A Comprehensive Guide for Proposers to the EU Environmental Technology Verification Pilot Programme

ETV

Foreword: EU ETV Pilot Programme

Breaking into the market with innovations can be a significant challenge since innovations by definition cannot show a successful track-record. Without credible information about innovative technologies, potential purchasers are unsure whether or not to trust the claims made about the performance. In consequence, manufacturers and vendors face serious difficulties offering their innovative, potentially excellent technologies on the market due to an inaccurate assessment of their risks, benefits and limitations. This in turn creates a disincentive to further technological development, in particular by SMEs.

In order to improve the penetration of innovative environmental technologies into the EU and eventually global markets, the European Commission together with the Member States launched the EU Environmental Technology Verification pilot programme (ETV) in December 2011. The primary goal of this initiative is to provide independent and credible information on new environmental technologies, by verifying that performance claims put forward by technology developers and vendors are complete, fair and based on reliable test results. The confirmed performance claim is presented in a form of a Statement of Verification which can be used by the vendor or manufacturer in their marketing efforts and help building a trustworthy business relationship with potential customers and investors.

As a market tool, ETV has the following threefold objective:

- To help technology manufacturers, especially SMEs, to market their eco-technologies by providing credible evidence about the performance the technologies, in order to convince purchasers (and investors) of their merits;
- To assist technology purchasers (public or private) to select the performing eco-technologies fitting their needs, by providing information on which they can base their purchasing decisions, i.e. an ETV system widely recognised as scientifically valid and acceptable as evidence in tendering and purchasing procedures;
- To facilitate the implementation of public policies and regulations by providing citizens, regulators and decision-makers with solid information on the level of performance achievable by new environmental technologies ready for the market.

Applying for verification under the EU ETV pilot programme is voluntary.

ETV is not a labelling system: it is not based on a pre-defined set of criteria. ETV does not give a pass-or-fail judgment on the performance of technologies and it does not compare technologies, but the information given by ETV should enable purchasers and decision-makers to make the comparisons they think appropriate.

ETV will not substitute the actual testing of a new technology, but will review test results in order to assess the veracity of a given performance claim.

The value added for the technology developer or manufacturer will be the backing of the overall performance claim provided by the ETV process, facilitating recognition of the product across the European Union.

For more information on the EU ETV pilot programme visit: http://iet.jrc.ec.europa.eu/etv/

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Introduction to the guide

The aim of this document[1] is to provide proposers, especially Small and Medium-sized Enterprises (SMEs), with some guidance on how to smoothly go through a verification process under the EU ETV Pilot Programme. The guide explains the steps of the procedure and indicates the roles and responsibilities of the proposer associated with them. Description of the individual steps has been supplemented with some practical examples and recommendations enabling the proposer to better understand the requirements of the verification procedure.

The reference document of the EU ETV Pilot Programme which has been used to draft this guide is the General Verification Protocol (GVP)[2]. It should be always referred to in case of doubts. The GVP describes the principles, the general ETV procedure to be followed when verifying an individual environmental technology and the main actors involved in the verification process including their roles and responsibilities. The GVP is accompanied by appendices which include templates for ETV documents to be used in individual verifications. They are also referred to in this guide. The GVP is available in English from the EU ETV Pilot Programme web site (http://iet.jrc.ec.europa.eu/etv/). Other linguistic versions are in preparation. For more information on ETV in Member States, consult the national ETV contacts and web sites listed in Appendix 1.

We hope that this guide will be helpful for proposers supporting the decision and preparation for verification under the EU ETV Pilot Programme and will eventually lead to a successful completion of the procedure.

1 This document has been developed in the framework of the EU FP7 project AdvanceETV. More information on this project is presented in the afterword to this guide.

2 General Verification Protocol Version 1.0 – December 15th, 2011, http://ec.europa.eu/environment/etv/pdf/gvp.pdf

1. Is EU ETV the right programme for your technology?

The objective of the EU ETV Pilot Programme is to help developers and manufacturers of environmental technologies market their innovative solutions. Indeed, the process has been designed to serve this purpose, however there are some cases in which ETV will be of little or no added value. Therefore, prior to any efforts dedicated to preparing for verification, it is worth considering if ETV is the right programme for your technology. This chapter includes key issues proposed for considerations before entering into a EU ETV Pilot Programme.

Verification under the EU ETV Pilot Programme is neither a pass or fail system nor a certification against a set of predefined criteria or standards giving e.g. a CE-marking. Instead, it is a dynamic process involving the proposer as much as the entities responsible for the verification tasks aiming at:

- an independent proof of verifiable performance parameters;
- a way to validate innovative technological features which satisfy specific user needs;
- a tool to demonstrate an added value for the environment.

Verification under ETV is concerned with the technical design of a technology, not with the production series of industrial products.

1.1 Who may apply?

Candidate technologies for verification under the EU ETV Pilot Programme can be proposed by any legal entity or natural person established in or outside the European Union. The proposer can be a technology developer, manufacturer or its authorised representative. If the technology manufacturers concerned agree, the proposer can be another stakeholder undertaking a specific verification programme involving several technologies (e.g. as part of pre-procurement procedures).

1.2 Which technologies are verification candidates?

A candidate technology for verification under EU ETV Pilot Programme should be an innovative environmental technology ready for market uptake, whose performance characteristics are not fully covered by existing regulations/standards, and for which an independent validation of environmental performance will help building purchaser's trust thus accelerating its market penetration. The EU ETV Pilot Programme is intended for use in a business-to business context.

Environmental technologies are all technologies (products, processes and services) whose use is less environmentally harmful than relevant alternatives.

A technology can be verified under the EU ETV Pilot Programme when it meets all of the following criteria:

- it presents sufficient level of technological innovation in terms of design, raw materials involved, production process, use, recyclability or final disposal, when compared with relevant alternatives;
- is ready for commercialisation or is already commercially available (see also section 1.3);
- shows potential to meet user needs and to perform in line with legal requirements;
- belongs to one of the technology areas listed in the following table.

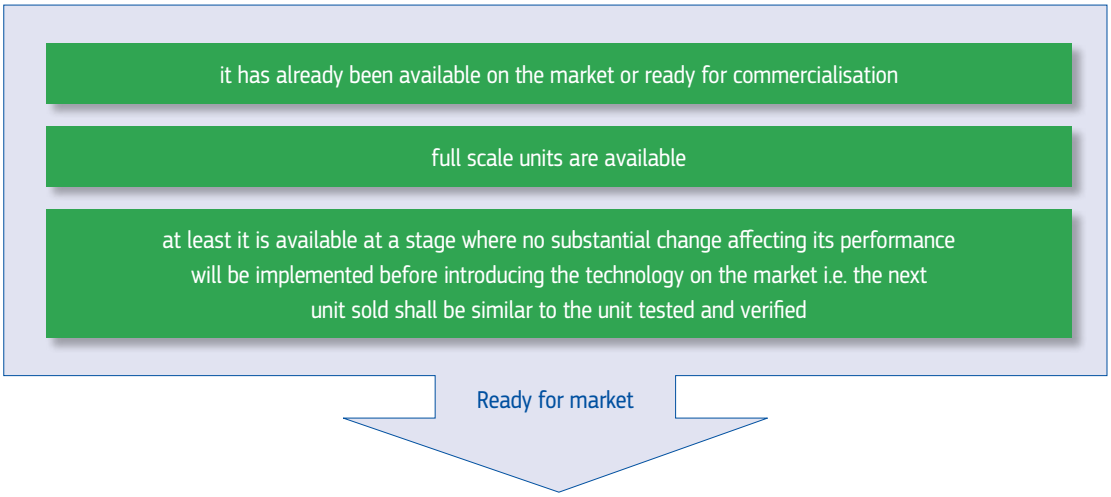
The technology scope of the EU Pilot Programme includes the following 3 technology areas and within each area to the specific technology groups (applications):

