DECARBONIZING GLOBAL INDUSTRY & TRANSPORT

THE SOLUTION IS SGH2 ENERGY'S CLEAN HYDROGEN

SG H2 ENERGY

FUELING A CLEAN ENERGY FUTURE, TODAY

The global clean hydrogen demand cannot be met with electrolysis alone. Experts from public and private sectors agree that other alternatives are needed.

- Affordable, mass-produced, green hydrogen is the missing link needed to decarbonize the world – with the power and potential to remove or reduce carbon from hard-to-abate sectors like heavy transport, shipping, steel and cement, and reduce the use of natural gas throughout our global economy.
- Not all hydrogen is equal.
- 98% of the world's hydrogen is currently produced using coal (brown hydrogen) or natural gas (grey hydrogen)

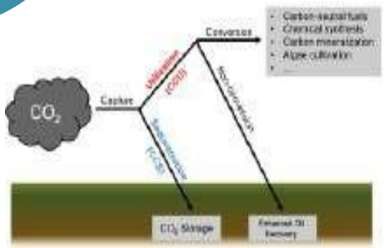
THE CHALLENGE: SCALING CLEAN, GREEN HYDROGEN

FOSSIL RESOURCES

- Low-cost large-scale hydrogen production with CCUS
- New options include byproducts production such as solid carbon
  - ❖ Expensive; Not carbon free.

Coal Gasification with CCUS

Natural Gas Conversion with CCUS



BIOMASS/WASTE

- Options includes biogas reforming & fermentation of waste streams
- By-product benefits include clean water, electricity and chemicals
  - ❖ All except SGH2: Toxic byproducts; Not carbon free

Biomass Conversion

Waste to Energy

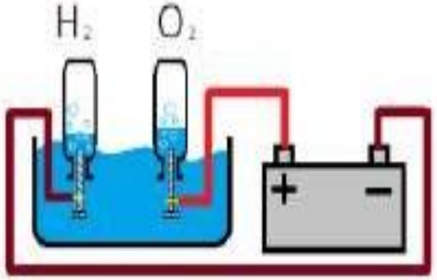
WATER SPLITTING

- Electrolysers can be grid tied, or directly coupled with renewables
- New direct water splitting options offer long-term sustainable hydrogen
  - ❖ Expensive; Large land and water footprint

