Turning Waste into Clean Hydrogen
A Smarter Solution

BIOTECH WORKS-H2®

Revolutionizing Hydrogen through Waste Optimization
Toward a “ZERO WASTE” Circular Society

Creating a World Where Waste Becomes Resource

Defining the Next 25 Years, Starting Now

Our Vision:

A circular society where all waste holds value and is reborn as hydrogen.

We aim to create a sustainable future by transforming even the most challenging organic waste—difficult to recycle and a global issue—into clean hydrogen. Using our proprietary technologies for separation, optimization, and gasification, we turn waste into a powerful energy resource.

A Key Element: A License-Based Manufacturing Scheme

Through collaboration between municipalities and businesses for construction and operation, we aim to create community-driven energy infrastructure.

B to B to B Model

We deploy flexible solutions, capable of scaling from large to small, to licensees, manufacturing partners, and operators.

From Waste to Hydrogen, and Hydrogen to Renewable Energy

"ZERO WASTE" Project

BIOTECHWORKS-H2 is working towards the realization of four key societal goals.

VISION 01
A Zero-Waste Society, Wasting Nothing

VISION 02
Community-Focused Society for Regional Revitalization

VISION 03
Sustainable Carbon-Neutral Society

VISION 04
Hydrogen Society Solving Energy Challenges

Strengths of BIOTECHWORKS-H2

Achieving Stable & Cost-Effective Hydrogen Supply

1/4~1/5%
of the Current Hydrogen Price

Efficiently Generating Hydrogen from Waste

Up to
10.5%

Achieving High-Purity Hydrogen Production

High purity
99.999

Visualization Through Traceability

Supports ESG Investment and Scope 3 Emissions Compliance

Significantly Reduces CO_2 Compared to Incineration

Up to
-82%

BIOTECHWORKS-H2® Solutions

BIOTECHWORKS-H2 is not a plant builder or operator, but offers solutions tailored to local needs.

We focus on **Project development**, **Licensing**, and **Providing digital platforms**.

Project Development / Consulting

We provide schemes, including EPC, to municipalities and businesses that enable efficient hydrogen supply and waste management, while offering consulting services to support the development of a hydrogen society.

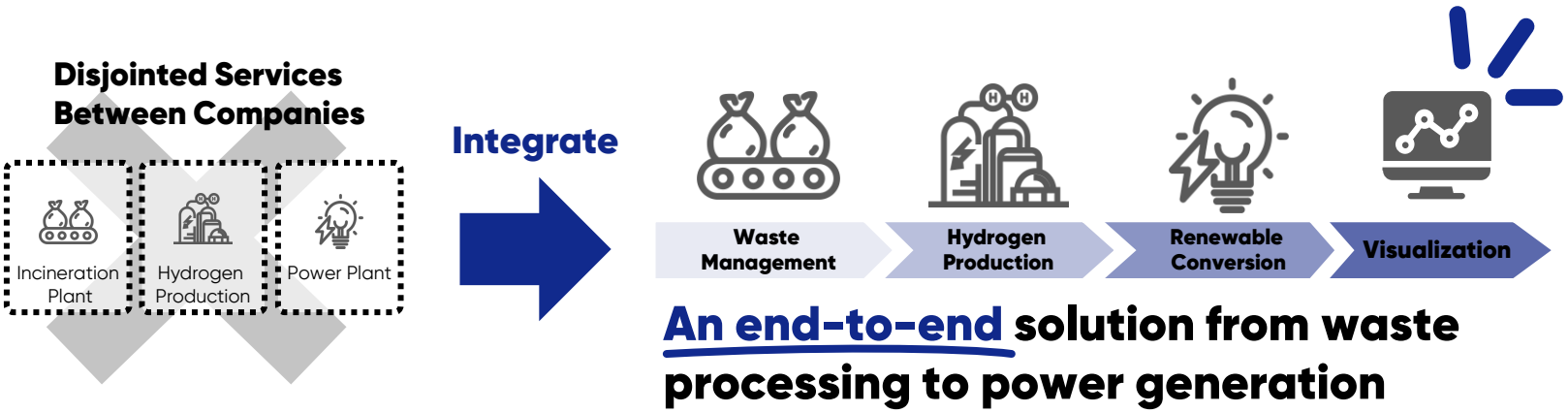
Licensing

In addition to licensing optimized schemes, we also license intellectual property (IP) for gasification plants and business model patents.

