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Integrating ETV into Horizon 2020 proposals

Environmental Technology Verification (ETV) is a new instrument to establish or confirm the performance of innovative environmental technologies. The technology performance, i.e. how far the technology delivers the service expected, is verified on the basis of tests undertaken under strict conditions of quality. The parameters to be verified should reflect the main purpose of the technology and, as far as possible, the innovative features and environmental aspects of the technology. ETV is useful in particular where these features are not covered by existing technical standards. The parameters to be verified, in addition to being quantified and verifiable through tests, should be specific to the technology and measured in a replicable manner. The exact application tested, the conditions of use and tests and the accuracy of results or range of confidence should be clearly indicated with the verification results.

After several research projects, the European Commission has launched a pilot ETV programme in order to experiment the approach at EU level. ETV is implemented by 'Verification Bodies', accredited as inspection bodies under ISO 17020 by national accreditation bodies. The ETV procedure follows the 'General Verification Protocol' established for the pilot programme[1].

In this context, ETV is referred to in 4 items of Horizon 2020 work programmes 2014-2015[2] with a view to support the implementation and evaluation of the ETV pilot programme and to support the emergence of innovative environmental technologies. It is of course possible to undertake verification under ETV in research fields not covered by those 4 items. Also, undertaking verification under ETV is not mandatory for proposals to the 4 items where ETV is referred to: it is up to the project leaders to decide if ETV is relevant for their particular projects.

For those proposals willing to integrate ETV, the following rules and comments may help:

1. **The technology must be ready for market at the time of verification (TRL 7 or above).**

In order to be reliable and useful for technology users, information on the performance of a technology needs to be established at a stage where no further development will impact this performance, i.e. when the technology is ready for the market. For R&I proposals, this means that where a technology is developed or demonstrated during the project, verification can only be planned after the development stage, possibly during the demonstration stage if tests under strict quality control can be implemented at this stage. In terms of technology readiness levels (TRL), using the scale developed for Horizon 2020, it is estimated that TRL 8 or 9 are

[1] Available on the ETV website at: http://iet.jrc.ec.europa.eu/etv/reference-documents

[2] In the WP on climate action, environment, resource efficiency and raw materials: WASTE-1-2014 and WATER-1-2014/2015; in the WP on secure, clean and efficient energy: EE 2-2015 and LCE 8 – 2014.

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appropriate for ETV verification; TRL 7 is also possible under certain conditions. For more info, eligibility criteria to ETV are discussed in the Guidance Document 003, available [soon] at: http://iet.jrc.ec.europa.eu/etv/reference-documents

2. Verification is one step in marketing a technology successfully, not a goal in itself.

ETV should not be seen as an isolated activity. It should rather be considered as a tool and a step in a wider strategy to bring a technology from development and demonstration to its marketing and wider diffusion. In particular, ETV is more useful when the technology developer has clearly identified the exact application of the technology, the needs of users in terms of information on performance and environmental aspects, the technical and/or innovative feature making the technology unique on the market and the parameters corresponding to this unique feature and to users' needs. The ETV 'Guide for Proposers' may help decide whether and when ETV is useful to a technology project and how to plan verification under ETV. It can be downloaded at: http://iet.jrc.ec.europa.eu/etv/technology-proposers

3. ETV can be undertaken only by accredited Verification Bodies.

In order to be fully reliable, technology verification under ETV must be undertaken by qualified and independent third parties. This is ensured by the accreditation of Verification Bodies participating in the EU ETV pilot programme. Their accreditation as inspection bodies type A under ISO 17020 and their use of a common ETV methodology, agreed at EU level, ensures the recognition of ETV procedures and results in the whole EU and more credibility also on international markets. The list of accredited Verification Bodies and their scope of accreditation is available at: http://iet.jrc.ec.europa.eu/etv/verification-bodies

4. The Verification Body must be independent from the technology developer.

A key requirement on Verification Bodies under ISO 17020 is independence from technology developers and users:" They shall not be engaged in the design, manufacture, supply, purchase, ownership, use or maintenance of the items inspected." This has important consequences on the design of partnerships for R&I projects: if the Verification Body is part of this partnership, it shall not be involved in the development or marketing of the technology to be proposed for verification, and it shall not share ownership of this technology. A solution may be that the Verification is considered as a sub-contractor of one of the partners, rather than a partner itself, if this is possible in the partnership design and acceptable to all partners. This is an important issue to be fixed at proposal stage.

5. Integrating ETV means also integrating the tests whose results feed into an ETV process.

The verification of a technology performance under ETV is based on the results of tests undertaken by qualified testing bodies under strict quality assurance and control conditions. The tests may be performed by an ETV Verification Body (with separation of responsibilities) or by another testing body under the control of the Verification Body. The tests are generally more expensive than the verification procedure per se. It is therefore advisable to plan carefully the testing of the technology to be verified as an integral part of the R&I proposal and to plan an appropriate budget for that. It should be noted that the detail of the tests to be performed may be known only during the verification procedure. It is advisable to discuss an estimate of the tests likely to be needed and their cost with the Verification Body when drafting the project proposal. The requirements on testing bodies and on the quality of test data are described, together with the verification procedure, in the ETV 'General Verification Protocol'. (see note 1)