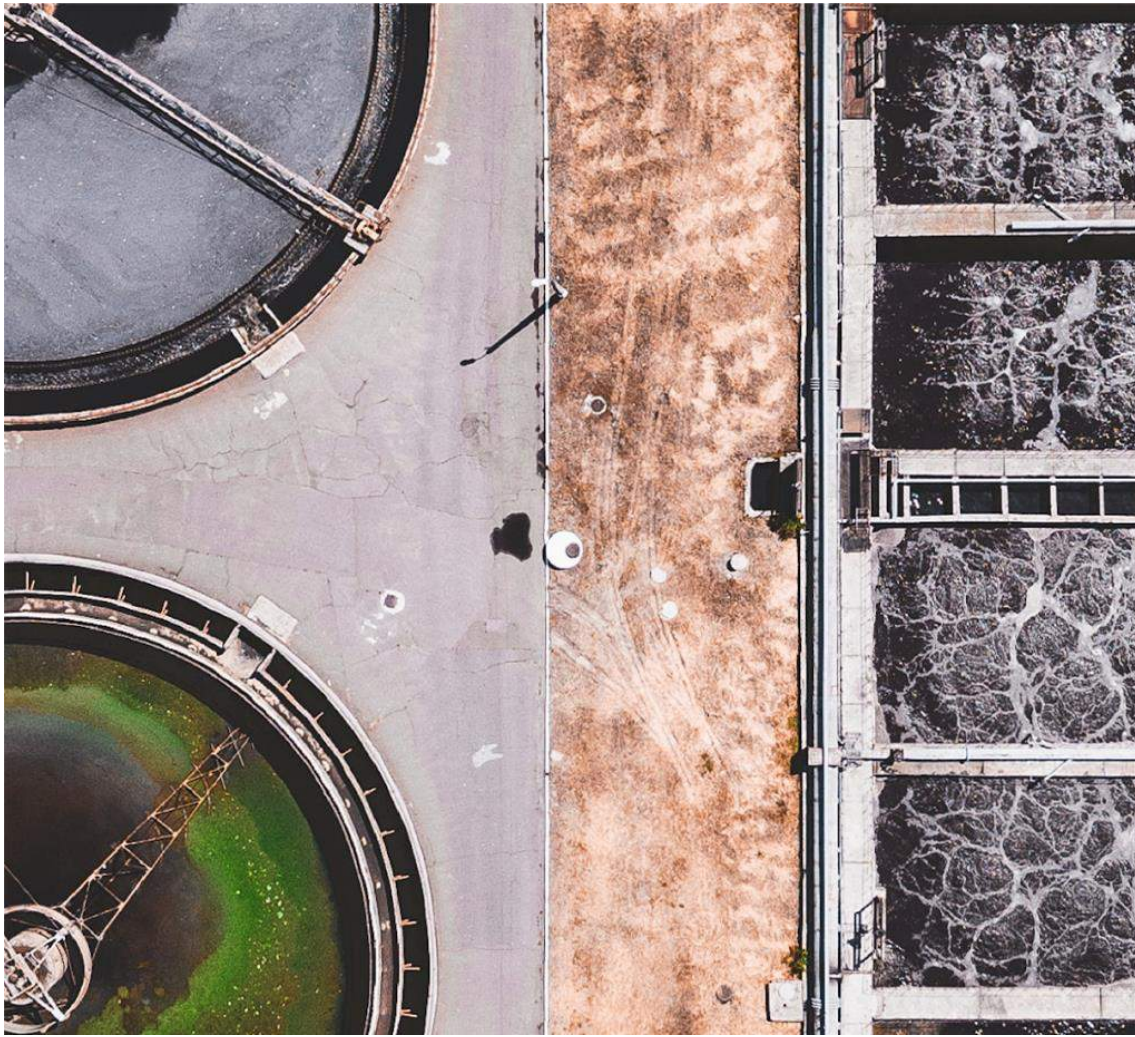
Ossus
Green Hydrogen