Direct-Solar

High Temp. Electrolysis

Low Temp. Electrolysis

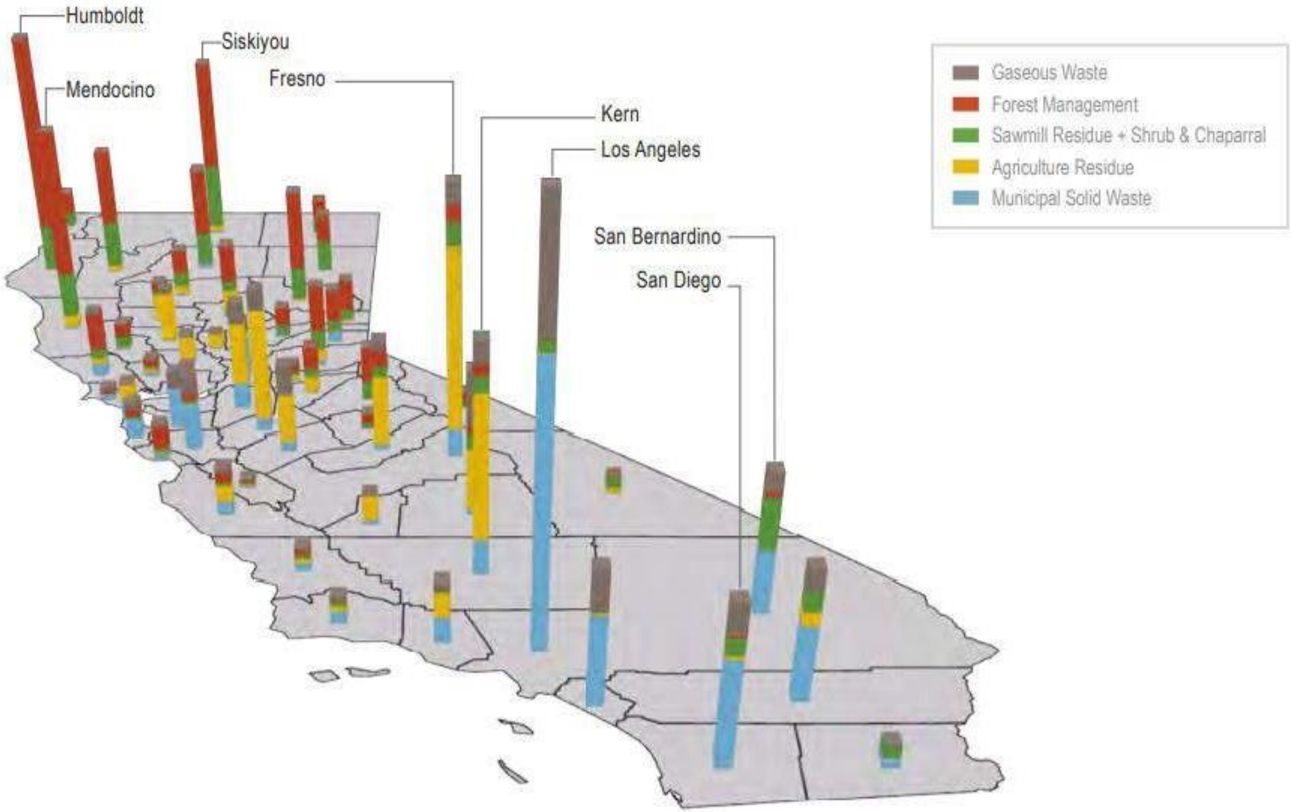


SGH2 GROWTH POTENTIAL IN THE STATE OF CALIFORNIA

56 MILLION TONS OF BIOMASS WASTE WILL BE GENERATED IN 2045

Biomass Type	2025 Amount (M BDT / yr)	2045 Amount (M BDT / yr)
Agricultural residues	10,4	12,7
Municipal Solid Waste	12,3	13
Gaseous Waste	7,1	6,1
Forest Biomass	24	24
Total	54	56

BDT = bone dry metric tons



California’s extensive and varied waste biomass resources could yield approximately 100 million tons of negative emissions per year in 2045 if all the carbon converted to CO2 is captured and stored.

The total municipal solid waste projected to be available in the years 2025 and 2045 is 12.3 and 13 million bone dry tons per year. The majority of municipal solid waste biomass in 2045 is projected to be in Southern California (8.2 million bone dry tons per year), with 4.8 million bone dry tons per year in Northern California.

