

# FACT SHEET: ETV SUPPORTS ENERGY TRANSITION AND NET-ZERO TECHNOLOGIES



Energy transformation and the achievement of the related EU targets by 2030 i.e. reduction of GHG emission by 55%<sup>1</sup> compared to 1990, reduction of energy consumption by 11.7%<sup>2</sup> relative to 2020, increase in the share of renewable energy sources to 42,5% or production of 10 million tons/year of renewable hydrogen are directly linked to the widespread deployment of innovative energy technologies in all sectors. The European Commission Net Zero Industry Act<sup>3</sup> calls for technological development, production and installation of net zero energy technologies and products to support reaching both the 2030 climate and energy targets and the 2050 objective of climate neutrality.

## Zero-net technologies at a glance

**Net zero technologies include a wide variety of technical solutions: solar photovoltaic and solar thermal, onshore wind and offshore renewable energy, batteries and storage, heat pumps and geothermal energy, electrolyzers and fuel cells, biogas/biomethane, carbon capture, utilisation and storage, grid technologies, sustainable alternative fuel technologies, advanced technologies to produce energy from nuclear processes with minimal waste from the fuel cycle, small modular reactors, and related best-in-class fuels.**

According to the International Energy Agency, the global market for key mass-manufactured net-zero technologies will triple by 2030 with an annual worth of around EUR 600 billion.

In March 2023 the European Commission put forward – Net Zero Industry Act (NZIA) which aims to provide predictability, certainty, and long-term signals to incentivise investments in EU net-zero technology manufacturing.

NZIA proposal distinguishes between two categories: ‘strategic net-zero technologies’ and ‘net-zero technologies’, with the former being a subset of the latter as well as innovative net zero technologies. The level of benefits and support a zero-net technology may be granted under NZIA provisions depends on the category to which it belongs. The key classification criteria include:

- ✓ technology readiness level;
- ✓ contribution to decarbonisation and competitiveness; and
- ✓ security of supply risks (in terms of strategic imports dependencies).

Extra benefits are foreseen for the strategic net-zero technologies i.e. with TRL level at a minimum 8 (first of-a-kind commercial – commercial demonstration, full-scale deployment in final form), projected to deliver significant contribution to the Fit-for-55 target.

Net-zero technologies may face, however, some challenges limiting their implementation. They may be related to insufficient TRL advancement, administrative burdens connected with legal framework issues and permitting issues, lack of skills, as well as environmental and technology considerations and public concerns. NZIA addresses these challenges proposing actions for improving investment certainty by enhancing information, reducing the administrative burden to set up projects and simplifying permit-granting processes, stimulate innovation by setting up regulatory sandboxes to test innovative net-zero technologies under flexible regulatory conditions as well as the requirement to consider sustainability and resilience criteria focused on environmental sustainability, innovative characteristics of the proposed solutions for net-zero technologies in public procurement.

1. ‘Fit for 55’ main binding target

2. Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency

3. REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on establishing a framework of measures for strengthening Europe's net-zero technology products manufacturing ecosystem (Net Zero Industry Act) Brussels, 16.3.2023 COM(2023) 161 final (Proposal)

Environmental Technology Verification (ETV) is a scheme tailored to address the performance demonstration needs of new and even disruptive environmental technologies in a credible and objective way. The scheme is aimed to help companies that are developing innovative environmental technologies resulting in a reduced environmental impact reach new markets.

## ETV: an internationally harmonised and recognised scheme

Historically, ETV in Europe was established in 2012 at the EU level as a Pilot Programme of the European Commission. It contributed significantly to the development of a globally harmonised ETV process adopted in 2016 as an internationally recognised standard ISO 14034<sup>4</sup>: Environmental Management: Environmental Technology Verification (ISO 14034:ETV). Approved in many EU countries as a national norm, the standard eventually became a European Norm in 2019. At international level, the standard provides the basis for performing independent verifications of new environmental technologies in such countries as Japan, South Korea, US and Canada, Philippines with ETV developments ongoing also in China, Malesia and Indonesia..

Since 2022 ETV operates in Europe as an ISO 14034 ETV based voluntary scheme without the support of the European Commission.

## ETV: An ideal tool for proving performance of green innovations

ETV offers a robust and credible process for third-party verification of performance claims made by technology providers based on test data generated under controlled quality. ETV allows bespoke performance parameters to be defined which enable a technology's characteristics to be fully assessed. It allows proving technology performance which falls outside the bounds of existing regulations or standards or is not covered by standardised performance frameworks. Therefore, ETV is the ideal tool for green innovations for industrial applications.

## ETV: The quality and impartiality assurance

Compliance to standard ISO 17020<sup>5</sup>: Conformity assessment – Requirements for the operation of various types of bodies performing inspection for type A inspection bodies ensures that the Verification Bodies performing ETV according to ISO 14034 are competent and impartial. Test data used to verify the performance claim must be generated following the requirements of ISO 17025<sup>6</sup> General requirements for the competence of testing and calibration laboratories which ensures its quality control.

## ETV: The relevance of information

The key output of ETV is the Statement of Verification which holds the status of an inspection body certificate in the meaning of ISO 17020. It provides information about the verified technology performance parameters relevant for:



technology manufacturers as a proof of technology's performance credibly assured towards their peers,



technology purchasers and users to identify innovative solutions which address their environmental needs and challenges and help make their value chains and operations more sustainable,



permitting and regulatory bodies to understand the technology and get trustful evidence necessary for informative permitting or compliance decisions,



investors and funding bodies to ensure that their decisions on investments and financial support are environmentally sustainable and result in a reduced environmental impact.