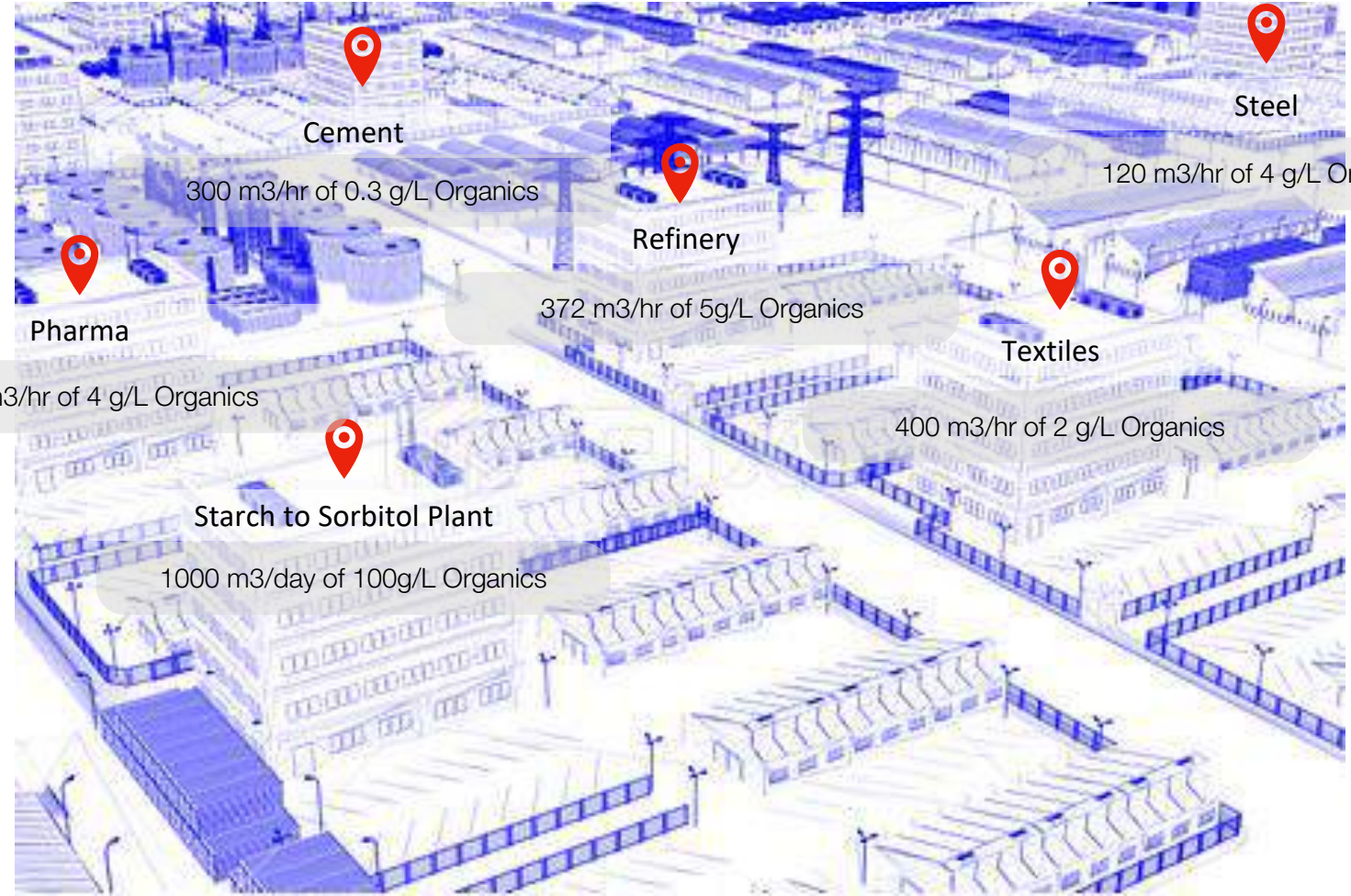
Producing Hydrogen On-Demand
Using Industrial Effluents