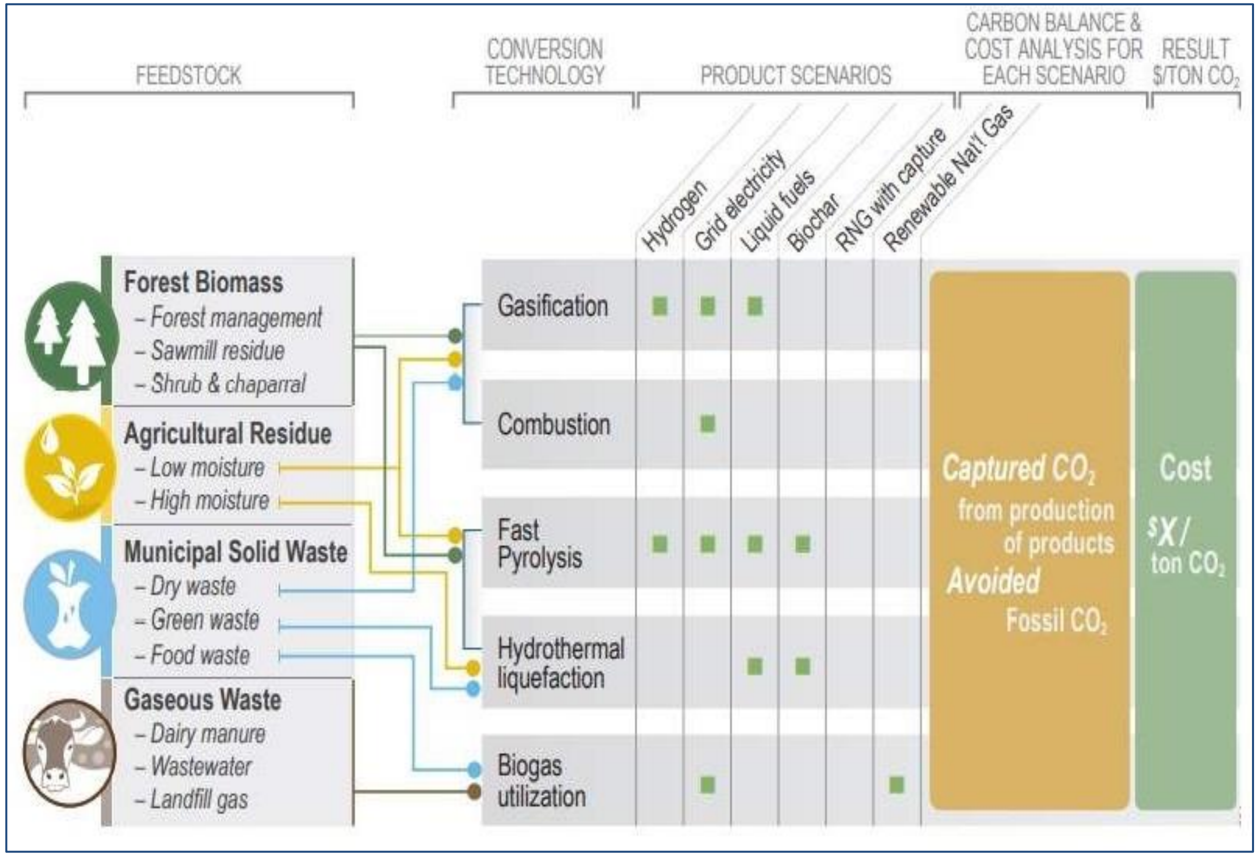
Source: Getting to Neutral Options for Negative Carbon Emissions in California. Sarah E. Baker, Joshuah K. Stolaroff, George Peridas, Simon H. Pang, Hannah M. Goldstein, Felicia R. Lucci, Wenqin Li, Eric W. Slessarev, Jennifer Pett-Ridge, Frederick J. Ryerson, Jeff L. Wagoner, Whitney Kirkendall, Roger D. Aines, Daniel L. Sanchez, Bodie Cabiyo, Joffre Baker, Sean McCoy, Sam Uden, Ron Runnebaum, Jennifer Wilcox, Peter C. Psarras, Hélène Pilorgé, Noah McQueen, Daniel Maynard, Colin McCormick, Getting to Neutral: Options for Negative Carbon Emissions in California, January, 2020, Lawrence Livermore National Laboratory, LLNL-TR-79610

