

CONCEPT NOTE

VALORIZATION OF CORN WASTE INTO CLEAN ENERGY BY H2LIFE BIOMASS E-GENERATOR

BACKGROUND AND CONTEXT

H2Life E-Generation is a non-incinerative thermal technology designed to convert a wide range of organic waste, including biomass, food waste, cow/cattle/chicken manure, coal, lignite, and more, into valuable energy products such as electricity, synthetic natural gas (SNG), hydrogen, or heat, all with a minimal environmental footprint.

In essence, gasification of corn biomass offers a sustainable way to convert agricultural residues into valuable energy resources and potentially other useful products.

Based on advanced gasification, the H2Life system operates without external energy input and is fully automated with AI-based control. From one ton of standard dry biomass, it can generate approximately **600 kWh of green electricity**.

MAIN ADVANTAGES

- ✓ Accept any organic material, as well as other carbon-based material, including mix.
- ✓ Sophisticate PLC controlling system, enable fully automatic operation.
- ✓ Pretreatment process of the feedstock, converting any feedstock to standard RDF for optimal energy output with minimal environmental impact.
- ✓ Non-incinerating – low environmental fingerprint, low carbon emission technology, no smoke, no wastewater, minimal solid discharge (biochar).
- ✓ Integral carbon dioxide absorption to minimize carbon dioxide emission.
- ✓ Compact and flexible design for small space consumption and suitable for self-installation and maintenance.
- ✓ Production 6000-1,000kWh/ton green electricity or 3T steam from each ton of dry feedstock.
- ✓ Available at large range of sizes - 20 different models, from 15 to 1,500kg RDF/h.
- ✓ Gas storage option for flexible electricity supply as needed.

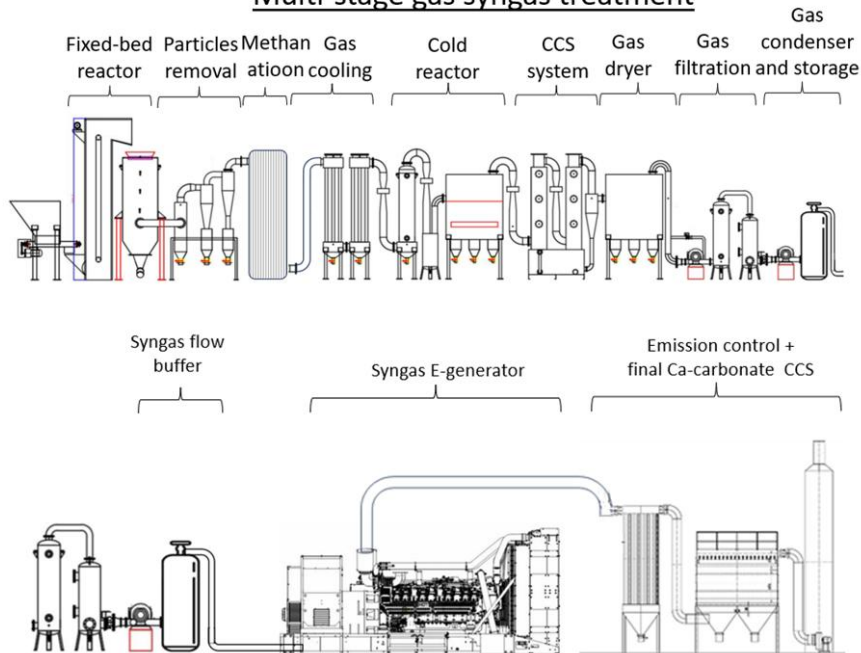
H2LIFE TECHNOLOGY

H2Life process consists of four main stages:

- **Pre-treatment:** Preparation of RDF (Refuse-Derived Fuel) through homogenization, mechanical drying under pressure, and extrusion into pellets, granules, or briquettes.
- **Gasification:** Production of syngas via a non-incinerative process using low-oxygen, moderate-temperature conditions (200°C to 700°C), with no direct combustion and zero harmful emissions.
- **Syngas purification and enrichment:** A series of chemical reactions involving carbon dioxide absorption and gas cleaning to purify and enhance the syngas quality.
- **Energy production:** Conversion of purified syngas into green electricity, synthetic natural gas (SNG), or industrial steam, with no smoke and minimal emissions of oxidative gases (NO_x, SO_x, CO, CO₂).