June, 2023

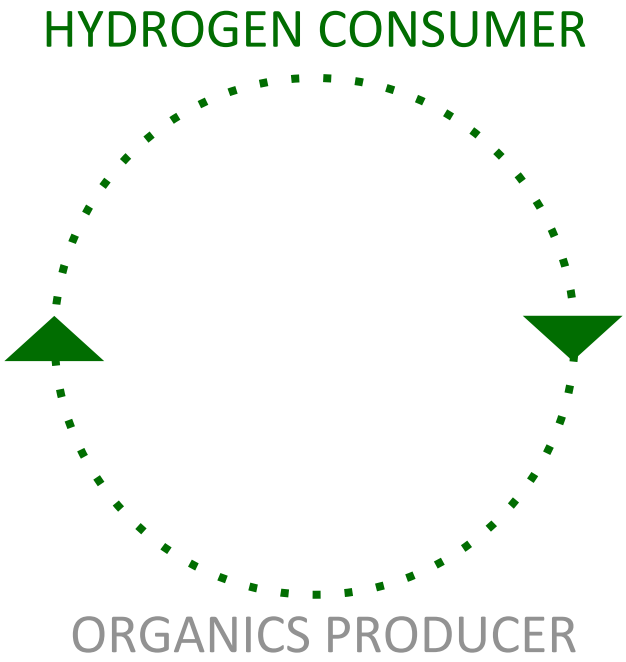


Decarbonising Industrial Hydrogen Requirement Using Waste Carbon

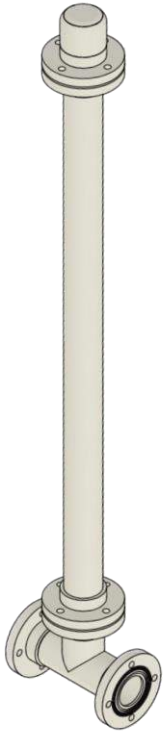

Cement
H2 Consumption Per Day:
10 tonnes
Steel
H2 Consumption Per Day:
5 tonnes
Refinery
H2 Consumption Per Day:
50 tonnes
Pharma
H2 = ?
Textiles
CH4 Consumption Per Day:
2000 MMBTU
Starch to Sorbitol Plant
H2 Consumption Per Day:
2 tonnes


Cement
300 m3/hr of 0.3 g/L Organics
Steel
120 m3/hr of 4 g/L Organics
Refinery
372 m3/hr of 5g/L Organics
Pharma
400 m3/hr of 4 g/L Organics
Textiles
400 m3/hr of 2 g/L Organics
Starch to Sorbitol Plant
1000 m3/day of 100g/L Organics

We Produce and Supply Green Hydrogen for Closed Consumption to Process Industries



Organics to Green Hydrogen via the OB HydraCel Autonomous Bioreactor



A Single Unit of the OB HydraCel Bioreactor

Controller based on Qualcomm SC20 Chipset

100% Assembled In-house
80% Designed In-house
50% Fabricated In-house

Core IP

CoreIP
Full Patent Filed March 3, 22
E-2/308/2022/MUM

Bioreactor Design and Operation

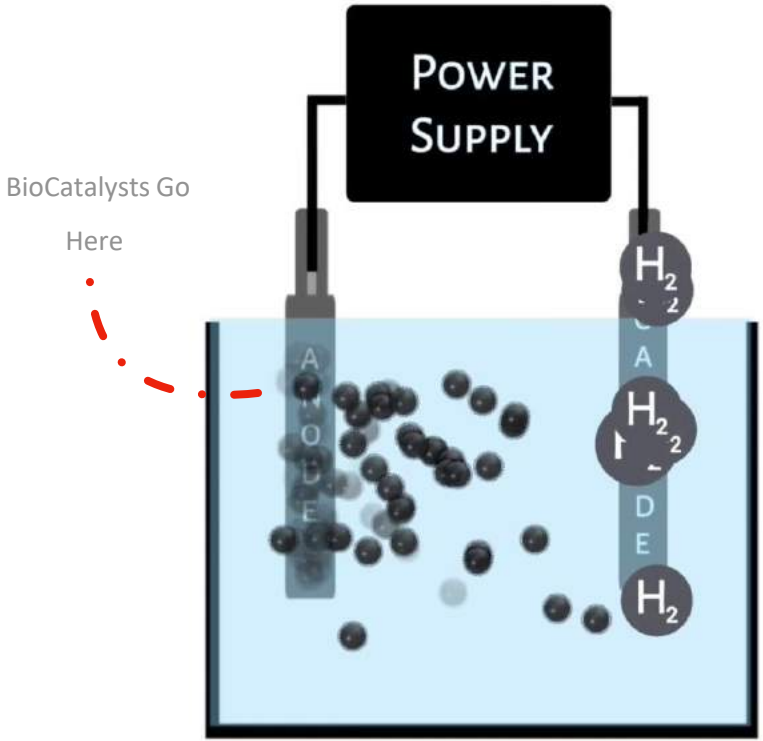
Gen 2
Full Patent to be Filed March 14, 22