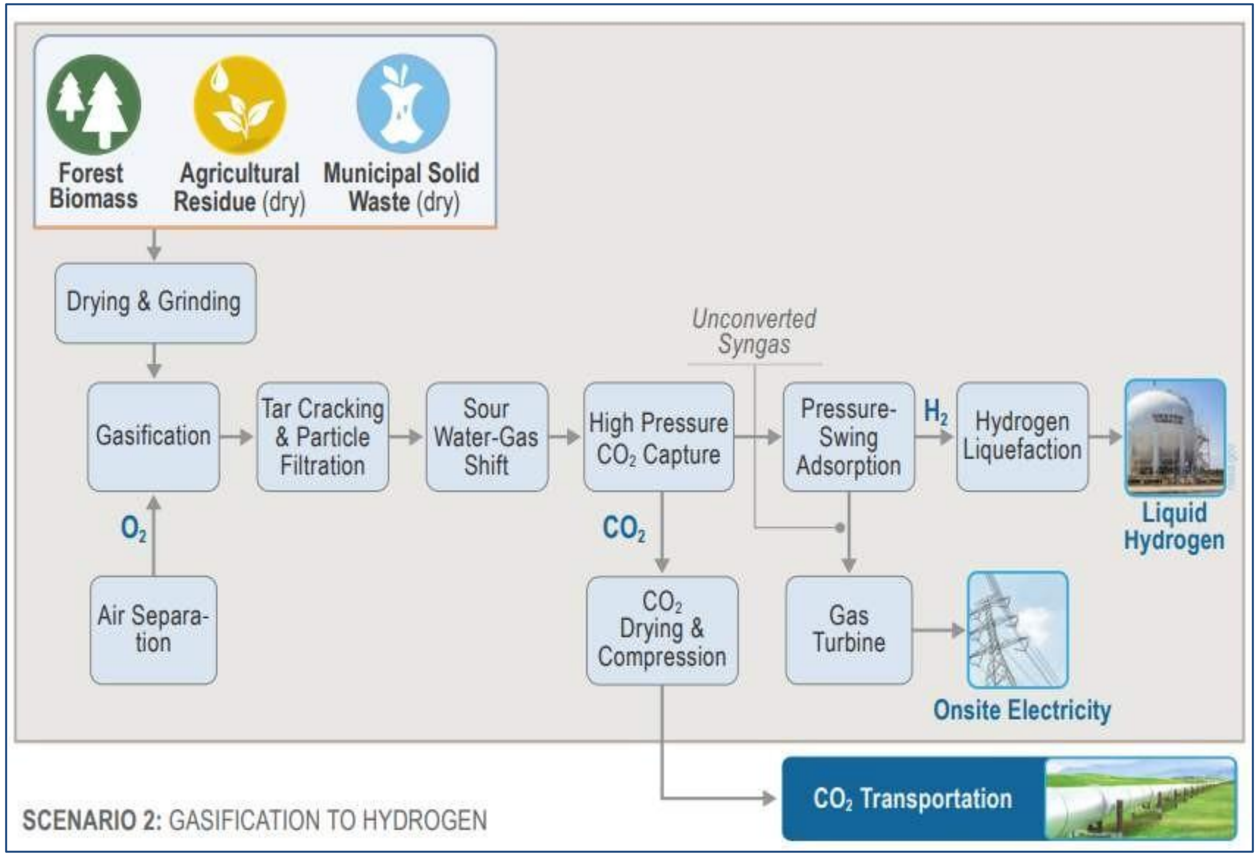
SGH2 SPEG Technology easily works with all types of feedstock

Feedstock: forest biomass, low moisture agricultural residues, dry municipal solid waste

Potential products: liquid fuels: green methanol, SAF, and green ammonia, hydrogen. Hydrogen further can be converted to Renewable Natural Gas (RNG) or use directly in stationary fuel cell power plant to produce baseload power.

Key points: SPEG technology at TRL8 and all other equipment are commercial industrial systems. Addition of CCS unit will allow capture CO2 and further