Providing digital platforms

In addition to providing CO2 reduction data through 'REBORN,' we will offer a subscription model that includes CO2 reduction effects and hydrogen production reports.

A Complete Overhaul of Traditional Systems
A Fully Integrated, End-to-End Project



- Achieves **up to 82% CO_2 reduction** compared to incineration.
- **Full traceability** across the entire process chain.
- Generates **CO_2 reduction reports** usable for ESG investments and carbon credit initiatives.
- Utilizes advanced **waste optimization technologies** to build scalable solutions compatible with all types of waste.
- Combines **waste optimization and cutting-edge gasification** to produce hydrogen **reliably, in large volumes, and at low cost.**

Build a “ZERO WSTE“, Fully Circular Model

BIOTECHWORKS-H2 is partnering with a U.S.-based plant engineering company to transform over 99% of organic waste into renewable energy through gasification without incineration.
This proven concept has demonstrated hydrogen yields of 6–13% from textile waste and 10.8% from food residue. Metals such as iron are recovered and reused, while remaining byproducts are repurposed into asphalt or construction materials.
The gas produced at the plant is separated into hydrogen (H_2) and carbon dioxide (CO_2). The hydrogen is utilized as a renewable energy source, while the captured CO_2 is supplied for use in carbonated beverages.
A domestic plant is scheduled for construction in Japan by 2025, with the goal of achieving a **“zero-waste society where all waste becomes a resource” by 2030**.

Liquefied Carbon Dioxide

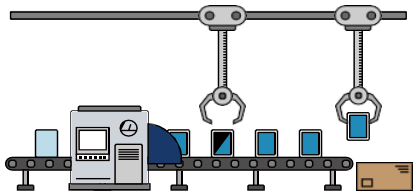
Slag

Solving Challenges Through Waste-to-Resource Transformation

Two Unique Technologies

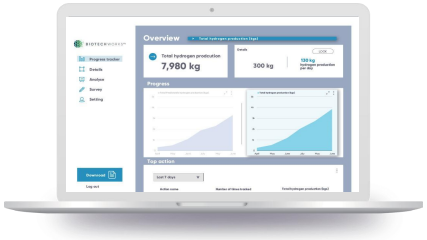
Pre-treatment Technology

Optimizing hard-to-recycle organic waste into valuable resources



IoT Platform

Real-time monitoring and optimization of the entire processing workflow



Enabling the supply of hydrogen at a significantly lower cost.

1/4～1/5 the Price of current hydrogen

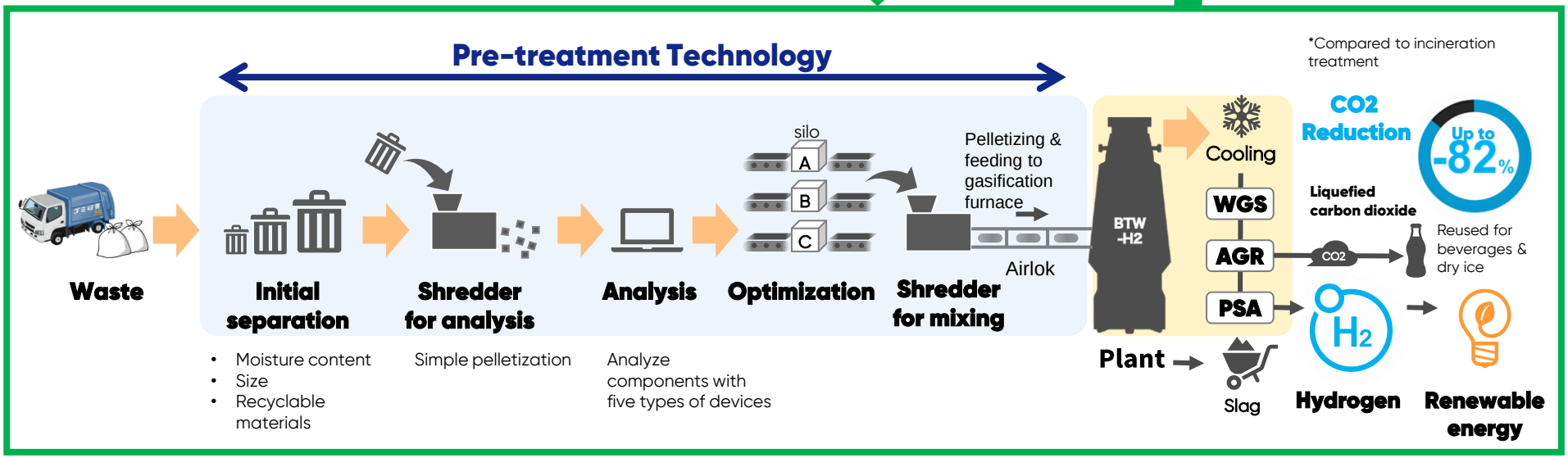
- No need for separation
- Monetizable potential
- Hydrogen generation efficiency from approximately 10% of waste

