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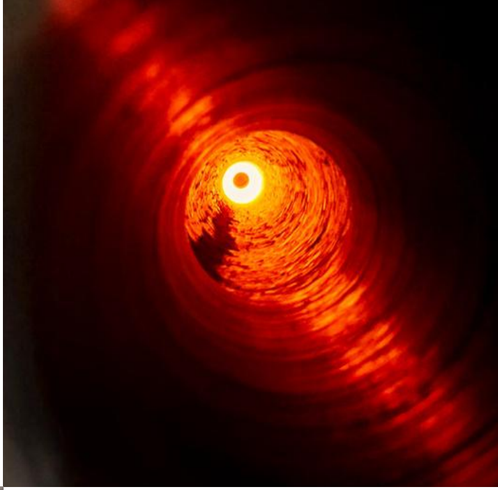
Looper®

Waste-to-Hydrogen System



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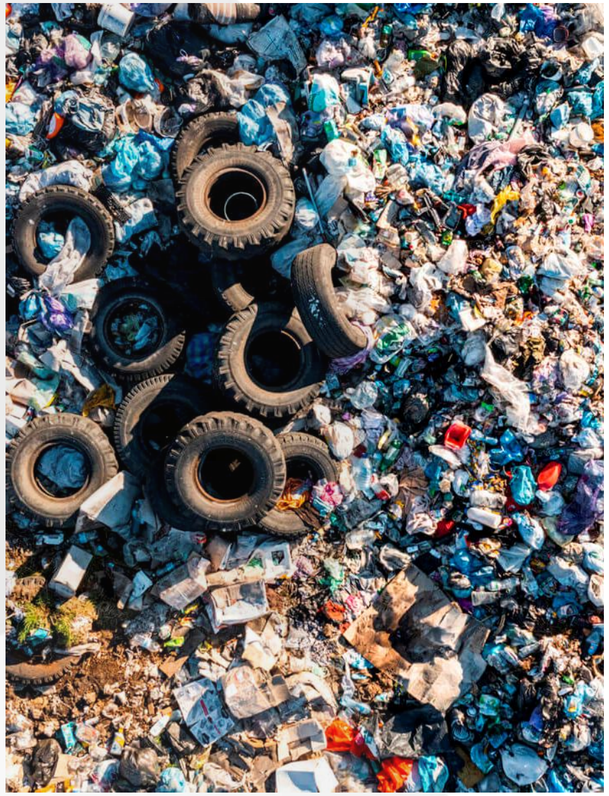
WHAT WE DO?