Nautilus, ML Feedback Loop Control System

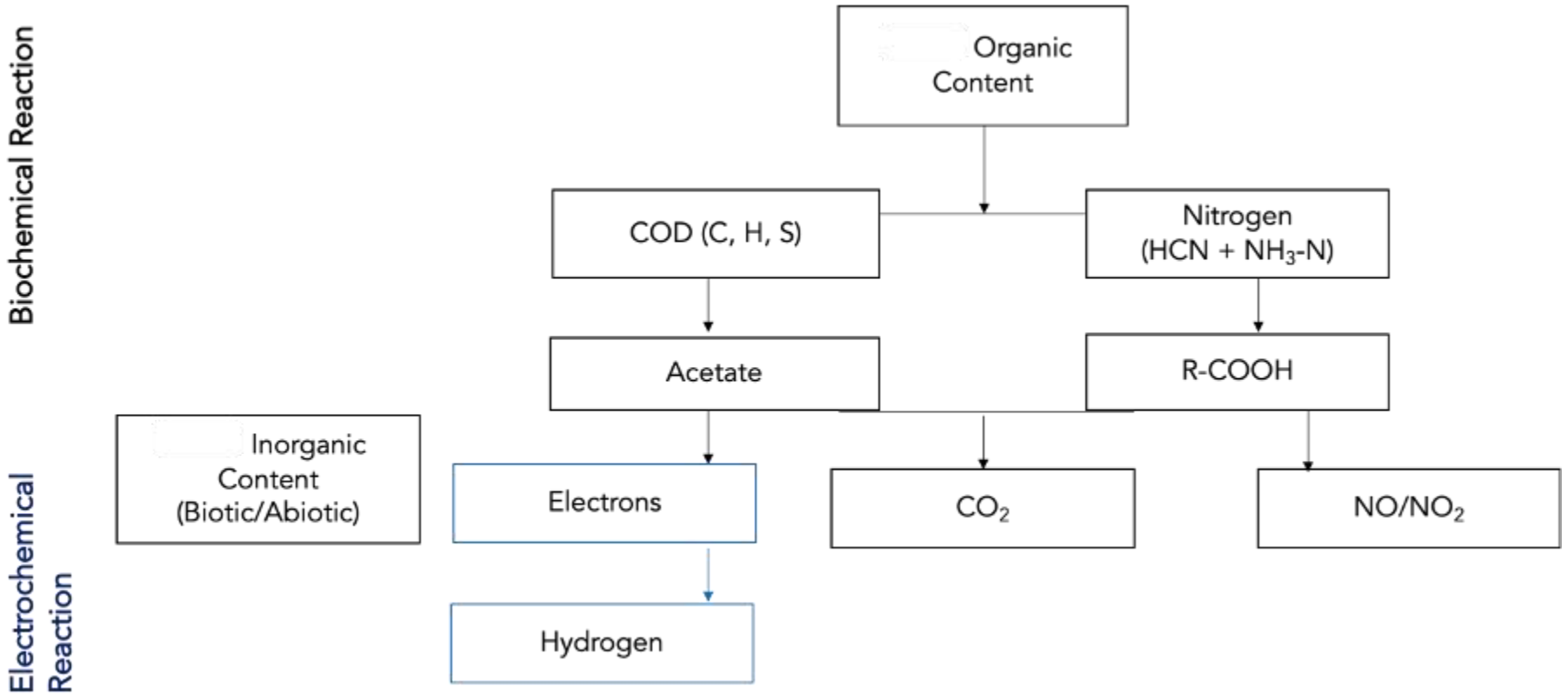
Autonomous Dosing Unit for Continuous Op

Biogenic Electron Production Linked to Cathodic H_2 Production

We design BioCatalysts that target Carbon in Industrial Effluents*.