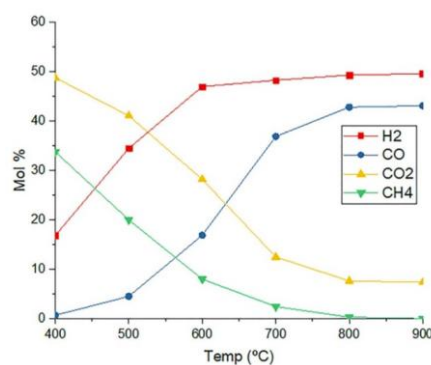


Multi-stage gas syngas treatment



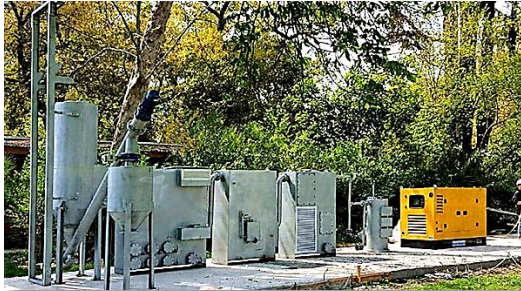
CORN WASTE VALORIZATION CASE

H2Life offers 20 different models, with daily electricity production capacities ranging from 10 kWh to 1,000 kWh. The system is compact, fully automatic, and controlled by a sophisticated AI-based PLC. The H2Life E-Generator is an ideal solution for decarbonizing biomass of any type, producing clean energy for hotels, shopping centers, natural parks, industries, agriculture, waste treatment plants, and for domestic electricity supply or backup.



Syngas composition as a function of gasification's temperature

One of the preferred feedstock for gasification is vegetal material, in which **corn biomass**, including **husks, cobs, leaves and stalks**, due to its low density, corn cobs provide of the best results. From one ton of dry corn material, approximately 2,000Nm³ syngas is produced, which can be converted to 600kWh green electricity. H2Life equipped with syngas E-Gen set for optimal energy production in maximal efficiency and minimal costs.



Gasification of Corn Waste: Key Facts & Opportunities

1. Feedstock Potential

- Types of Corn Waste: Stalks, cobs, husks, leaves
- **Advantages:**
 - High cellulose/hemicellulose content ($\approx 60\%$) $\rightarrow$ good syngas yield.
 - Low sulfur/ash vs. other biomass (low emission).

2. Gasification Performance

Parameter	Value	Notes
Syngas Output	1.7–2.0 m ³ /kg feedstock	H ₂ (18–22%), CO (15–20%), CH ₄ (2–5%)
Calorific Value	4–6 MJ/m ³	Can be enriched to 10–12 MJ/m ³ .
Optimal Temp	600–700°C	
Ash Content	3–6%	Biochar characteristics

5. Case Studies

- **Iowa (USA):** 10 MW gasification plant (corn stover) powers 8,000 homes.
- **China:** Gasifiers for rural corn cob-to-energy (≈ 200 kW units).
- **On-Farm Combined Heat and Power (CHP).** Example: 500 kW gasifier (5,000 t/year cobs) $\rightarrow$ Powers 400 homes (Germany).
- **Centralized Plants:** ENVIREN in Italy (10 MW).



7. Incentives

- **EU:** Funds under **CAP** for agro-waste energy
- **CAP Eco-Schemes:** €50–120/ha subsidies for residue collection.
- **Carbon Prices:** €80+/tonne CO₂ (ETS) makes fossil alternatives costly.
- **RED III Targets:** 40% renewable energy by 2030 → Corn syngas qualifies.

New Incentives:

- Guaranteed grid access for renewable gas
- Feed-in tariffs for waste-derived energy (€0.08–0.15/kWh in most EU states).



