

■ TURBOSOL® • HEAT-TO-POWER TURBINES

Industrial waste heat recovery – made **simple and profitable**

Combined low-carbon electricity and useful heat, recovered directly from your industrial flue gas.

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■ THE CHALLENGE WE TAKE ON

70%
of industrial energy
is lost as waste heat.

Waste heat is a massive, under-exploited resource – and the opportunity HEVATECH was built to seize.

Across Europe, **305 TWh** of recoverable waste heat (> 100 °C) are lost every year – as much energy as **12 EPR reactors** or **10,400 wind turbines** of 5 MWp. HEVATECH turns that lost heat into on-site electricity and useful heat.

Energy entering a typical industrial process → where it ends up

Useful heat 20 – 40%

Recoverable waste heat 25 – 70%

Other losses 5% – 15%

■ THE COMPANY

HEVATECH – French specialist in industrial waste heat recovery

Founded in 2010 in Saint-Paul-Trois-Châteaux, HEVATECH designs, manufactures, assembles and installs industrial waste-heat recovery machines, with in-house expertise in fluid dynamics, mechanical engineering, processes, control systems and testing.

2

Production and R&D sites

9

Families of patents

12 yrs

Of in-house R&D

8–9

Technology readiness (TRL)



Measurement & audit of waste-heat sources, to size every project, with the best available waste-heat technologies.



The unique, **reliable and low-opex** two-phase turbine that turns waste heat into power and heat.

Waste-heat to
CHP

90%
efficiency



Turnkey financing for industry – we finance & operate. Savings from day one.



HEVATECH assembly workshop – Saint-Paul-Trois-Châteaux, France

■ APPLICATIONS · USE CASES

Proven on real industrial waste heat

TURBOSOL cogenerates electricity and useful heat from hot, fouled, or abrasive flue gases, or hot fluids.

TARGET SECTORS

Cement

Glass

Incineration

Metallurgy

Foundry

Steelmaking

Chemicals

STANDARD APPLICATION CASE · INDICATIVE MODEL

Typical industrial site – flue gas at 300 °C, payback 2.9 years

Mid-sized cement plant, France · fouled, abrasive flue gas · recovered heat reused for raw-material drying and process reinjection.

STARTING POINT

HOT FLUE GAS
6,000 kW
at 300 °C



TURBOSOL
captures 2,500 kW



ELECTRICITY

245 kWe

USEFUL HEAT

1,950 kW

5,191 t/yr
CO₂ avoided

1,154 k€/yr
Projected savings

2.9 yr
Payback (excl. subsidies)

88 %
Overall efficiency

57 €/MWh
LCOE electrical

17 €/MWh
LCOH thermal

ASSUMPTIONS Electricity 85 €/MWh · Heat 40 €/MWh · Carbon 70 €/tCO₂ · 8,000 h/yr · OPEX <3% · CAPEX 3,400 k€

RECOVERED HEAT, ALSO PUT TO WORK FOR



Building heating



Process heating



Drying



Process steam



Evapo-concentration



Water purification



Cooling



ORC coupling



Zero-CAPEX – the turnkey financing solution for industry

1 BUILD

0 € in CAPEX

No upfront investment – HEVATECH finances, installs and commissions. Turnkey works in 8–10 months.



2 OPERATE

0 € in OPEX

Performance & availability guaranteed for 4–8 years. You keep 15% of the savings, risk-free, from commissioning.



3 TRANSFER

100 % of savings

At the end of the contract, ownership is transferred – 100% of the savings go to you. Optional maintenance contract available post-transfer.

■ VALUE PROPOSITION

TURBOSOL – simple, robust and profitable waste-heat recovery

Combined heat and power

TURBOSOL is designed to produce both power and heat, reaching a higher overall efficiency than traditional heat-to-power technologies.

No hazardous fluids

Only water/steam and thermal oil are used – no hazardous fluids (usually exempt from hazardous substance regulations).