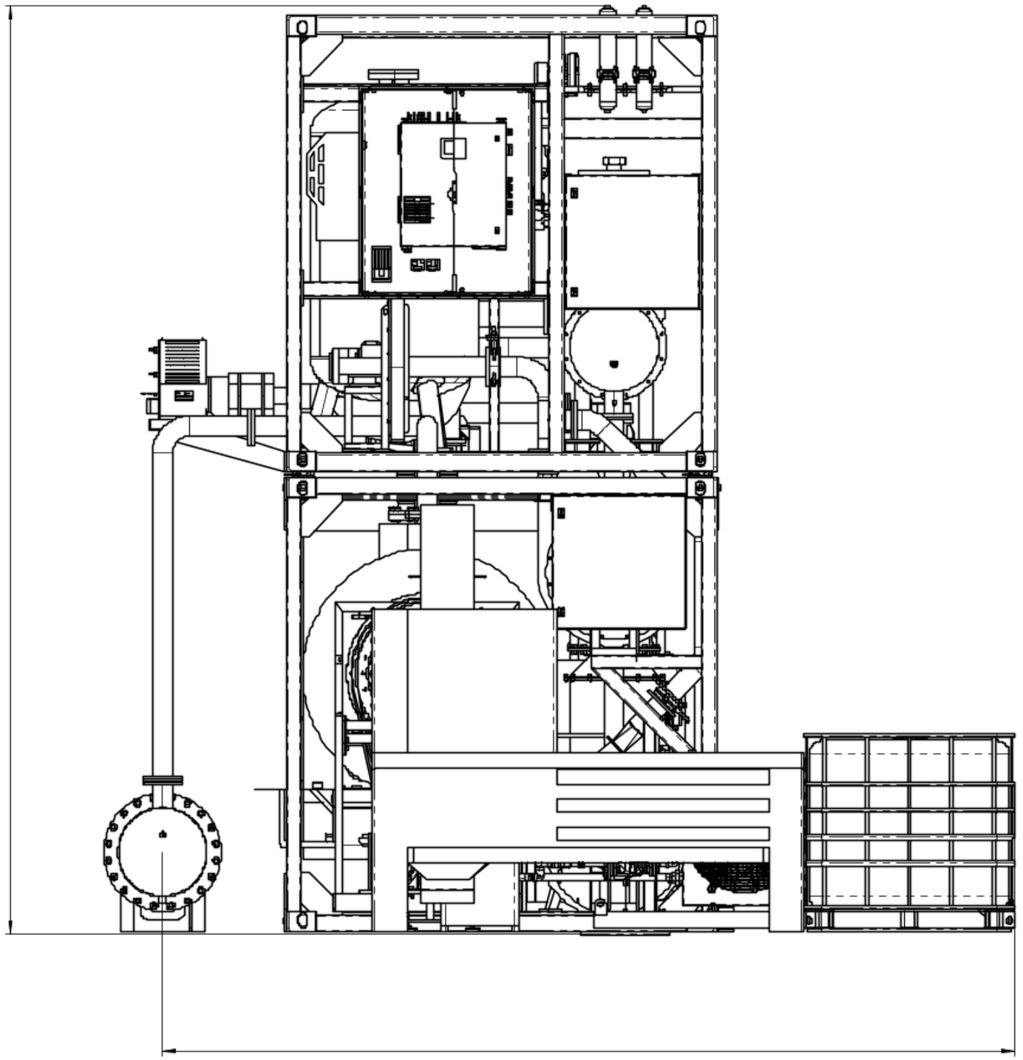
... we convert waste into hydrogen rich syngas and carbon rich solid residues

HOW WE DO IT?

With our waste to hydrogen system LOOPER®

Thermochemical process for converting carbon containing waste materials into **hydrogen rich syngas** and **carbon containing solid residue.**



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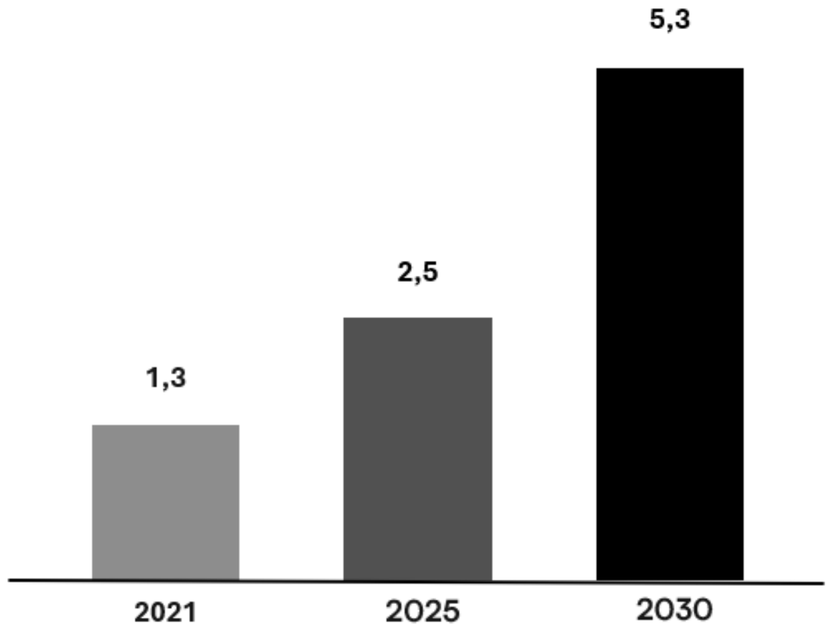
WHY WE DO IT?