Technology areas	Examples of technology groups / applications with illustrative technologies
1. Water treatment and monitoring	• Monitoring of water quality for microbial and chemical contaminants (e.g. test kits, probes, analysers)
	• Treatment of drinking water for microbial and chemical contaminants (e.g. filtration, chemical disinfection, advanced oxidation) and desalination of seawater
	• Treatment of wastewater for microbial and chemical contaminants (e.g. separation techniques, biological treatment, electrochemical methods, small-scale treatment systems for sparsely populated areas)
2. Materials, waste and resources	• Recycling of industrial by-products and waste into secondary materials, recycling of construction waste into building materials (e.g. reworking of bricks)
	• Separation or sorting techniques for solid waste (e.g. reworking of plastics, mixed waste and metals), materials recovery
	• Recycling of batteries, accumulators and chemicals (e.g. metal reworking technologies)
	• Reduction of mercury contamination from solid waste (e.g. separation, waste mercury removal and safe storage technologies)
	• Products made of biomass (health products, fibre products, bioplastics, biofuels, enzymes)
3. Energy technologies	• Production of heat and power from renewable sources of energy (e.g. wind, sea, geothermic and biomass)
	• Reuse of energy from waste (e.g. 3rd generation biofuels and combustion technologies)
	• Energy efficiency technologies (e.g. micro-turbines, hydrogen and fuel cells, heat pumps, combined heat and power production, logistics)

The technology scope of the EU ETV Pilot Programme may be extended in the future to cover further technology areas such as soil and groundwater monitoring and remediation, clean production and processes, environmental technologies in agriculture and air monitoring and air emission abatement.

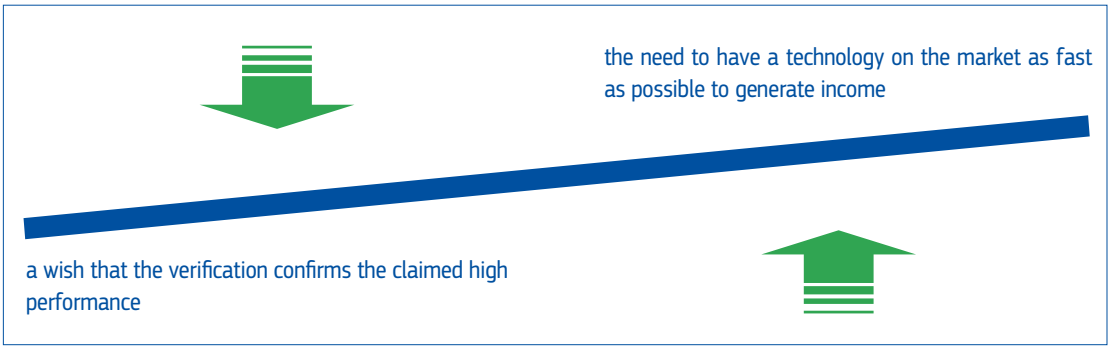
1.3 When is your technology ready for verification under the EU ETV Pilot Programme?

In terms of technology development stage, a candidate technology for verification under the EU ETV Pilot Programme should be at a "ready to market" phase which means that:



Established technologies are typically not subject for verification under the EU ETV Pilot Programme. However, in certain cases the proposer may still see an added value of having the performance verified. For example is a standard relevant for the candidate technology or product does not exist or if proving a better performance would help distance the competitors.

When choosing an optimal timing for performing verification, the proposer should seek for a balance between the following two criteria:



A premature entrance to an ETV procedure may be associated with the following risks:

- the definition of verification parameters and testing requirements may take more time if the performance achievable or testing methods are not known in detail and/or not documented;
- when the testing phase of a technology is completed, the obtained test results may turn out not as promising as originally claimed making the Verification Statement less useful or even harmful for marketing of the technology.
- if the technology is modified based on lower than expected test results, the verification procedure (or at least the testing phase) has to be repeated from the beginning, which is a waste in time and money;

» the technology may be more likely to be modified after verification. Unless modifications are minor (refer to section 3.2), the verification report and Statement of Verification are no longer valid. In this case a new ETV procedure needs to be introduced, possibly with simplifications or a quicker process than the first time because the technology is already known by the Verification Body.

To help eliminate unnecessary risk, the EU ETV Pilot Programme provides for a "quick scan" procedure carried out by the Verification Body to check if a specific technology is a verification candidate. The procedure is further described in section *Step 1: Checking the eligibility of your technology for an ETV procedure.*

1.4 Where to apply?

To apply for verification under the EU ETV Pilot Programme, the proposer shall contact a Verification Body which is an organisation accredited as fulfilling the requirements of ISO 17020[3] to perform verifications under the EU ETV Pilot Programme. Each Verification Body is accredited for a specific technological scope, not necessarily covering all technology areas presented in section 1.2. Therefore it is recommended that the proposer should first check with the Verification Body if the technology to be verified falls in the scope of its accreditation. More on this issue is presented in Step 1.

It is up to the proposer which Verification Body to choose, in the same country where the proposer is established or in another.

A list of the Verification Bodies together with the technology areas for which they intend to be accredited can be found on the web site of the EU ETV Pilot Programme (http://ec.europa.eu/environment/etv). The proposer may also use national ETV web sites or contacts provided in Appendix 1.

The verification procedures applied by accredited Verification Bodies are robust, transparent and harmonized across the technology areas of the EU ETV pilot programme. This guarantees the credibility and veracity of the verification results and their recognition by the EU and eventually global markets.

3 International Standardization Organisation. General criteria for the operation of various types of bodies performing inspection. ISO 17020. 2012

2. Being verified under the EU ETV Programme: the verification procedure step by step

The aim of the chapter is to guide the proposer through the individual steps of the verification procedure. The following sections include some practical examples and hints helping the proposers to understand the key elements of verification and how the proposer is expected to contribute, e.g. defining performance parameters and drafting the claim, agreeing on the verification contract, choosing and interacting with test bodies and analytical laboratories, if relevant. An individual technology presented to the EU ETV Pilot Programme for verification follows the process presented in the Diagram 1. The individual verification steps indicated in the boxes of Diagram 1 are further explained in details in the following sections of this chapter.

