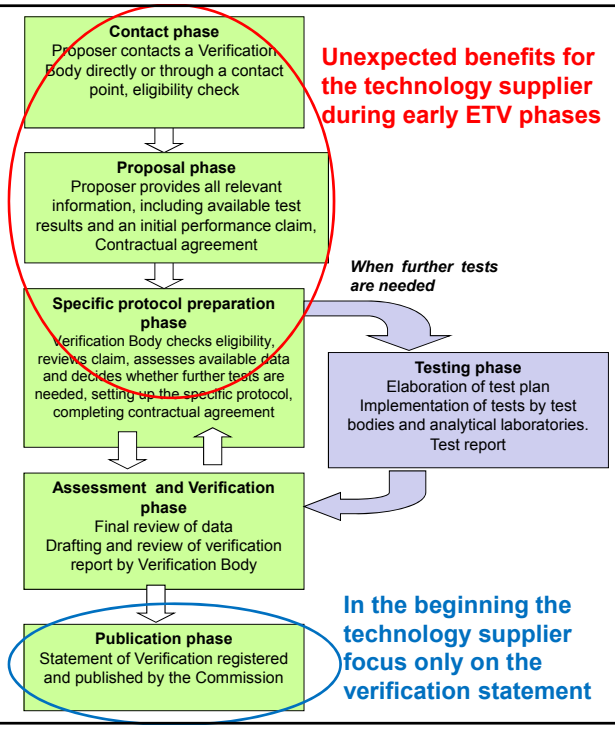
Many technology suppliers express that they benefitted a lot from this dialogue

Early phase benefits



Unexpected benefits for the technology supplier during early ETV phases

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In the beginning the technology supplier focus only on the verification statement

Intended readers of the verification statement

Main target groups

- Potential buyers of the environmental technology
  - Private and public
  - National and international
- Environmental authorities and regulators

In some cases also:

- Potential investors: Case 1
- Technology supplier offices in other countries: Case 2

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Case 1– SB Engineering

- A small engineering company in agricultural sector
- Developed a new product for treatment of manure
- Decided to undertake an ETV to open the Danish market
- ETV completed in spring 2010

Additional benefits

- The product was sold on new, unexpected markets (e.g. Serbia)
- Verification statement also used for potential investors
- In September 2010 property rights of the product were sold to a larger and more capital strong company (Agrometer)
- The product is now marketed and produced by Agrometer

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Case 2– GEA Westfalia

- A multinational technology supplier company
- A known technology used in a new application:
  - Decanter centrifuge for post-treatment of digestate at biogas plants
- The Danish office decided to undertake an ETV to facilitate national sale

Additional benefits

- Verification statement used for internal marketing within the company
  - Presentation to other relevant country offices
- Facilitating use of the product in this new application internationally

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A fast and flexible ETV-process appreciated

Especially for new SMEs low on capital

- Fast access to the market is crucial
  - A need to start selling the product to get capital inflow
- A fast ETV-process is very much appreciated by such SMEs
- Flexibility with respect to test parameters also an advantage

In the work for EU and global acceptance the ETV-process should be kept fast and smooth without compromising the quality or reliablility of the results

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Challenges met in the ETV-work and lessons learned

Lessons learned

The global recognition of verifications is essential

- Denmark is a small market

  Often technology development is not relevant for this market alone
- ETV is seen by technology suppliers as a tool to open new markets
- A clear need for acceptance of verification statements at
  - EU level
  - Global level
- Joint verifications with US EPA ETV and ETV Canada undertaken
- An EU ETV pilot programme is very relevant

Financial support to kick-start ETV

The costs of test and verifications show great variations

- Depend on product group and amount of existing data
- Difficult to operate with standard prices / average prices
- EU survey: Test + verification cost 50,000 – 90,000 EUR

Especially for SMEs

- The cost of an ETV can be a barrier
- Financial support needed to make ETV available for SMEs
- EU objective: Limit the cost of verification for SMEs to 20,000 EUR

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Lessons learned

The ETV documentation is comprehensive but essential

- Time is needed for the verification staff and the test staff to get familiar with the ETV methodology and the templates
- The use of external experts for reviews during the process makes the ETV process more complicated but the results more reliable

Potential for reducing time consumption

- The time used for the verification task is reduced when the first verifications are completed and staff has gained experience

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Lessons learned

There is clearly a high potential for ETV

- A tool to commercialise new innovative environmental products
- Taking the technologies from R&D to the market

Technology suppliers benefit from ETV

- ETV statements are actively used in marketing of new technologies
- A need for ETV to fill the gap between demo and certification

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More information about DANETV

www.etv-denmark.com

Thanks for your attention!

Questions and comments?

E-mail: tqf@agrotech.dk. Phone: +45 87 43 84 68

Photo: The world´s largest manure based biogas plant, Maabjerg Bioenergy