Global clean hydrogen market growth (EUR billion)



Source: Precedence Research

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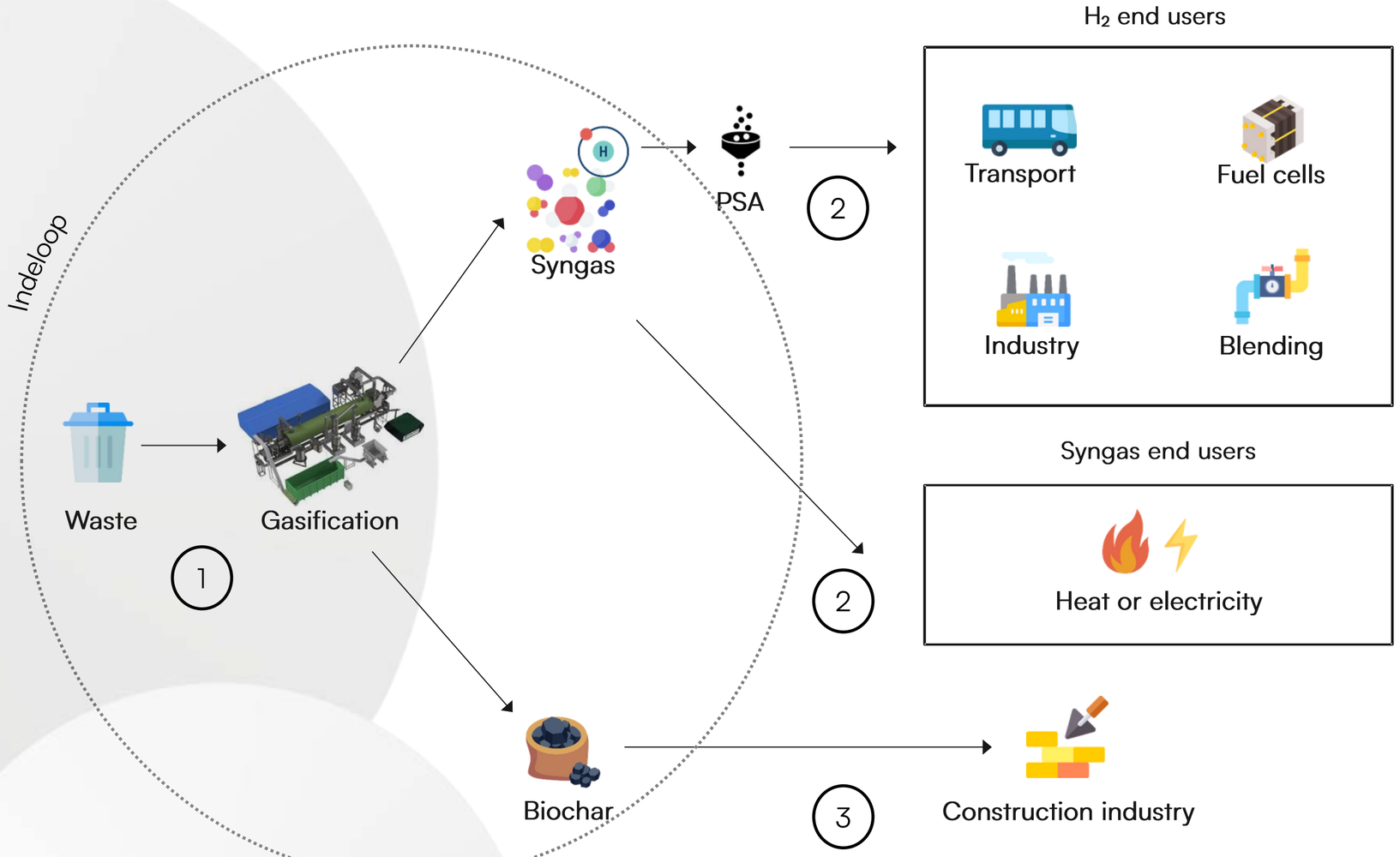
How Looper supports green energy transition and generates revenue?



3 main revenue sources:

1. Disposal fee: end-user doesn't have to disposal fee for waste material
2. Hydrogen/syngas: the hydrogen can be sold to off-takers or used for hydrogen blending (injection in the natural gas network)
3. Byproduct biochar: the biochar can be sold to construction industry

CO_2 savings!