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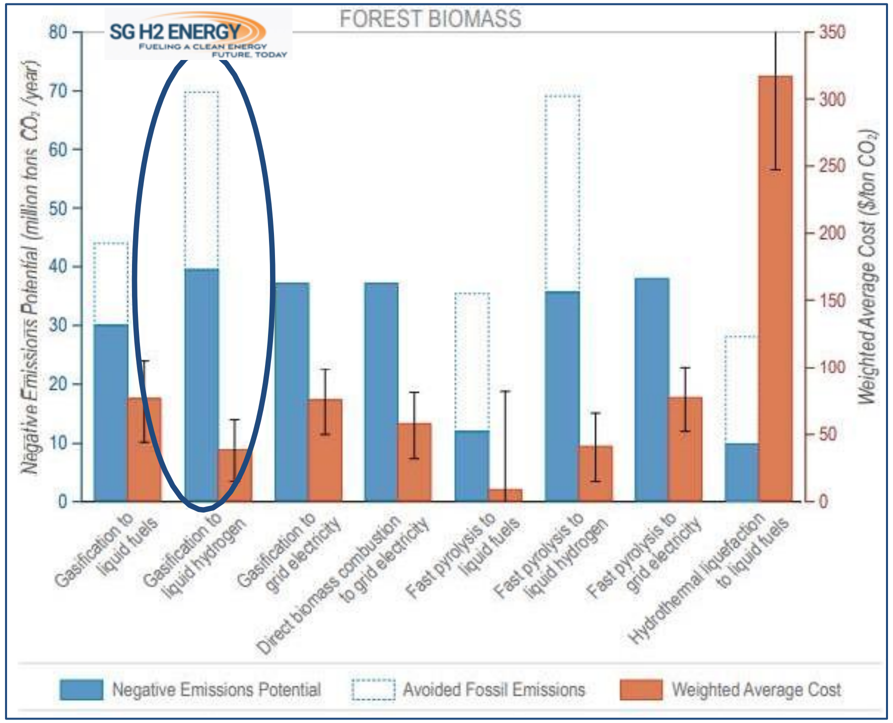
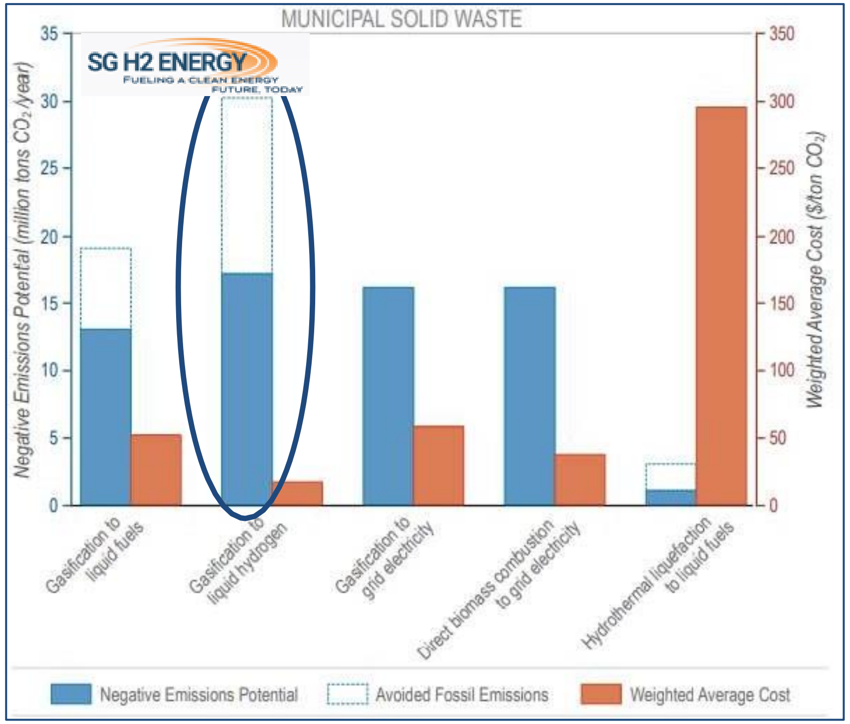
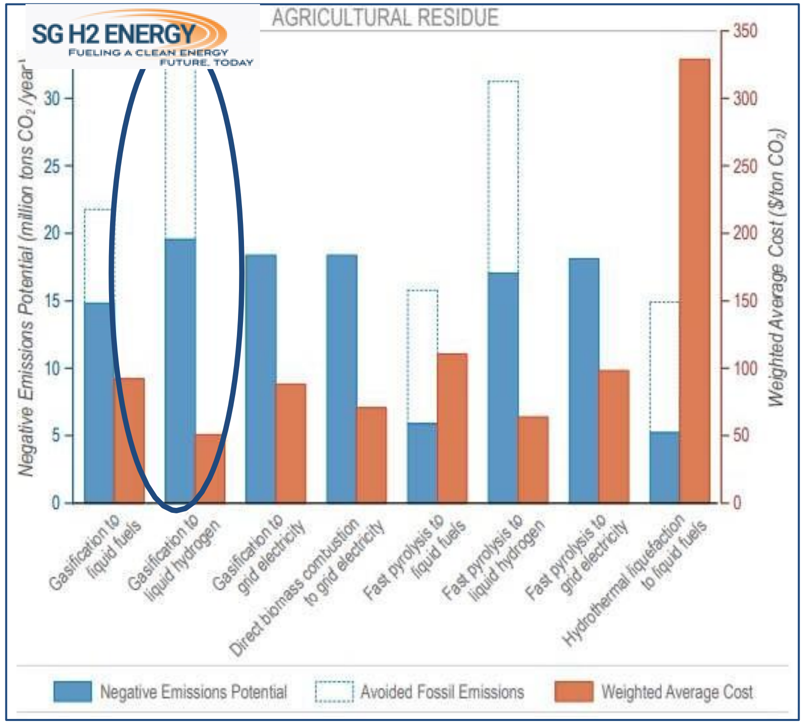
Negative emissions potential, avoided fossil emissions, and estimated cost to capture CO2 for each type of feedstock, calculated for the year 2045