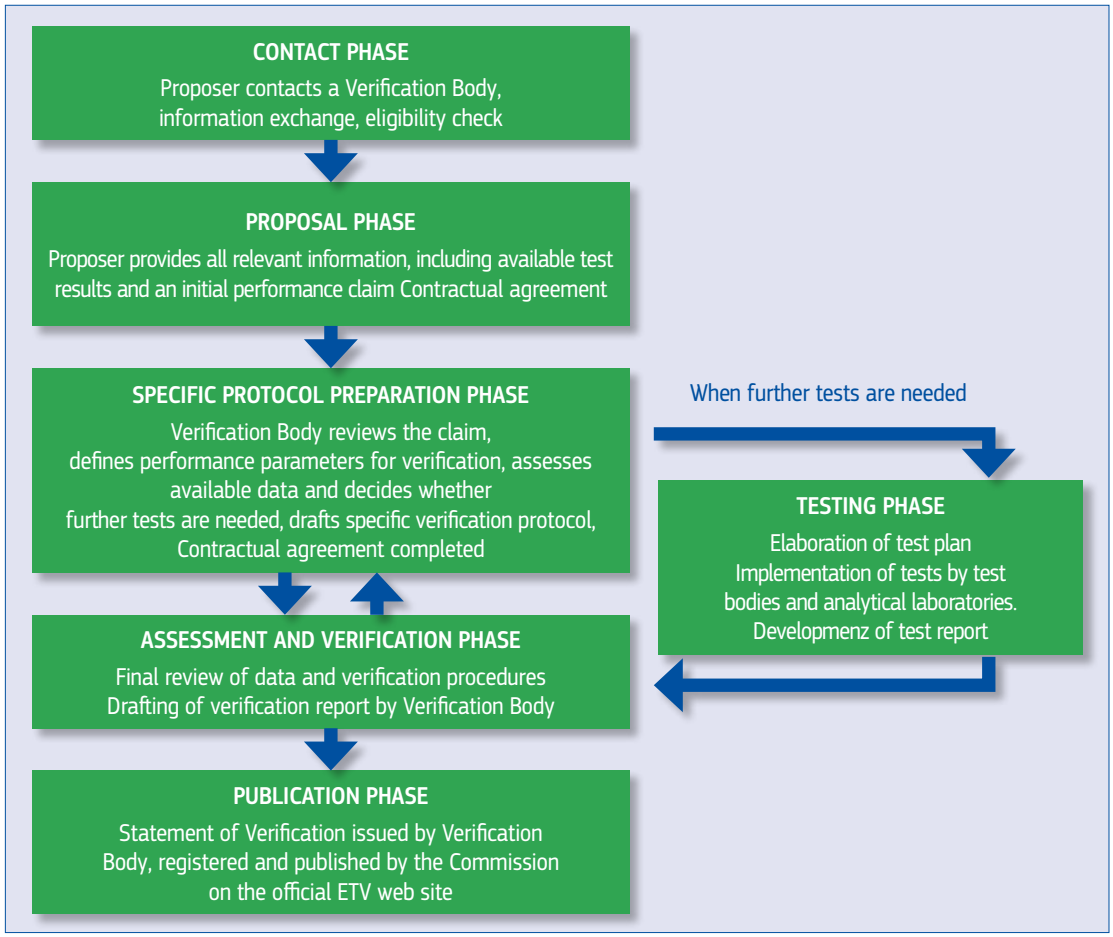


Diagram 1: Overview of the verification process under the EU ETV Pilot Programme

Step 1: Checking the eligibility of your technology for an ETV procedure

To check the eligibility of a technology proposed for verification, as a first step, the proposer fills in a quick scan document (a template of this form is included in the General Verification Protocol, the form can be also obtained from the Verification Body), which is then reviewed by the Verification Body.

The following information is required to fill in the quick scan document:

- description of the candidate technology and its intended application;
- stage of the technology development i.e. if it is ready for market;
- initial performance claim expressed by quantifiable parameters;
- whether the technology has already been verified and the result of this verification;
- information on available test data relevant for the claim (including testing methods used, in particular if these methods are available, standardized and reproducible and their accuracy).

In order to prepare the quick scan document the proposer is encouraged to consult the guidance on how to describe the technology and define performance parameters for verification provided in sections Step 3 and Step 4 of chapter 2. The proposer may also ask the Verification Body for assistance to fill in the quick scan form.

Review and assessment of the data included in the quick scan document shall allow the Verification Body to assess:

- if the technology falls in the scope of the EU ETV Pilot Programme;
- if it is ready for commercialization;
- if the performance claimed potentially meets the user needs and is in line with legal requirements;
- if it shows some technological innovation;
- the relevant technology group;

and to give a first indication about the complexity and range of costs for a full verification excluding the testing costs – estimate for tests shall come from a test body if additional test turn necessary.

Based on the quick scan results, the Verification Body either recommends the technology for a full verification or not.

If the Verification Body is not able to verify the candidate technology due to the fact that it does not fall in the technological scope for which it is accredited, it should assist the proposer to find a Verification Body whose technical scope is likely to include the relevant technology group. It may happen that the competent Verification Body may be in a different country.

Step 2: Developing an ETV proposal file

Once the eligibility of a technology for verification is confirmed by the Verification Body, the proposer prepares a full ETV proposal. The full proposal consists of the following:

- contact data of the proposer and the Verification Body;
- the technical documentation including at least the following elements:
  - a general description of the technology,
  - conceptual design, user manual and if necessary for understanding, manufacturing drawings and schemes of components, sub-assemblies, circuits, etc.
  - descriptions and explanations necessary for the understanding of those drawings and schemes and operation of the technology,
  - where relevant, standards or technical specifications applied in full or in part,
  - results of design calculations made, examinations carried out etc.,
  - test reports if available.
- the initial performance claim together with the specification of conditions of use or testing under which the claim is applicable and any relevant assumptions made (refer to section Step 4 for details on how to define the performance parameters);
- the intended application of the technology described in terms of matrix, purpose and technical conditions (refer to Step 3 for details on how to describe the technology application).

The technical documentation shall make it possible to understand the technology, revise the performance claim and to assess the adequacy of the technology design with the performance claim.

The performance claim and the description of the intended technology application are the most difficult parts of the verification proposal. Therefore, the next sections include some guidance, recommendations and practical examples on how to prepare these two crucial items.

Step 3: Describing the technology for verification

The technical performance parameters proposed in the claim shall refer to the intended application of the technology. The proposer shall therefore describe the application of the candidate technology in terms of matrix, purpose and a set of parameters defining the technical conditions valid for the claimed performance (refer to Step 4).

When describing the matrix, the proposer shall refer to the type of material which the technology is intended for.

» Examples of matrices could be soil, drinking water, ground water, cooling water, alkaline degreasing bath, effluent from domestic wastewater treatment plant etc.

Purpose is a measurable property that is affected by the technology. Description of the purpose should indicate the way in which the matrix is impacted by the technology and the quantitative parameters suggested for monitoring and documenting the effect.

» Examples of purpose could be reduction of nitrate concentration, separation of volatile organic compounds, reduction of energy use (MW/kg), bacteria removal to drinking water standards, monitoring of NO_x, improvement of heating value etc. It is important that the purpose describes the claimed effect in quantitative terms, e.g. reduction of nitrate concentration in mg NO_3^-/L.

When relevant, the proposer may define more than one purpose of the candidate technology.

Step 4: Claiming technology performance – preparing realistic and ambitious performance parameters

The initial claim of the technology performance shall be a concise declaration using parameters which are:

» describing the functioning or performance of the technology in a specified application and under specified operational conditions;

» related to the technology itself, and not e.g. to the environmental management of the company, to the sources of raw material or to the information provided to users;

» highlighting the advantages and innovative features of the technology;

» reflecting potential, direct environmental impacts of the technology in the specified application and under specified operational conditions;

» to the degree possible including relevant, indirect impacts on the environment from a life cycle perspective;

» quantitatively verifiable through tests

The initial performance claim should be ambitious yet realistic and should include the unique features of the technology which distinguish it on the market. Moreover, the performance claimed for a given technology should reflect the market requirements for the specified application and operational conditions.

To include features that distinguish the technology on the market and meet market demands, different types of performance parameters should be considered. In most cases, only few parameters of the listed below will be relevant. The following list of parameters examples is adopted from the Generic Verification Protocol.