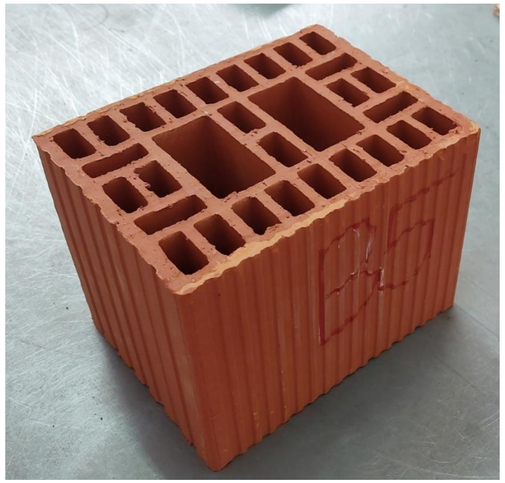
WHAT TO DO WITH OUTPUTS OF THE LOOPER® PROCESS?

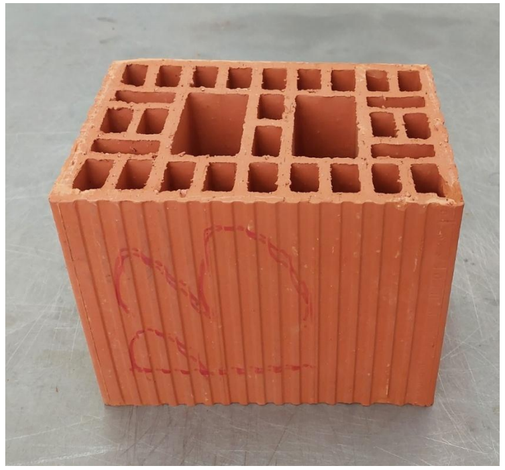
Hydrogen rich syngas is used to **generate energy** and solid residue rich in carbon is used in the **construction industry.**

Hydrogen rich syngas

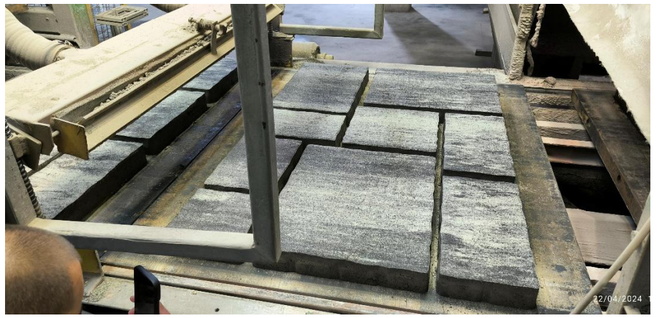
MWMGS

BRAVOBRICK





ASHCYCLE



Biochar

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OUR R&D PROJECTS

Innovasjon Norge

by funding MWMGS

Development of the Looper capable of converting 1 tonne of textile waste per day into syngas.

INDY

THE EUROPEAN DEFENCE FUND

European Defence Fund by funding INDY

Implementation of Looper in military camps

Horizon Europe

AshCycle

Horizon Europe by funding AshCycle

As part of this project, the solid residues from Looper are being tested for various valorisation options, including P extraction, use in bricks, geopolymers, concretes, and other applications.

Horizon Europe

NAHV North Adriatic Hydrogen Valley

Horizon Europe by funding NAHV

Initiative between Croatia, Slovenia and the Italian region of Friuli-Venezia Giulia to produce 5,000 tonnes of hydrogen per year. The new 1-tonne Looper will be one of the solutions that will help to achieve this goal.

OUR BUSINESS MODEL

Current Funding (R&D & Scale-up Phase):