Process Flow with the OB HydraCel



Low Energy Consumption, High Water Recovery

99% Waste Recycle

Tapping into Industrial Effluents

0.76 kWHr/Kg

Lowest Power Requirement in the Market

Sustainable Materials

Does NOT Dependend on Rare Earth Metals

9 Kg of Water/Kg H_2

Enormous water requirement

50-55 kWHr/Kg H_2

Enormous Power Requirement

Pt/Ir

Dependence on Rare Earth Metals

*Electrolyzers including but not limited to Solid Oxide Fuel Cells, Alkaline Fuel Cells, PEM Cells

Producing 7200 tpa of gH_2 for Tata Steel at Jamshedpur, India

2020 2021 2022

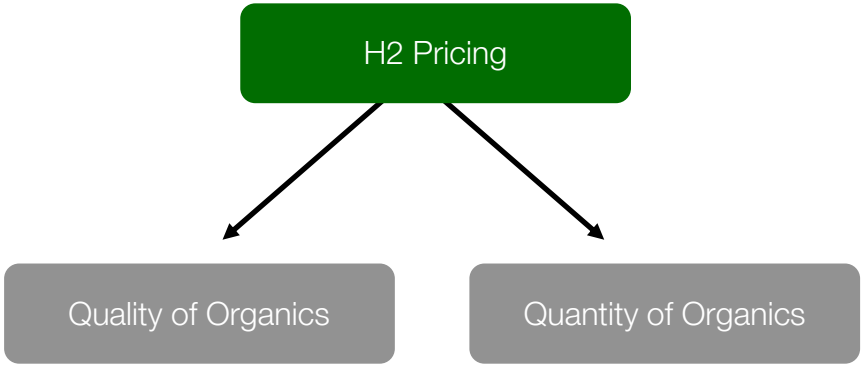
Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2

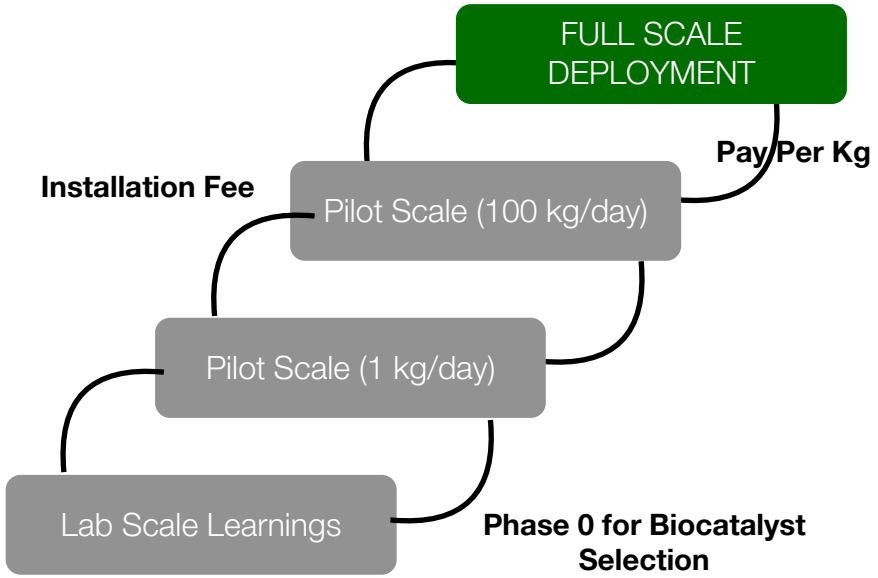
Highest Conversion
104% Conversion to H_2