Reduced CAPEX

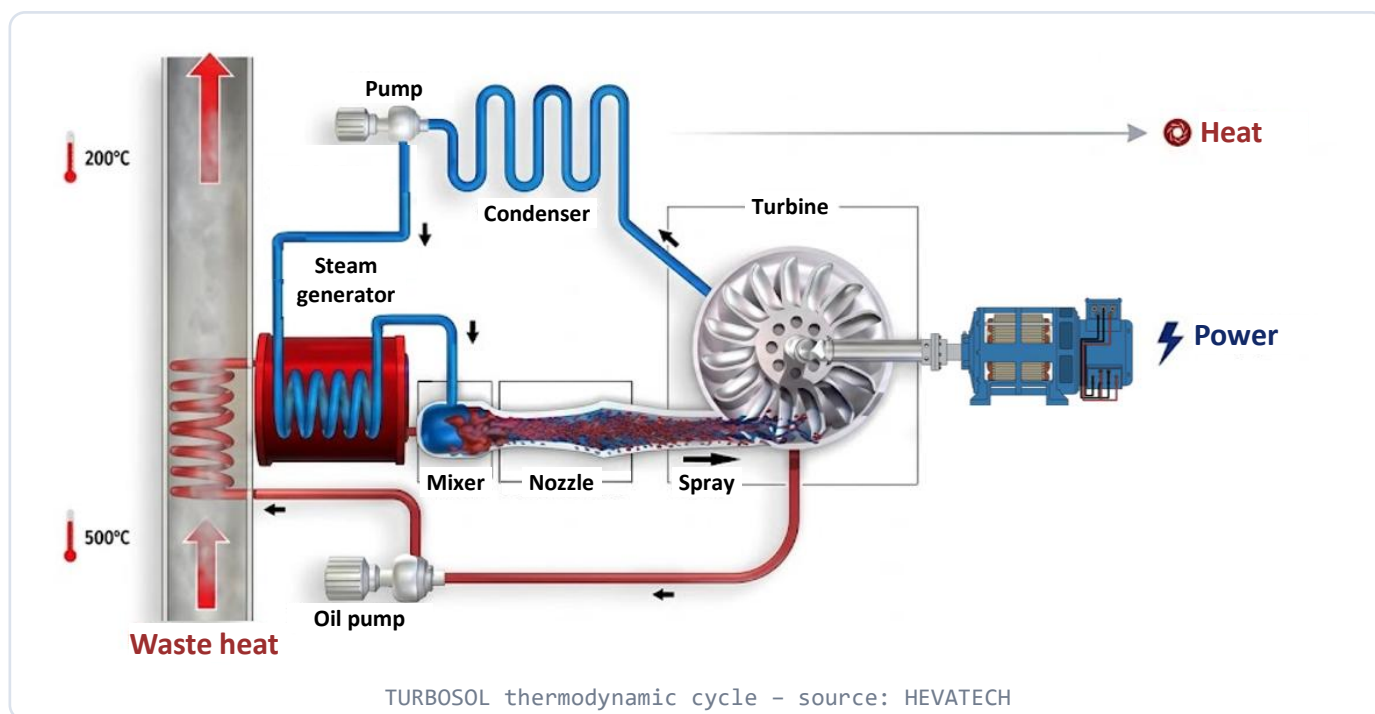
~1,000 €/kW installed (electrical + thermal).

OPEX controlled over time

Robust, maintainable technology by design. Standard equipment. Few moving parts, low rotation speed preferred.

■ THE TECHNOLOGY

A thermodynamic cycle designed for waste heat

**A** A simple, original principle

At the heart of the process: converting thermal energy into the kinetic energy of a two-phase fluid. Thermal oil and steam are the only working fluids. Overall efficiency reaches ~90%.

B Robust and protected

Designed from the outset to run at low speed (~1,500 rpm), with few moving parts. 9 patent families protect the process at TRL 8–9.

C Modular by design

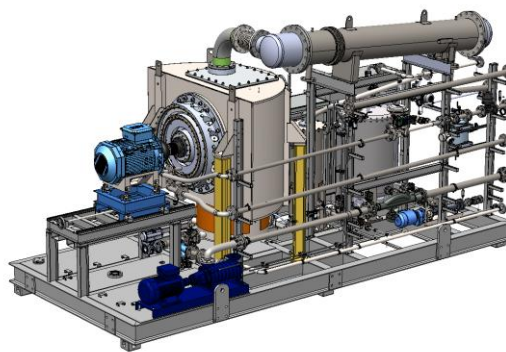
One standard core scales from 26 to 245 kWe by duplicating the two-phase injectors that feed the turbine – keeping costs down and ROI short.

From heat to value

TURBOSOL recovers the site's lost energy – delivered as on-site electricity and useful heat at ~90% overall efficiency, with a typical 2–4 years payback.

■ **TURBOSOL® RANGE****Modular range – from 26 to 245 kWe**

A single standardised core, sized to each site by adding two-phase injectors. Cogeneration of net electricity plus recoverable heat (hot water up to 120 °C), in one compact and containerisable module.



	TS-30	TS-60	TS-160	TS-250	> TS-250 * up to 1 MW · coming soon
Net electrical output	26 kWe	58 kWe	146 kWe	245 kWe	~1,000 kWe
Heat output (steam or water up to 120 °C)	380 kWth	755 kWth	1,890 kWth	3,050 kWth	~12,450 kWth
Number of injectors	2	4	10	16	–
Module dimensions	6.0 × 2.4 × 2.6 m				–
Weight	7,9 t	9,1 t	10,5 t	11,8 t	–

The range covers every injector configuration from 2 to 16 – intermediate ratings are available between the models shown. Outputs above TS-250 (up to ~1 MW electrical) are indicative, scaled pro rata, and coming soon.

Heat source

≥ 1,000 kW · 200 to 1,000 °C · sized via a MAEVA study

Electrical grid

400 V · three-phase · 50 Hz

Installation

Indoor or containerised · cold source included or flange-connected

Working fluids

Water and thermal oil only

Control

Industrial PLC (Schneider, Siemens...) · 24/7 remote monitoring

Standards

Machinery 2006/42/EC · PED 2014/68/EU · Directive 2014/35/EU

Sized with MAEVA · delivered as a Zero-CAPEX, Zero-OPEX turnkey project

A MAEVA study characterises your waste heat and de-risks the project. With Zero-CAPEX, HEVATECH finances, installs and operates the system – you keep a share of the savings from commissioning, and 100% at the end of the contract.

**HEVATECH**

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**Talk to us about
your waste heat →**