Pre-treatment optimization scheme and IoT platform

IoT platform

【Real-time monitoring】【Analysis system】【AI analysis engine】【Data collection】【Mixed instruction】

Instructions ↓ ↑ Data



Compatible organic waste

PoC validated

** Targeting materials that are legally permitted to handle.*

Condition | **Moisture content: Up to 50%**
Inorganic matter mix ratio: Up to 17.5%


Food waste


MSW


Tires


Apparel waste


Biomass


Electronic devices


Construction waste

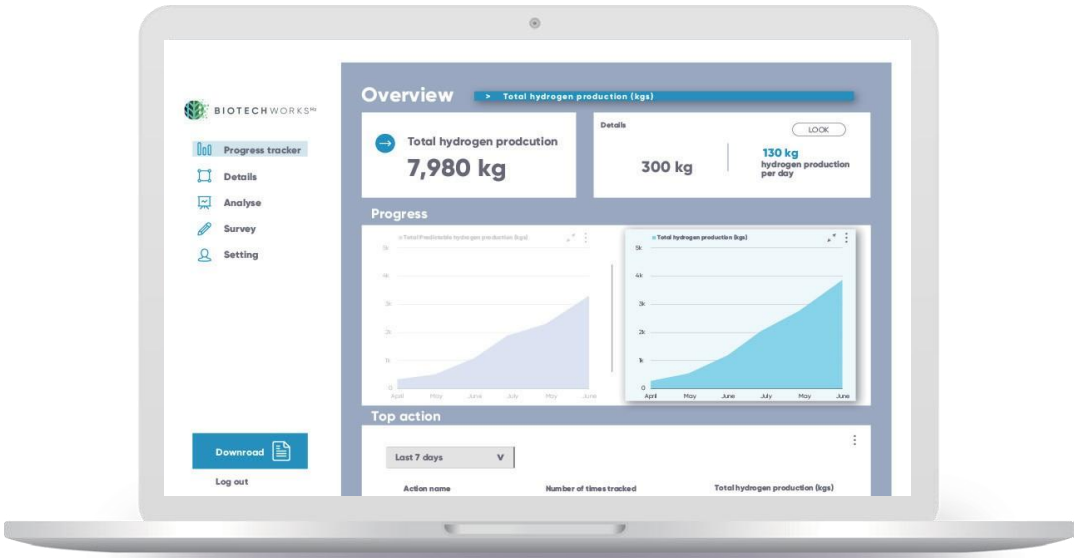

Medical waste

Visualization Service

All data is managed on our integrated platform and visualized for transparency.

We generate comprehensive reports that can be used in CSR disclosures.

Compatible with Scope 3, Category 5 (Waste generated in operations) — implementation planned.



Report

Traceability

御中

202X年　月　日

報告書No. A（契約番号がALに続く）

水素生成量及びCO2削減レポート

ご依頼を受けました商品をREBORN組成検査した結果、下記の内容となりましたことを報告いたします。下記商品を将来的にBIOTECHWORKS-H2のプラントでケミカルリサイクルすると、以下のような予測値が算出されました。

契約番号：XXXX	商品名：XXXXX	左記商品1枚当たりの
依頼日：20XX/X/XX	商品品番：XXXX	▸水素生成予測値　g
検査完了日：20XX/X/XX		▸CO2削減予測値　g