Phase 1
3.6 Nm3/day of H_2 (120L);
Lowest CO_2 Output

Phase 2
360 Nm3/day of H2 (6000L) 24-hour operation

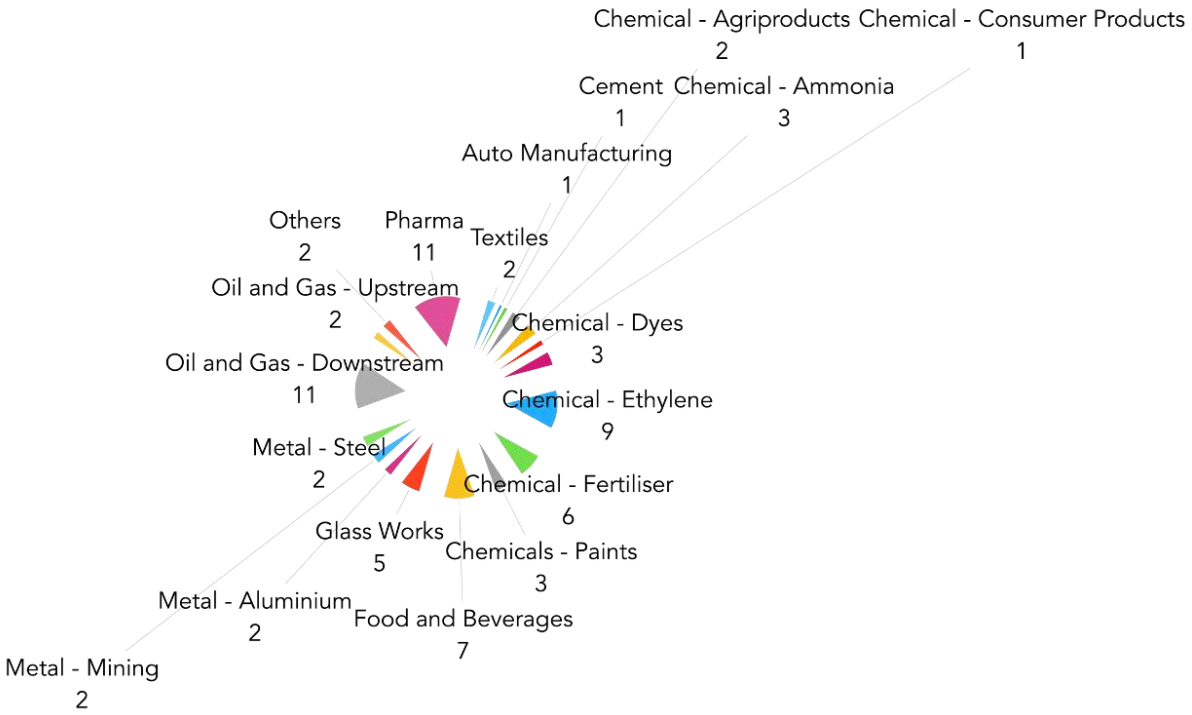
We have BOO Model, Customers Pay Per-Kg-H_2 Produced Per Day



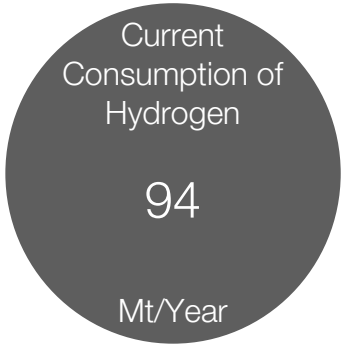


WATER RECYCLING PROVIDED AT NO EXTRA COST TO ALL CUSTOMERS

We are targeting core players who have manufacturing capacity across multiple sectors



Bidirectional Market Sizing Targeting H_2 Consumption



TAM

SAM

	m3/hr				
COD g/L	10	100	200	500	1000
1	0.01	0.1	0.2	0.5	1
2	0.02	0.2	0.4	1	2
3	0.03	0.3	0.6	1.5	3
4	0.04	0.4	0.8	2	4
5	0.05	0.5	1	2.5	5
6	0.06	0.6	1.2	3	6
7	0.07	0.7	1.4	3.5	7
8	0.08	0.8	1.6	4	8
9	0.09	0.9	1.8	4.5	9
10	0.1	1	2	5	10
100	1	10	20	50	100

Who are our current customers?

Indian Steel Sector

Downstream Oil and Gas

Chemicals

Food and Bev

Our Journey

Consistently Delivering Value

2018

Shell E4
Energizing and Enabling Energy Entrepreneurs

2019

Winner
DST • LOCKHEED MARTIN • TATA TRUSTS
INDIA INNOVATION GROWTH PROGRAMME 2.0
SOLUTIONS FOR TOMORROW

2020

Winner
CII
Confederation of Indian Industry
125 Years - Since 1895

Winner
inec ISCSS 2020

2021

TATA STEEL

2022

Winner
Qualcomm snapdragon

On-Site Deployment

2023

Gruhas
Rainmatter

USD 2.5 Million Fund Raise

Our GTA is evolving as we expand to SEA

OSSUS

DIRECT TO MARKET

CLOSED CONSUMPTION

IEA Prediction for Decarbonising

530

Mt/Year

OSSUS

WATER TREATMENT CO

PRE-EXISTING NETWORK

CLOSED CONSUMPTION

ONLY H2 CONSUMPTION

ONLY ORGANICS SUPPLY

ASK