- performance parameters, i.e. the main claims related to the purpose of the technology as defined in Step 3: what are the benefits of the technology, there might be more than one, e.g. when recycling hot water not only the water quality might be relevant, but also the amount of energy/heat recovered;
- operational parameters for the technology (always relevant), i.e. measurable parameters that refer to the application of the technology specified in Step3 which define the conditions under which the technology performs as claimed e.g. production capacity, concentrations of non-target compounds in matrix, temperature range, pH range, other pre-requisites; they also define the conditions under which the verification and tests will be carried out;
- technical or legal reference values (to comply or perform better than a certain limit value will be crucial for some applications):
  - specific parameters to be reached by the targeted application on targeted markets (can be different in different countries);
  - compliance with industrial or ISO standards in the field of application, compliance with specific needs of technology users (niche markets);
- parameters referring to the required use of resources for operation:
  - consumption of water (e.g at which quality);
  - consumption of electricity or other energy (heat);
  - consumables, e.g. chemicals, used during operation;
  - use of hazardous substances;

The table below gives an example of relevant parameters specific to the functioning of a candidate monitoring and water cleaning technology which may also reflect its advantages and innovative features:

Monitoring technology	Water cleaning technology
• Limit of detection	• The achieved cleaning effects
• Range of application	• Variation of effects
• Precision (repeatability/reproducibility)	• By-product formation
• Trueness	• Residual chemical
• Robustness	

Other parameters which may be relevant relate to environmental impacts considered in a life-cycle perspective and/or may be important for the user. Below are examples of these parameters:

- Parameters referring to the required use of resources for production of the equipment/technology itself:
  - consumption of raw materials (e.g. steel used in construction; this parameter may also be combined with the end of life and decommissioning parameters in the context how much steel was used for production and how much can be recovered);

  - consumption of electricity or other energy (heat);
  - use of hazardous substances;
  - use of recycled material/raw materials substitutes;
- Waste generated (biodegradable / recyclable / hazardous, etc);
- Emissions (air, water);
- Man-power needed (specific qualifications if any), operating costs:
  - for operation;
  - for maintenance;
- Impacts on occupational health, user manual;
- Space, Area:
  - as there might be restrictions on height or square-meter in typical applications;
- Longevity:
  - robustness/vulnerability to changing conditions of use or maintenance;
- End of life decommissioning and disposal:
  - Reusability, recyclability (fully or in part);
  - Parts needed to be disposed.

Some of these parameters may be measured through tests, others not. Non-verifiable parameters cannot be considered as part of the verified claim at the end of the verification process, but they may however be added to the Statement of Verification, for information only and under the sole responsibility of the manufacturer if they contain information important and useful for the user. A complete performance claim could for example include not only high cleaning rate and high energy efficiency, but also costly and/or environmentally risky decommissioning. The opportunity to include other parameters, verifiable or not, should anyhow be discussed with the Verification Body during the verification process.

The technical performance parameters of the initial claim are used as the starting point for preparing the final performance parameters during the verification.

The table below illustrates how an initial performance claim of a candidate technology representative for the three EU ETV Pilot Programme technology groups may look like.

ETV technology area	Water treatment	Energy technology	Materials and resources
Example of technology	Disinfection technology	Solar air heater	Biomass processing
Matrix	Industrial process water	Indoor air / climate	Manure fibres
Purpose	Disinfect water for reuse in industry	Ventilate/heat/dry e.g. a summer house	Improve dry matter content in manure fibres for better reuse
Example of claimed performance parameters	Removal of 99,9 % of bacteria	Average air flow 60 m^3/h. 5 % lower indoor air relative humidity	Dry matter content in outlet of 90 %
Operational parameters	Conductivity above 250 µS/m and ambient temperature 5-35°C	Temperature, air volume flow rate and solar radiation. All as under standard Northern European weather conditions.	Energy balance close to zero or positive

Step 5: Entering into a verification agreement – main considerations

Before the full verification process is initiated, the proposer enters into a contractual agreement with the Verification Body to carry out the verification activities under the EU ETV Pilot Programme.

The contracting procedure may consist of one or more steps depending on the complexity of the verification procedures which shall be performed to verify the claim.

It should be noted that the verification contract in general does not include the cost of tests. If the Verification Body, after assessment of existing test data, decides that additional tests are needed, it is up to the proposer, in agreement with the Verification Body, to choose an appropriate testing body (and, where relevant, analytical laboratory) and to conclude another contract with the testing body. In some cases, the same organisation can act as Verification Body and as testing body, but this does not create an obligation for the proposer to conclude both contracts with this organisation.

In some cases parts of the verification contract may need to be revised after elaborating the specific verification protocol i.e. after definition of the application and performance parameters, requirements on the test design and data quality, and assessment of existing data. In such cases, the proposer and the Verification Body may conclude a contract only to perform the first activities and leave the remaining parts for another contract. Alternatively the contract may be revised after performing the first activities.

The contract may also include the initial verification phase a posteriori i.e. contact, proposal and eligibility check, quick scan report, if the commercial policy of the Verification Body provides so. In many cases however, the initial phase is covered by other funding sources (public support) and therefore not included in the verification contract.

The ETV General Verification Protocol provides a template which can be used to draft such a contractual agreement, nevertheless it should be indicated, that specific provisions or modifications to this template may apply which result from national regulations, internal rules of the Verification Body or upon the request of the proposer.

However, based on the analysis of the quick scan document the Verification Body may already be able to provide a first rough cost estimate of the test to be performed. This estimate is useful for the proposer tp plan for the total costs of the project, but the estimate for tests will anyhow need confirmation by the testing body.

Beside the description of the candidate technology, below is a check list of issues which a verification contract should include:

- ☑ Intellectual Property Rights e.g. ownership or control over the technology must be guaranteed by the proposer, he will also retain all rights to the technology and all technical data produced during the verification. The Verification Body will retain all rights to the verification process, protocols, plans, methods and procedures developed by it;
- ☑ information and communication principles between the proposer and the Verification Body including also notification on the changes to verification conditions if such occur;
- ☑ specification of proposer's and Verification Body's obligations under the contract for verification;
- ☑ a schedule for the verification procedures;
- ☑ rules and statement on the use of the ETV report;
- ☑ rules statement on the use of the Statement of Verification and ETV logo;
- ☑ description of limitations for the use of the verification results e.g. a statement that the verification results reflect the performance of the technology at the time and under the conditions of verification and thus cannot be understood as guaranteeing the same level of performance in future or under other conditions;
- ☑ reporting for feedback of the impact (environmental, economic and other benefits in term of corporate image, market access etc.) of ETV by the proposer;

- ☑ terms and conditions for withholding the verification procedure or withdrawal of parties from the verification process;
- ☑ terms and conditions for payment;
- ☑ legal regime applicable and competent legal authorities in the case of a dispute related to the verification procedure;
- ☑ confidentiality issues.
- ☑ liability issues.

Typical obligations of the proposer under the contract for verification include:

- providing information enabling full understanding of the technology;
- providing comments to the developed documents as requested;
- providing training to the test body on the operation of the candidate technology;
- providing an adequate number of units of a technology/product for testing, etc.

Typical obligations of the Verification Body under the contract for verification include:

- verify the technology as indicated in the contract;
- develop a specific verification protocol, including requirements on test methods and test data quality;
- develop a verification report and a Statement of Verification;
- advise the proposer, in particular as regards the performance claim, choice of testing body, use of the Statement of Verification, within the limits of independence.

The proposer may withdraw from the verification procedure at any step if he decides so. Therefore the contract should include provisions regulating a withdrawal procedure.