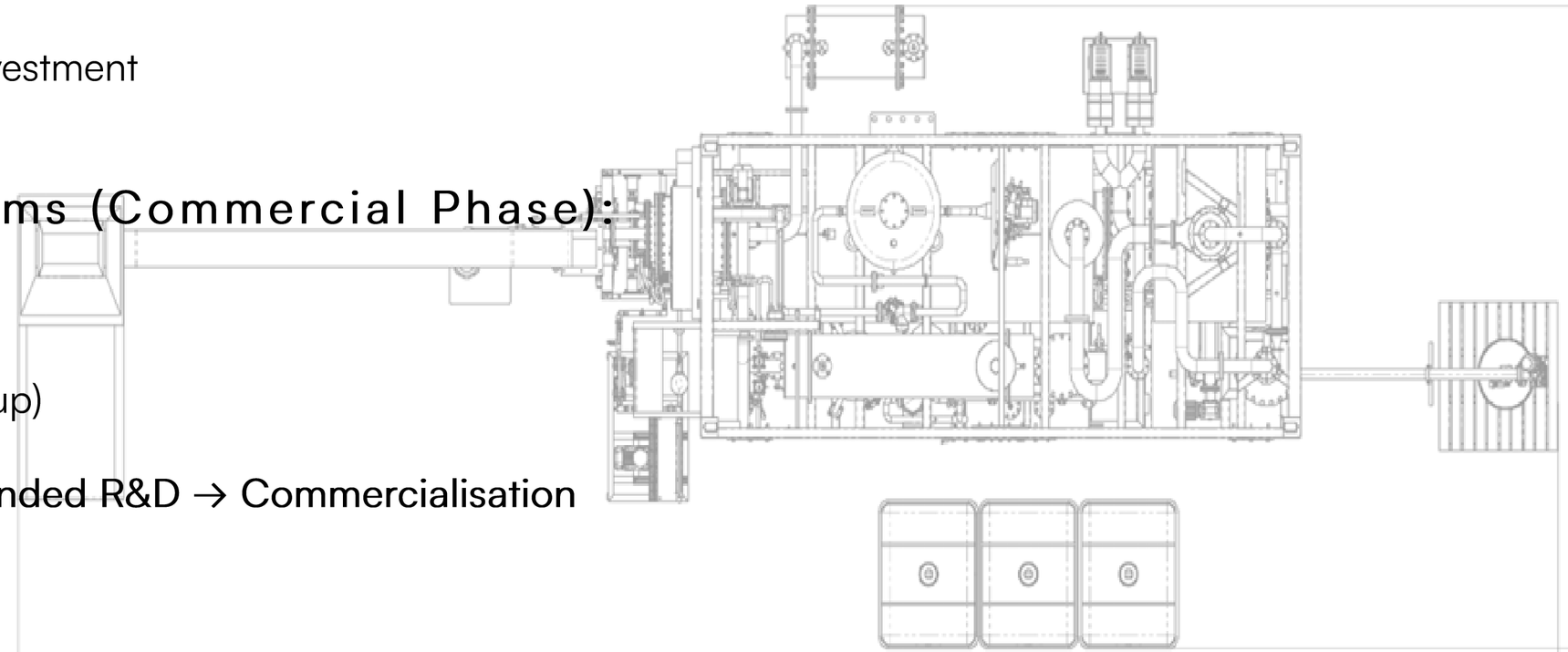
~70% from EU & national programmes (e.g., Horizon Europe, Innovation Fund, national calls)

~30% from own capital & reinvestment

Target Revenue Streams (Commercial Phase):

Technology licensing
Custom pilot plant delivery
Industry partnerships for scale-up)

Transitioning from Publicly-Funded R&D → Commercialisation



GO TO MARKET STRATEGY

Initial Market Entry Strategy

Pilot and demo projects with selected industry partners
Leverage EU networks and existing consortia (Horizon Europe, Innovation Fund)
Use regulatory incentives as market enablers

Target Markets

Municipal wastewater treatment plants
Waste management operators dealing with non-recyclable biogenic waste
Textile and chemical industry
Industrial decarbonisation projects (Hydrogen users)

Scale-Up Strategy

Modular systems for regional replication
Licensing model with partners for local deployment