組成検査結果

素材	素材別組成	素材別重量
素材#1	ポリエステル(PET)100%	250g
素材#2		
素材#3		
素材#4		
素材#5		
合計		250g

＊上記検査結果は一般財団法人日本繊維製品品質技術センター発行　受付番号XXXXより抜粋

水素生成予測値及びCO2削減予測値 詳細

素材	水素生成予測値*1	CO2削減予測値*2
素材#1	80g	250g
素材#2		
素材#3		
素材#4		
素材#5		
合計	80g	250g

*1 弊社PoC概念実証による水素発生量

*2 弊社PoC概念実証Fuelcellを使用して発生する発電量を化石燃料による発電時のCO2発生量と比較

A Nishikawa

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REBORN by BIOTECHWORKS-H2

＊本レポートは提出資料に基づいたものであり、予測値は弊社概念実証のデータから算出しておりますが、プラントでの実際の水素生成量およびCO2削減量の実際の数値を保証するものではありません。

Competitive Advantage

When generating hydrogen from waste

Other Companies

- Only specific waste types like plastic can be processed.
- No support for traceability.
- High cost and unstable supply.
- Difficult to monetize.

BIOTECHWORKS-H2®

- Compatible with mixed waste **— no need for separation** of organic and inorganic materials.
- **Full traceability** across all processes with real-time data visualization.
- **Stable, cost-effective, and large-scale hydrogen production** enabled by advanced waste optimization and end-to-end project integration.
- Project design optimized for monetization

Building a monetizable scheme for all stakeholders

Waste Management Company

New Business
Effective Utilization of Assets

Plant Operation Company

Continuity of Operations
Securing Stable Revenue

Waste Disposal Company

CO2 Reduction
Renewable Energy Utilization
Carbon Credit Measures

Municipality

Reduction in Waste Disposal Costs
Achieving a Zero Carbon City

Financial Institution

ESG Financing
Investment

Investor (VC / CVC)

High Returns
Co-creation
Partnership

R&D Organization

Enhancing Technological Competitiveness

EPC Company*

New Market Development
Global Expansion
Stable Revenue

*EPC：Engineering, Procurement, and Construction

Mission/Vision/Value

Mission

Building energy from all organic waste, towards a ‘ZERO WASTE' future

As a sustainable energy supplier that will be the standard of 25 years from now, we find value in what is discarded and aim to realize a resource-circulating society, starting in Japan and expanding globally

Vision

We aim to eliminate energy supply inequalities between regions and lead the way in creating sustainable cities rooted in local communities

By promoting plant construction and enabling municipalities to use waste management savings to improve resident services, we help overcome rising energy prices and declining tax revenues. This leads to the realization of economic independence and sustainability for local communities.

Value

Sustainability

We fulfill our responsibility to the environment and future generations by generating renewable energy and converting waste into valuable resources.

Community-Centric Approach

We provide energy solutions based on local characteristics and work together with communities to advance the creation of sustainable cities.

Innovation and Technology

By leveraging cutting-edge technologies, we achieve efficient and innovative energy generation, creating value from waste

BIOTECHWORKS-H2 is a unique and unparalleled project that will change the world, starting from Japan.

The Standard of 25 Years from Now, Starting Today

BIOTECHWORKS-H2 is a unique project that can immediately build the circular, sustainable society of 25 years from now. Hydrogen is gaining attention not only in Japan but globally, and it is expected to become a central energy source. By 2035, e-Fuel (synthetic fuel) produced from CO2 and hydrogen is predicted to replace gasoline and become a primary fuel. A key feature of BIOTECHWORKS-H2 is its ability to generate both CO2 and hydrogen from organic waste without the need for separation.

BIOTECHWORKS-H2 also offers a solution to two of humanity's unavoidable challenges: waste and energy. No other project currently addresses both of these issues in such a way.

BIOTECHWORKS-H2 is advancing to become a pioneer in the circular society.

BIOTECHWORKS-H2 Co.,Ltd

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CEO/ Founder Akihide NISHIKAWA

At the age of 22, he founded his own business as a student, managing everything from raw material development to brand expansion in the apparel industry, successfully leading the company for 25 years. In 2023, despite the challenges of the pandemic, he achieved an exit through an M&A in just three months. He also solidified his position as a sustainable innovator. In 2020, he founded BIOTECHWORKS-H2, focusing on innovative technology to generate hydrogen from waste. After successfully conducting demonstration trials in the U.S., he accelerated global market expansion. A visionary leader, he drives the realization of a circular energy society with his unmatched business acumen and strategic foresight.

Waste No More
Ushering in the e-Fuel Era

BIOTECH WORKS -H2®

ZERO Waste Project
Waste to Hydrogen

BIOTECH WORKS H2
Created in Silicon Valley.

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