Throughout the entire verification process, the Verification Body is obliged to observe professional secrecy with regard to all information obtained in carrying out their tasks during verification activities.

Step 6: Drafting the specific verification protocol

The Specific Verification Protocol serves as a basis for executing the verification activities of the candidate technology. The protocol is drafted by the Verification Body and involves a number of the following sequential activities:

- » revision of the initial performance claim submitted by the proposer. This is the most essential part of drafting the specific verification protocol as it sets up the background for the next subsequent actions;
- » drafting the specific verification protocol document;
- » assessment of the existing data provided by the proposer in the proposal file;
- » assessment if additional tests are needed linked with the testing phase activities, if required.

Below each of these activities is described in more details with an indication of corresponding roles and responsibilities of the proposer.

Initial claim revision: are the initial claimed parameters relevant, complete and properly expressed?

The technical performance parameters proposed in the initial claim together with the description of the intended application are reviewed by the Verification Body in order to ensure that the parameters are verifiable, able to be proven with an adequate precision, and that the specified operational conditions are consistent with the professional practices observed for a given technology area and the technology application.

When reviewing the claimed parameters the Verification Body will take into account the following:

- if the parameters are relevant and complete to meet the users' needs for this application (e.g. some additional parameters may need to be included in the claim to describe the environmental aspects of the technology or an expected result from the application);
- if there is a need to supplement the set of the performance parameters with some additional parameters which may be non-verifiable but may be relevant for the user to help him make an informed choice (e.g. a drinking water disinfection technology may allow to achieve an extra purity level of drinking water, however this process may be more energy consuming, so the energy parameter should be provided as an additional information);
- if the claimed performance meets the requirements imposed by a regulatory framework specific for the candidate technology (e.g. if a standard giving relevant performance parameters for the technology under verification and its verified application is available, reference to this standard can replace the precise definition of the performnace parameter);
- how does the claim refer to the state of the art performance of similar technologies so as to enable useful comparison where relevant (e.g. knowledge of comparable technologies and users' needs may indicate that a given parameter could be expressed differently);
- if the parameters are quantitatively verifiable and expressed in a specific and unambiguous way using absolute measurable figures;
- if the specified operating conditions valid for the claimed performance are described in a relevant and adequate way;
- if similar technologies were verified under the EU ETV Pilot Programme or another ETV programme or similar schemes, the parameters used for the old verifications should be considered for inclusion in the new verification protocol where relevant.

The table below shows how an initial performance for a disinfection technology may evolve after the revision:

	Initial claims	Revised claims in specific verification protocol	Comments
Example of technology	**Disinfection technology**		
Matrix	Industrial process water	Industrial process water	
Purpose	Disinfect water for reuse in industry	Disinfect water for reuse in industry	
Examples of performance parameters	1) Removal of 99,9 % of bacteria	1) Removal of 99,9 % of bacteria 2) Chloride in output < 0.5 mg/L 3) Trihalomethanes in output < 100 µg/L	2) For some purposes it is required that the output water fulfils the drinking water criteria of 0.5 mg chloride/L 3) During the treatment process there is risk for formation of trihalomethanes. The listed criterion is a standardised EU drinking water criterion
Operational parameters	1) Conductivity above 250 µS/m 2) Ambient temperature 5-35°C	1) Conductivity above 250 µS/m 2) Ambient temperature 5-35°C 3) Chloride in input above 15 ppm	3) Conductivity and chloride often follow each other, but after revision of the technology is was clear that a certain level of chloride needs to be controlled separately.
Additional parameters		User manual: is the maintenance process fully described in the user manual Occupational health and environmental impact	Information relevant for user

Claiming technology performance under the EU ETV Pilot Programme is a dynamic process. The claim may evolve during the whole verification process e.g. the performance limits may change, further modifications of the parameters may also take place e.g. as a result of testing or the assessment of the exiting test data provided by the proposer.

During the claim revision phase carried out by the Verification Body the proposer is requested to comment and approve to the modifications of the performance parameters proposed by the Verification Body as a part of the Specific Verification Protocol approval.

Diagram 2 presents how a claim may hypothetically evolve throughout the verification process

Proposal phase

Initial performance claim

Technology T: main purpose is A, expressed by quantifiable parameter a. Other relevant parameters to measure the performance are b and c. Operating conditions are O
Regulatory framework: imposes that parameter b is < or = b0
Initial claim:
technology T, operated under conditions O, performs in such a way that:

a > or = a0
b < b0
c < or = c0

Specific protocol verification phase

After performance parameters definition phase

Key environmental aspects (in a life-cycle perspective) show that parameter d is crucial to describe the environmental aspects of technology T; in addition, parameter e is not verifiable but should be known to the user to enable an informed choice.
Knowledge of comparable technologies and users' needs shows that parameter c is better expressed in the form of parameter c', and operating conditions should be more detailed in the form of O'

Revised claim:
Technology T, operated under conditions O', performs in such a way that:

a > or = a0
b < b0
c' < or = c'0
d < or = d0

for information, the proposer indicates that e < or = e0 but this is not verifiable and therefore not part of the claim to be verified.

After assessment of existing data

Third-party testing (for example, under control of the regulator) ensures that b < b0
In-house measurements, under third-party supervision by a qualified testing agency, provided quality test data showing that a > or = a0
Not enough information is available on parameters c' and d, requiring additional tests.

Testing phase (when additioal tests needed)

After testing phase

Data from test body and (if needed) analytical laboratory shows that:

c' < or = c'1 (not c'0)
d < or = d0

Agreement of the proposer to include c'1 instead of c'0 in the revised claim

Assessment of all data and verification phase

After final assessment phase

Complete numerical assessment of test data relevant for parameter a shows that the statistical range of confidence in practice in the technology area can only be obtained for

a > or = a1 (not a0)

Agreement of the proposer to include a1 instead of a0 in the revised claim (an alternative could be to initiate additional tests to ensure the statistical range of confidence for value a0)

Publication phase (verified performance)

Published claim (in the Statement of Verification)

Technology T, operated under conditions O', performs in such a way that:

a > or = a1
b < b0
c' < or = c'1
d < or = d0

within the statistical range of confidence in practice in the technology area.
For information, the proposer adds under its responsibility that e < or = e0.

Diagram 2: Evolution of performance claim in the verification procedure

Drafting the specific verification protocol document

Once an agreement on the performance parameters to be verified is reached, as a next step, the Verification Body with an input from the proposer drafts the specific verification protocol. It is a document which describes how a specific verification of an individual technology under the EU ETV Pilot Programme will be carried out. The protocol is developed applying the principles and procedures of the GVP which also provides a template to be used for drafting the protocol. In the EU ETV Pilot Programme the specific verification protocol is not a publicly available document. Beside the revised claim, the document specifies the requirements on the processes from which the test data has been acquired (e.g. testing methods), the required quality of the test data, measurement and calculation methods (e.g. how the test data is processed into performance parameters) etc.

When specifying the requirements concerning the testing methods, the Verification Body will consider in particular:

- the overall design and the scale (pilot and/or field) of the tests providing the data to back the claim;
- which specific performance parameters they shall measure,
- which testing methods and, if relevant, the sampling, measurement and calculation methods should be used to measure these parameters;
- are these methods standardized , if not how their reproducibility is to be ensured;
- how the acquired test data shall be managed (e.g. in which format it should be stored) and how its quality shall be assured (e.g. quality control and quality management procedures of the organization who is the data supplier).