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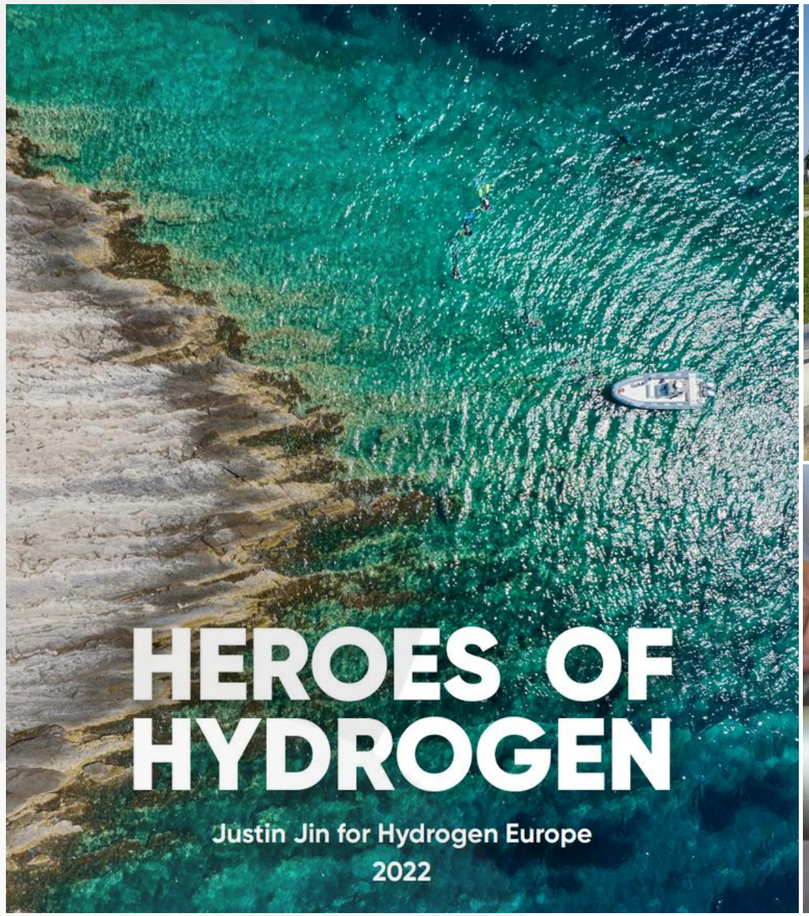
MARKET POSITIONING / COMPETITIVE LANDSCAPE

Our Competitive Edge in Waste-to-Hydrogen Conversion

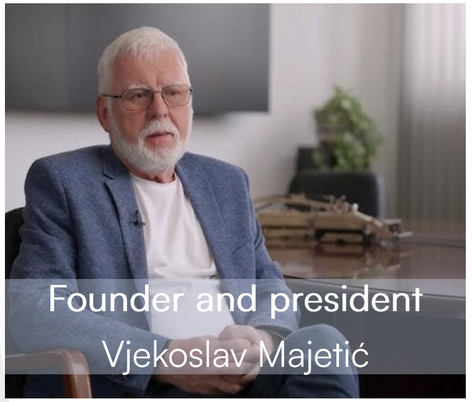
Feature / Capability	Our Solution	Typical Competitors
Technology Readiness (TRL)	TRL 6+ for key components	TRL 3—5 (mostly lab-scale)
Feedstock versatility	Non-recyclable waste materials (e.g. biowaste, sewage sludge, textile waste, plastics)	Often limited to biomass
Product valorisation (syngas & biochar)	Hydrogen-rich syngas and biochar — both valorised	Often focus on syngas only
System flexibility	Syngas usable for H_2, chemicals, or energy — partner-ready	Often single-use pathway
Proven applications of by-products	Demonstrated in bricks and paving blocks (BravoBrick, AshCycle)	Limited downstream integration
Modular & adaptive system	Customised gas cleaning & dosing systems	Less flexibility
CO_2 impact	Demonstrated CO_2 savings through circular applications	Unproven or unquantified

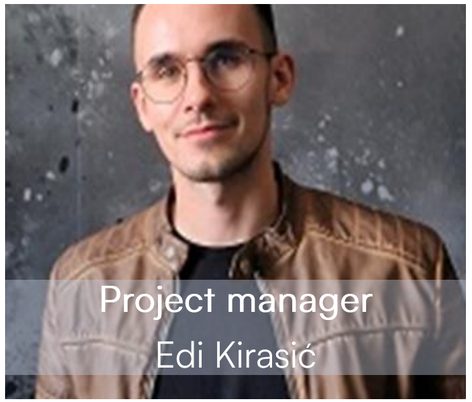
Indeloop was Hydrogen Hero of 2022

In 2022 *Looper* was featured in the first issue of **Heroes of Hydrogen** by **Hydrogen Europe.** *Looper* was introduced among four stories that have great potential to significantly boost hydrogen economy.



INDELOOP Team





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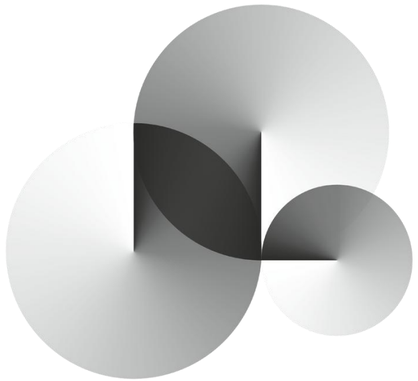

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