Italy (Venice) H2life plant - 200KWh

ADVANTAGES OF H2LIFE GASIFICATION TECHNOLOGY

1. Versatility and Environmental Impact:

The H2life system valorizes any organic material into clean energy products such as electricity, industrial steam, green hydrogen, or SNG, with minimal environmental impact. Gasification is considered a renewable energy source, which qualifies for carbon credits.

2. Automation and Efficiency:

H2life system generates clean electricity with full automation and AI-controlled PLCs, maximizing efficiency without the need for constant human intervention. It provides stable, 24/7 electricity supply with low operating and maintenance costs.

3. Space and Model Availability:

H2life optimally balances space and energy output, occupying up to 150 m². H2life offers 20 models at various capacities, based on feedstock capacity and energy production.

4. Reliability and Maintenance:

H2life features no moving parts, making operational failure extremely rare. H2life gasification system is working 24h/365 days per year, non-stop, self-consuming 5kWh electricity only with no moving parts, requires minimal maintenance and minimal wear parts.

5. H2LIFE general advantages and impact

The H2life system offers significant benefits:

- **Sustainability:** A non-incinerative, low-carbon process that produces no smoke, wastewater, or hazardous emissions while capturing CO₂ for further environmental benefits.
- **Efficiency:** High energy conversion efficiency from biomass to electricity, with potential to produce up to 1,000 kWh per ton of dry biomass.
- **Cost-Effectiveness:** Fast return on investment, typically within 12-18 months, making it attractive for both small and large-scale operations.
- **Flexible Feedstock:** Capable of processing a wide variety of agricultural residues, ensuring applicability across diverse agricultural sectors.
- **Modular Design:** Compact and modular, the system integrates easily into existing operations without major infrastructure changes.
- **Low operation cost:** Fully automatic operation and minimal maintenance requirements enhance user-friendliness and reduce long-term costs.

6. Scalability and Adaptation to Other Agricultural Sectors

H2life technology is scalable and adaptable to various agricultural sectors. This versatility enables broad adoption across farming and industry.

- **Regional Adaptability:** Designed for diverse environments, including remote and off-grid locations, enabling decentralized clean energy generation.
- **Modular Expansion:** Incremental scalability allows farmers to start small and expand capacity as needed.

REGULATORY AND POLICY ALIGNMENT

The H2life Biomass E-Generator aligns with global renewable energy goals and climate strategies:

- Supports emissions reduction targets by converting biomass into clean energy.
- Eligible for government incentives and subsidies promoting renewable energy.
- Contributes to UN Sustainable Development Goals, particularly Affordable and Clean Energy, Responsible Consumption and Production, and Climate Action.



EWA TECHNOLOGIES GROUP

Saving the environment

www.ewatechgroup.com



ECONOMICAL ASPECT OF H2LIFE

- The compact design, minimal moving parts, zero power investment, low self-consumption of electricity, minimal maintenance, fully automatic operation and optimal process due to its' AI controlling system makes H2life the faster ROI and highest profitable option for energy production from waste.
- H2life is not needed any special infrastructure, which significantly reduce the CapEx. H2life was design for simple, self-installation. The system's compact design is reflected in a minimal footprint and maximum return per unit space.
- H2life is the low-cost equipment in its' technology group, providing with option for life time service to ensure maximal efficiency and longer operation period.
- H2life price was determine for return on investment in less than 18 months, commonly 8-14 months, depend on the feedstock, the pretreatment requirement and the market of the output energy to be produce.

CONCLUSION AND CALL TO ACTION

The H2Life Biomass E-Generator offers a transformative opportunity to generate low-cost renewable energy from corn waste and other biomass, significantly reduce carbon emissions, and deliver green energy at highly competitive rates. For a tailored proposal and detailed economic analysis, please contact us.

WE THANK YOU FOR YOUR ATTENTION

CONTACTS



Dr Eytan Bar
Founder and CEO of EWA Technologies
Bar.eytan1@gmail.com
+86 189 2274 1972

 www.linkedin.com/in/eytan-bar-7430b6243



Dr Jean Christophe Henry
Founder and CEO of 2LIFE
jc.henrypro@gmail.com
+33 6 1887 3007

 www.linkedin.com/in/jch2030/

www.ewatecgroup.com