The specific verification protocol shall also define the methods used to process the measurements into performance parameters. These include statistical methods together with any required statistical levels of confidence which shall comply with the professional practice for the technology group in question.

When drafting the Specific Verification Protocol, beside providing existing test data as mentioned below, the proposer may be requested to assist the Verification Body in specifying the requirements for testing and/or for the test data, defining the testing methods and any specific requirements which shall be fulfilled (e.g. for laboratory analyses) to be included in the protocol.

When the existing data can be recognized to prove your claim

To support the claimed performance of the technology the proposer is encouraged to propose exiting test data including analytical data, if relevant. This data can be obtained prior to the application e.g. as a part of the technology development process (e.g. from demonstration projects) or market implementation activities. However, in order to be recognised for the verification under EU ETV Pilot Programme, the Verification Body will analyse the test data from the following point of view:

- Does the data correspond to the parameters, methods and target values claimed for the specific verification (i.e. is it relevant for the claim) ?
- Does the data meet the quality requirements (i.e. does it originate from ccompetent data providers conforming to the relevant requirements specified in the GVP)?

The quality requirements of the test data and the competences of the data providers are further described in the following section.

If the assessment result is postive , the ETV process would not entail repeating the tests already carried out which obviously saves money and time.

If the proposer intends to obtain test data reliably established and of good quality before the ETV proposal, it is recommended that he contacts a Verification Body to get an input on the quality assurance requirements prior to testing and/or consults the General Verification Protocol.

When additional tests are needed and where they can be performed

Based on the review of the claim, additional tests are needed when the Verification Body states that:

- the submitted existing data is not acceptable in full or in part (e.g. because it does not meet the quality assurance requirements),
- when the relevant data is incomplete to prove the claim.

Additional tests can be performed by an independent test body at a selected test site or as in-house tests.

It is essential that the proposer coordinates the choice of the test body and /or analytical laboratory with the Verification Body who may also advise on the quality requirements which these bodies shall fulfil as test data providers.

To ensure that the data necessary for verification is reliable, the EU ETV Pilot Programme imposes requirements concerning quality assurance and quality management which the test bodies and the analytical laboratories should fulfil, namely:

- for a test body: have a quality management system in place including ETV procedures and meeting the requirements of ISO Standard 9001[4] or be accredited under the ISO Standard 17025[5] for the relevant test methods
- for an analytical laboratory accreditation to ISO 17025 is obligatory.

The proposer has a freedom of selection of an appropriate test body or analytical laboratory.

Absence of accreditation or certification of a test body does not exclude it from performing testing for verification purposes. In this case however, the proposer should be aware that in order to meet the overall quality requirements of the verification procedure, the Verification Body is obliged to check the quality management system of the test body by means of an audit. This activity will result in additional costs to be covered by the proposer.

The proposer plays an active role in drafting the test plan and execution of the tests. It is his responsibility to review, provide comments as requested and finally approve the test plan. For testing, the proposer will be requested to ensure access to the technology (e.g. provide, if relevant, the necessary number of technology/product units for testing, provide access to the field site etc.) or accessories, to provide user manual and if necessary training to the testing body on the operation of the technology etc.

Once the testing body is selected, the proposer is responsible for agreeing a contract it. The contract should ensure that the following activities are executed by the testing body:

- drafting a test plan in agreement with the Verification Body taking into account the requirements of the GVP and the specific verification protocol;
- performing the tests, ensuring the level of quality required in the specific verification protocol;
- ensuring quality of analysis used in the test and, when applicable, the compliance of analytical laboratories with the requirements of this GVP;
- drafting the report on the tests performed.

It is also important to underline that the final assessment of the total cost associated with the verification procedure when additional tests are needed may be possible only at that point.

Upon approval by the Verification Body and the proposer, the test plan becomes an integral part of the specific verification protocol. Once the tests are completed, the acquired test data is elaborated by the testing body in a form of a test report which is provided to the proposer and the Verification Body. The test report becomes an appendix to the verification report.

4 International Standardization Organisation. EN ISO 9001. Quality management systems – Requirements. 2008.

5 International Standardization Organisation. General requirements for the competence of testing and calibration laboratories. ISO 17025. 2005.

In some cases the proposer may choose to perform in-house tests to obtain the missing test data. For that purpose he can contract an independent test body, in coordination with the Verification Body, who will:

- review the testing plans elaborated by the proposer, in accordance with the relevant procedures or protocols and in agreement with the Verification Body;
- witness the testing done by the proposer,
- approve test reports if drafted by the proposer and if not done by the Verification Body.

The GVP includes also a set of requirements concerning the selection of an appropriate testing site to perform additional tests. The requirements concerning the testing site should be clearly stated in the specific verification protocol. The general requirements which must be considered when choosing the testing site are as follows:

- the site must be clearly related to the matrix, purpose and operational parameters defined for the verification.
- it must be accessible (e.g. the proposer must either provide access to the technology if installed at a field site or provide a requested number of its pieces when tested at the test body's site etc.)
- if the technology is installed and used at the field site, the site should be free from any commercial or other interests which could influence the test results.

In principle the field site should not be dependent upon the proposer. However, if this is the only option, it must be clearly explained and justified in the specific verification protocol together with a specification of measures ensuring that the tests will be performed in an independent way.

Once the tests are completed, the test data are summarized and presented in a form of a test report drafted by the test body. The test body submits the test report to the Verification Body for final data assessment and verification.

The proposer must approve the test report before the test body submits it to the Verification Body.

Step 7: Final data assessment and verification

The Verification Body collects all performance data i.e. both: accepted existing data if provided by the proposer and test data from the additional tests, and assesses: if the whole set of data is accurate and complete to verify the claimed performance, if it has been produced under the required procedures as defined in the specific verification protocol. It also reviews the procedures followed.

Also at this stage the additional information (see section Step 4) that was not a part of the verification procedures and was provided by the proposer under its own responsibility, may be considered by the Verification Body who shall assess its appropriateness and usefulness.

Based on the final assessment of data and revision of the applied procedures the Verification Body determines the final performance claim which can be considered verified under the EU ETV Pilot Programme.

Step 8: The verification report and Statement of Verification

The verification report together with the Statement of Verification are key products of the verification procedure determining the performance of a technology verified under the EU ETV Pilot Programme.

Both documents have a predefined content and structure (templates provided in the GVP) and rules and principles of use.

The verification report is a comprehensive summary of all verification activities carried out throughout the entire process. Its main parts include:

- a detailed description of the technology and its application,
- the verified performance,
- operational conditions under which the declared performance is achieved,
- all measurement uncertainties and relevant assumptions taken into consideration during the verification process,
- description of the tests performed and the obtained results,
- final assessment of all data from the test report and from acceptable existing data prior to verification,
- quality management and control procedures applied.

Also all relevant documents produced during verification such as the quick scan document, the proposal, specific verification protocol, the test plan and test report are included as appendices.

It is in the interest of the proposer to closely review and comment the verification report before it is approved.

The verification report is drafted by the Verification body while the proposer is responsible for approving it. Under the EU ETV Pilot Programme, the report is owned by the proposer. It may be published if the proposer agrees. This issue should be regulated by the contract for verification closed between the verification body and the proposer.

The Statement of Verification is a summary of the verification report. It is a short document of approximately 4 pages which includes:

- a summary description of the technology verified, complete denomination or reference number, purpose and conditions of use;
- the verified performance and the operational conditions under which it is achieved;
- a summary of the procedures followed by the Verification Body, and by test bodies where relevant, to verify the claim, including the statistical confidence range on specifications where applicable;
- any other information necessary to understand and use the performance claim; this may include information not verified under the EU ETV Pilot Programme, however this should be clearly stated and explained.