4. ISO 14034:2016 Environmental Management: Environmental Technology Verification<sup>2</sup>

5. ISO/IEC 17020:2012 Conformity assessment – Requirements for the operation of various types of bodies performing inspection

6. ISO 17025:2017 General requirements for the competence of testing and calibration laboratories

# ETV for net-zero technologies

Simple acknowledges that a technology has a significant role in reaching net-zero may be not sufficient for a technology to be recognised as a net-zero alternative and benefit from relevant provisions of NZIA. Therefore, information about the technology, its performance and TRL level may need to be proven in an open and transparent way.

ETV may deliver credible and objective evidence to classify a net-zero technology by considering the following criteria:

- demonstration of the TRL level
- contribution to net greenhouse gas emissions in terms of verification of relevant performance parameters.

Additionally, ETV may complement this information by delivering verified data pertaining to the environmental considerations which may be relevant for permission granting bodies or regulators in addressing the environmental impact assessments

especially when a technology requires new processes and materials.

ETV may also provide proofs to demonstrate the improved sustainability and performance of the manufactured net-zero technologies for the needs of net-zero strategic projects and access to finance as one of the criteria considered.

For innovative zero-net solutions, i.e. below TRL 8, which are not currently available on the market and are advanced enough to be tested in a controlled environment, ETV may serve as a supporting scheme for the proposed regulatory sandboxes, being particularly relevant for SMEs. ETV may be used to demonstrate the genuine innovation of the technology in order to confirm the adequacy of project in terms of technology performance and its sustainability or to prove its viability and environmental effects in a new intended application of the existing technology.

Until now about **9 technologies** have been verified under ETV that are supporting energy transition in Europe, whether by producing energy from renewable sources, increasing energy efficiency, transforming green energy or producing renewable fuels.

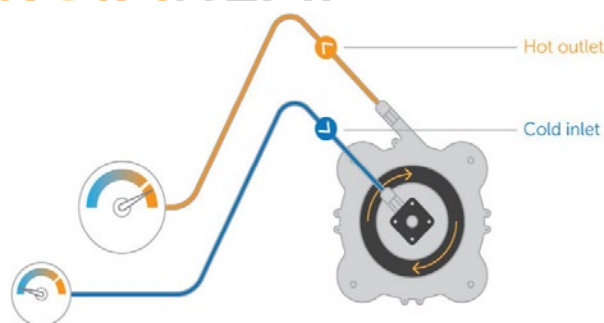
Technology name	Technology function	Producer/provider	ETV SoV No:
<b>Energetic System Li-Mithra</b>	A complex renewable energy system for domestic use composed of a heat pump and photovoltaics combined with heat absorbers.	Li-Mithra Engineering, France	VN20170029
<b>SmartCimSystem</b>	System for minimizing energy losses in heating networks by using smart active nodes.	Giacomo Cimberio S.p.A, Italy	VN20170028
<b>Low Pressure PULSE Air Test Process</b>	Analyses of the building's pressure response and calculation of air permeability as an energy efficiency factor.	Build Test Solutions Ltd, UK	VN20190035
<b>LIGNO-ENZYM</b>	Intensification of methane production from organic waste in biogas plants.	CONFORMITY, s.r.o., Czech	VN21210045
<b>Periodic anaerobic bioreactor ANABIOREC</b>	Generation of large quantities of biogas from the separated organic fraction of municipal waste used for renewable energy production.	NOVAGO Sp. z o.o., Poland	VN20190037
<b>BIOMASSER® briquetting machines</b>	Conversion of non-wood wet biomass to biofuel in the form of briquettes.	Asket Roman Dlugi, Poland	VN20140001

Statements of Verification of these technologies are available on the European Commission website: [https://green-business.ec.europa.eu/eu-environmental-technology-verification\\_en](https://green-business.ec.europa.eu/eu-environmental-technology-verification_en)



## Presentation of three net-zero technologies verified under the ETV scheme

### ROTAHEAT



**Rotaheater** is technology to convert motive power sources directly to thermal energy with outputs ranging from 3 to 200 kW. Rotaheater can be integrated with wind turbines, water wheels, water turbines, tractor PTOs, hydraulic motors and AC/DC motors.

#### Performance verified under the ETV scheme

Minimum power conversion efficiency:

Rotaheater micro – **98.8%**

Rotaheater pico – **95.9%**

**Technology provider: Rotaheat Ltd., UK**

**ETV Statement of Verification no: VN20220051**

**FUELCONTROL®** is to measure fuel moisture content and to detect foreign objects and register its size in real time, when the biofuel is transported by a conveyor, to better optimize and control power plants combustion processes.

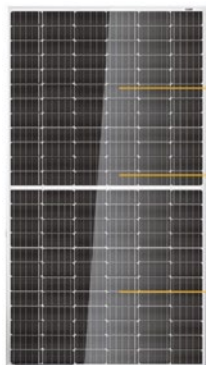
#### Performance verified under the ETV scheme

The difference in humidity level between manual sampling and FUELCONTROL®: forest residues – 2.7%, bark – 3.3%, sawdust – 0.2%

Identification of foreign objects: **86%** of added metal nuts were found and **75%** of stones were found.

**Technology provider: Inray Oy Ltd, Finland**

**ETV Statements of Verification No: VN20190038**



335 Wc  
+9.8%

744 W

Rendement à  
plus de 60%



**Cogen'air** is a hybrid solar panel which connects a sealed collector combined with a heat exchanger to a standard photovoltaic panel. It has the dual advantage of recovering the heat produced by the sun and increasing the electrical output by cooling the PV panels.

#### Performance verified under the ETV scheme

Maximum thermal power 744 W ± 15W

Reduction of the PV panel by 20°C results in the increase of Pmax by **9.8%**

**Technology provider: Recyouest, France**

**ETV Statement of Verification No: VN2015008**

# LIFE PRO ETV

lifeproetv.eu



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