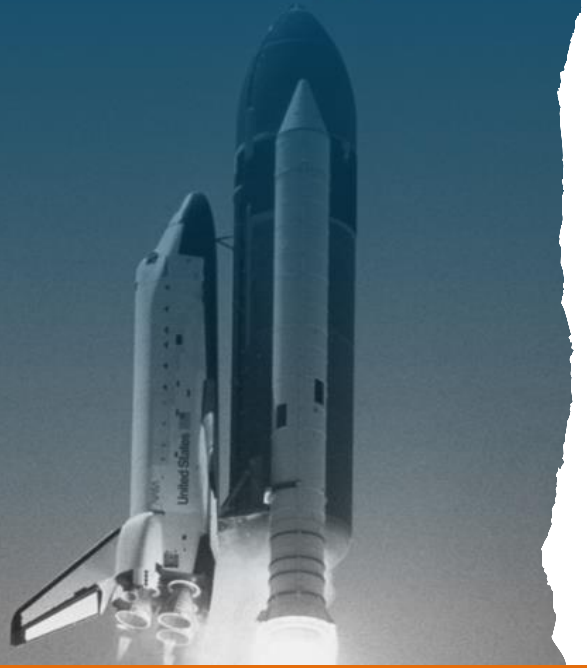
CLEAN: CARBON NEGATIVE HYDROGEN

SG H2 ENERGY

FUELING A CLEAN ENERGY
FUTURE, TODAY

THIS
IS
ROCKET
SCIENCE

www.SGH2Energy.com



SGH2 TECHNOLOGY

SGH2 Energy Global Corporation (“SGH2”)’s proprietary Solena Plasma Enhanced Gasification (SPEG) technology produces clean carbon negative hydrogen from any kind of waste – from paper to plastics, tires to textiles - with zero emissions and toxic byproducts.

SPEG is based on the Plasma Technology developed by US NASA for testing heat shield material, which protects Space Ships/Astronauts against the extreme heat of re-entry into the Earth's Atmosphere.

Our technology changes the game, and the world, solving two global crises: climate change and waste pollution.

Our clean carbon negative hydrogen is cost competitive with the cheapest, dirtiest fossil fuel derived hydrogen on the market

SGH2, headquartered in Washington DC, develops, builds, owns and operates this technology, with projects underway worldwide.

SGH2 GREENER THAN GREEN HYDROGEN

Proprietary state-of-the-art Solena Plasma Enhanced Gasifier (SPEG) technology successfully demonstrated at a full-size project in US and torch facility in Czech Republic

Avoids more carbon emissions than other hydrogen

- Lawrence Berkeley National Lab and Life Cycle Associates group have determined that our process' carbon intensity goes up to - 180 gCO2eq/MJ of H2, compared to 0 gCO2eq/MJ from electrolysis hydrogen. Further, it is guaranteeing the highest amount of production tax credit per kg of hydrogen. "Section 45V of IRA".
- Our process is designed to be Zero Liquid Discharge and it does not release any toxic emissions or effluents.
- Our Levelized Cost of Hydrogen (LCOH) is determined to be US$2 per kg of hydrogen, which is competitive with grey hydrogen produced from SMR using natural gas.