The Statement of Verification is a key output of the EU ETV Pilot Programme to be used by the proposer in any dealings with other organisations, for marketing purposes and for official approval. It may become part of the technical documentation of the verified technology.

The Statement of Verification is drafted and, after approval of the proposer, issued by the Verification Body who signs it and transfers to the European Commission services for publication. The document has a registration number, an ETV logo and a date of issuance.

There is no validity period defined for the statement but it is only valid as long as no major changes have been introduced to the technology which could have an effect on its performance. If changes have been are made, an assessment by the Verification Body will be required to assess if the Statement of Verification is still valid or needs update (see also Section 3.2). The proposer is obliged to report any such changes to the Verification Body.

How to use the verification report, the Statement of Verification and the ETV logo

In general, if the verification report is published, it should be published in full. In some cases the Verification Body may accept publication of parts of the report; however this may happen only if the legitimate interests of the proposer in relation to the verified technology, in particular intellectual property, could suffer disproportionately great harm because of the full publication of the report. Before publishing parts of the report, the Verification Body checks, that the parts to be published may not lead to any misinterpretation of the meaning or results of verification under the EU ETV Pilot Programme.

The proposers are recommended to make the verification report publicly available to make the verification result transparent and thus more attractive to the potential purchaser.

If the verification report is not publicly available, the proposer may be requested to provide access it by other Verification Bodies, by the Commission services, by national accreditation bodies and by members of technical working groups. If requested, the access should be granted under the condition of confidentiality. EU and national control authorities (including the EU Court of Auditors and Anti-Fraud Office) can request access under relevant procedures.

In the case when the proposer misuses the Statement of Verification i.e. violates the conditions of EU ETV Pilot Programme stated above, the Verification Body is authorised to withdraw the Statement. The Statement together with the verification report or parts of it, if published, shall then be removed from the web site on which it was published by the Commission services.

The Statement of Verification must be published in full and it cannot be used in parts for any purpose.

> The proposer should quote the Statement of Verification as follows:
>
> XX technology has been verified for the purpose PP in YY matrix by QQ Verification Body on DD.MM.YYYY. The Statement of Verification has been registered under number NN and is accessible at the following address: http://ec.europa.eu/environment/etv/index.htm or on the dedicated website designated by the Commission services.

Also the ETV logo alone cannot be used neither on products nor on published (printed, web or other) matter other than the Statement of Verification.

3. Verification completed – what's next?

3.1 Providing proposer's feedback

The contract for verification should provide appropriate provisions regulating the details of the proposer's feedback and procedure for its collection.

One year after completion of the verification process the proposer will be requested by the Verification Body who performed the verification to provide feedback on the added-value of ETV in the marketing of the verified technology and the economic and environmental benefits. This will be done in a form of a survey carried out by the Verification Body.

Verification Bodies will forward the collected feedback to the Commission services. The aim of gathering this information from the proposers is to monitor the usefulness of ETV for applying verified technologies and the acquired associated environmental benefit and thus allow for a continuous evaluation and improvement of the EU ETV Pilot Programme.

3.2 When changes are made in the verified technology

If there are any changes made in the verified technology, the proposer is obliged to report such information to the Verification Body. The information should be supported with a set of relevant data that will enable the Verification Body to evaluate whether the conditions for verification have changed. This evaluation will be performed at the cost of the proposer.

To report changes to a verified technology, the proposer should contact the same Verification Body who performed the verification process and issued the Statement of Verification.

> Substitution of one part of a verified technology with another with the same documented specifications is not considered a change.

If, after evaluation, the Verification Body concludes that the conditions for verification have changed, than alternatively:

- either the proposer engages in updating verification procedure
- or the Statement of Verification is withdrawn.

If a technology has already been verified but changes have been made to it which have an effect on the verification conditions, a new verification procedure may be performed according to a simplified procedure. Its scope may refer only to these parameters and conditions which are relevant for the changed parameters due to the modifications, unless serious reasons lead to use the complete procedure.

3.3 In case of complaints

There may be three types of complaints related to the ETV procedure:

- complaints related to specific technology verifications under ETV;
- complaints related to the competence or qualification of a Verification Body;
- complaints related to the EU ETV Pilot Programme procedures.

Complaints related to the verification of a specific technology should be made to the relevant Verification Body. A procedure for dealing with these complains together with the legal regime and competent legal authorities for the relations between the Verification Body and the proposer should be indicated in the contractual agreement signed by the two parties (see also section Step 5).

Complaints related to the competence or qualification of a Verification Body under the EU ETV Pilot Programme should be addressed to the national accreditation body which accredited the Verification Body for the EU ETV Pilot Programme. The quality manual of the Verification Body should provide relevant procedures to be followed that that case.

If the proposer lodges complaints related to the EU ETV Pilot Programme procedures, then he should contact the services of the European Commission co-ordinating the EU ETV Pilot Programme through the functional mailbox: ENV-ETV@ec.europa.eu

4. Using verifications in marketing at home, in Europe and globally

4.1 When ETV is most beneficial for marketing your technology

There is a number of cases in which ETV seems to provide the highest added value to for an environmental innovative technology which a proposer should take into consideration. These are in particular the following cases:

- no product standards exist which would express the claimed performance parameter of your technology;
- the innovative features are not adequately reflected by the existing standards;
- certification and / or standards which apply to your technology are unharmonised across EU;
- your technology offers better performance than your competitors even if the cost for the customer may be higher;
- the market you intend to enter is populated by relatively homogeneous technologies – ETV will confirm the distinctive features of your technology performance;
- your technology is a discrete product and a complete novelty on the market and there are no actual technologies the customer may compare it with;
- you are a new player on the market (domestic, EU, global) and your relationships with customers are not well established yet;
- you know well the specific needs and requirements of your clients (both industrial and public) towards the technical performance of a technology (e.g. a drinking water purity level higher than the standard) – the ETV may open a new market for you by proving the conformity of your technology with these needs.

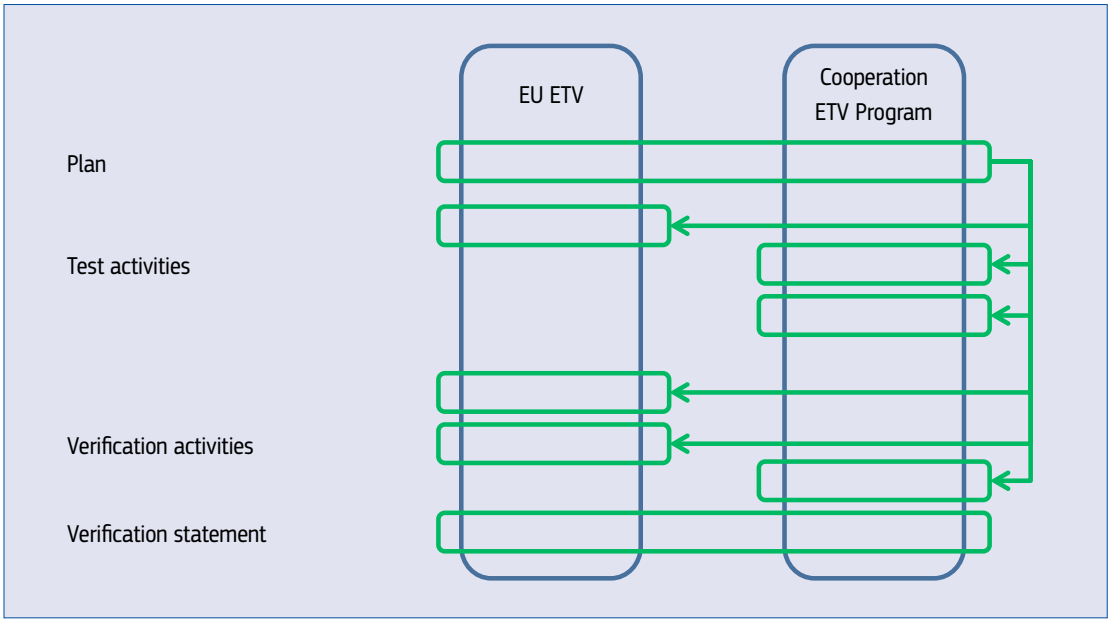


Diagram 3: Illustration of a joint verification procedure.

4.2 How ETV helps unlocking your global export potential: joint and co-verifications

Since markets for environmental technologies are becoming globalised, the expected benefits for a proposer of having a technology verified may increase signifficantly, if the verification results are recognised beyond the EU market. One way to achieve it is to have the verification process performed in cooperation between an EU ETV Verification Body and a Verification Body from another ETV programme in the world in particular in the U.S., Canada, Korea, Japan or the Philippines. China is also launching its own ETV pilot. A list of such programmes together with the addresses of their web sites is provided in Appendix 2.

The EU ETV Pilot Programme provides opportunities for cross-border verifications already now. From the technical point of view, the cooperation between the Verification Bodies of two different ETV schemes on the verification of an individual technology may be based on two collaboration models: joint or co-verification. Diagram 3 illustrates how such cooperation between two Verification Bodies of different ETV programmes may look like.

The verification procedure is carried out similarly as under the EU ETV Pilot Programme, only with a different distribution of roles and responsibilities between the cooperating Verification Bodies and testing bodies. The roles and responsibilities of the proposer remain in principle the same.

In the situation when a Verification Body is not able to perform a joint or co-verification, it should refer the proposer to another Verification Body who is likely to do so.

In the case when a candidate technology can be verified simultaneously by two ETV programmes and the Verification Body will undertake this effort, it will also determine which cooperation model is the most suitable for a specific verification procedure as well as guide the proposer throughout the procedure.

Key benefits of a verification performed in cooperation between two or more ETV programmes are as follows

- for technology proposer :
  - obtaining a Statement of Verification that is recognized under more than one verification programme;
  - minimizing the verification costs when aiming at more markets at the same time;
- for technology client :
  - gaining access to technologies verified under programmes he may not be familiar with while still having the benefit of relaying on a performance proof originating from a familiar verification programme vouching for the quality and validity.

It is recommended that already at the contact phase the proposer interested in a potential joint or co-verification should check with the Verification Body:

- if a joint or co-verification with a selected ETV programme is feasible;
- if the Verification Body will be able to perform a joint or co-verification.

5. Appendices

Appendix 1: List of national contact points and websites for the EU ETV Pilot Programme

In the European Commission	ENV-ETV@ec.europa.eu JRC-IET-ETV@ec.europa.eu website: http://iet.jrc.ec.europa.eu/etv/
In Belgium (Federal Public Service for Health and Envirovnment)	Jean-Roger Dreze e-mail: Jean-roger.dreze@health.fgov.be
In the Czech Republic (Ministry of Environment)	Marie Petrova e-mail: Marie.Petrova@mzp.cz Miroslav Hajek e-mail: Miroslav.Hajek@mzp.cz
In Denmark (Danish Environmental Protection Agency)	Gert S. Hansen e-mail: gesha@mst.dk website: http://www.etv-danmark.dk
In Finland (Ministry of Environment)	Merja Saarnilehto e-mail: Merja.Saarnilehto@ymparisto.fi
In France (Ministry of Industrial Renewal) (Ministry of Ecology, Sustainable Development and Energy)	Annie Larribet e-mail: Annie.larribet@finances.gouv.fr Michel-Louis Pasquier e-mail: Michel-louis.pasquier@developpement-durable.gouv.fr website: http://www.verification-etv.fr
In Poland (Ministry of Environment)	Izabela Ratman-Kłosiń ska e-mail: Izabela.Ratman-klosinska@mos.gov.pl etv@mos.gov.pl website: http://www.mos.gov.pl/kategoria/4675_etv
In the United Kingdom (Department for Environment, Food and Rural Affairs)	e-mail: ETV@defra.gsi.gov.uk

Appendix 2: List and websites of other ETV Programmes in the world

ETV	**US EPA Environmental Technology Verification (ETV) Program** www.epa.gov/etv
CANADA VERIFIED VÉRIFIÉE	**Canadian Environmental Technology Verification (ETV) Program** www.etvcanada.ca
NET	**Korea New Excellent Technology (NET)** www.koetv.or.kr/engpage.do?mode=engguid
Japan Environmental Technology Verification ETV Ministry of the Environment	**Japan Environmental Technology Verification** www.env.go.jp/policy/etv
etv PHILIPPINES	**Philippine Environmental Technology Verification** http://etvphilippines.ph
ETV	**EU Environmental Technology Verification (ETV) Pilot Programme** http://iet.jrc.ec.europa.eu/etv/
CETV	**China Environmental Technology Verification Pilot Programme** www.chinacses.org

Afterword: The AdvanceETV Project

Coordination Action on Environmental Technology Verification (ETV) – Building a framework for international cooperation

AdvanceETV was a coordination action on Environmental Technology Verification (ETV) funded by the 7th Framework Programme of the European Union between 01/2009 – 07/2012.

The overall target of AdvanceETV with its 12 partners from Germany, Spain, Sweden, Poland, Denmark, the Netherlands, Belgium, the UK, USA and Canada was to bring together the already proposed schemes and protocols prepared within the previous EU ETV activities and to link them with outcomes of already existing ETV systems worldwide.

Furthermore AdvanceETV aimed at building an international framework for cooperation and mutual recognition by supporting the cooperation of the European Commission and the international ETV activities, e.g. the International Working Group on ETV (IWG-ETV).

To achieve these aims AdvanceETV supported the development of the EU ETV Pilot Programme by drafting the General Verification Protocol (GVP) based on the analysis of former EU FP6 projects dealing with ETV. The GVP is the main technical reference for the implementation of ETV procedures and co-ordination at the European level.

In order to show how ETV could be used as a supportive tool for other policies, regulations and voluntary schemes potential complementarities were assessed in the framework of the project.

AdvanceETV has also helped develop a framework for international mutual recognition on ETV, in particular by drafting a framework for co-/joint verification at international level tested on real verifications with US, Canada and EU. Several AdvanceETV partners contributed to the work of the IWG-ETV by the preparation of requirements for an ETV programme laid down in the documents “ETV Framework and Policy” and “ETV Procedure”, which are used for the development of a new ISO-ETV standard.

In several conferences and workshops AdvanceETV informed the stakeholders (technology providers, technology purchasers/ users, policy makers) about the principles of ETV and the current status of ETV in Europe and internationally.

More information on AdvanceETV and reports addressing the achievements of the project are available at www.eu-etv-strategy.eu.

Developed and Published within the EU FP7.
Projet AdvanceETV
Grant Agreement No. 226824

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Graphic design: PM-GrafikDesign, Wächtersbach, Germany
www.pm-grafikdesign.de

Edition 1
2012