HYDROGEN: MORE CARBON REDUCTION AND LESS COST

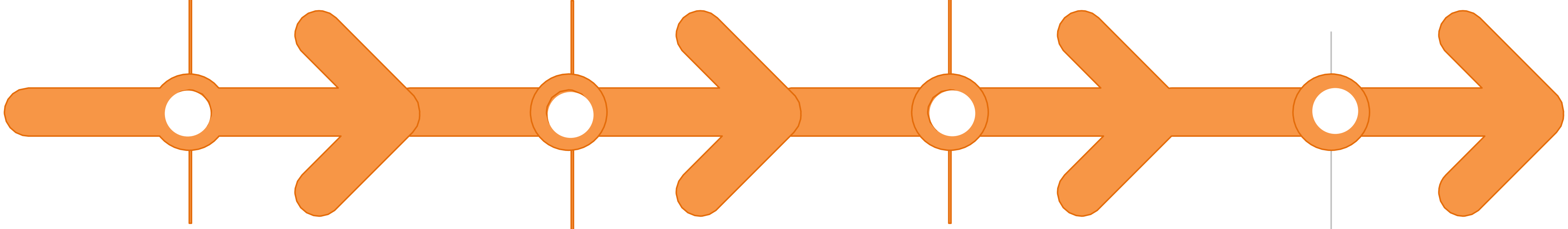
	HYDROGEN TYPES	CARBON INTENSITY (gCO2eq/MJ)	PRODUCTION $/Kg H2
GREEN HYDROGEN	SGH2 Greener than green Hydrogen	Depending on the feedstock, it can be up to -180 gCO2eq/MJ (less than 0 Kg of CO2 per Kg of H2)	$2-$3
	Green Hydrogen (Electrolysis)	0 gCO2eq/MJ	$6 - $8
HYDROGEN FROM FOSSIL FUELS	Grey Hydrogen from NatGas	+12 KgCO2/KgH2	$2-$6 (cost of natural gas)
	Brown Hydrogen from Gasification of Coal	+20 KgCO2/KgH2	$2 - $3
BLUE HYDROGEN WITH CARBON CAPTURE & SEQUESTRATION	Grey Hydrogen	+12 KgCO2/ KgH2 with CCS	$4 - $8
	Brown Hydrogen	+20 KgCO2/KgH2 with CCS	$4 -$5

SGH2 CLEANER & CHEAPER THAN GREEN HYDROGEN BY ELECTROLYSIS

Per 4,550 tons Clean H2 Per Year

	SGH2 CLEAN HYDROGEN	ELECTROLYSIS
Water	20,000 m^3 /year	57,000 m^3 /year
Electricity	36,000 MWh /year	273,000 MWh /year
Cost	\$2 - \$3 /Kg H2	\$5-\$7 / Kg H2
Waste Avoided	- 42,000 ton /year	
Plot Space	5 acres	300 acres / solar panels
Carbon Intensity CI	Up to - 180 gCO_2e/ MJ	0 gCO_2e/ MJ

SPEG TECHNOLOGY PROCESS



The feedstock is delivered to the Gasification facility by the recycling Company, the waste management company or biomass handling company already sorted, shredded and baled.

The feedstock is delivered into a specialized compactor / extruder with nitrogen blanketing and fed continuously into the gasifier.

Syngas Production

Feedstock goes through a Plasma Enhanced Single Stage Gasifier that is a fixed bed counter current gasification process that utilizes plasma torch heat and oxygen enriched air as an oxidant to convert the waste materials into a hydrogen rich synthetic gas.

Clean Hydrogen

The syngas then goes into the water gas shift, before entering the Pressure Swing Absorber system, resulting in 99.99% pure hydrogen. Our process extracts all carbon from the waste feedstock, removes all particulates and acid gases, and produces no toxins or pollutants.

Cement

Natural Gas Distribution

Mobility

Ammonia

Iron & Steel

Oil Refinery

SPEG TECHNOLOGY

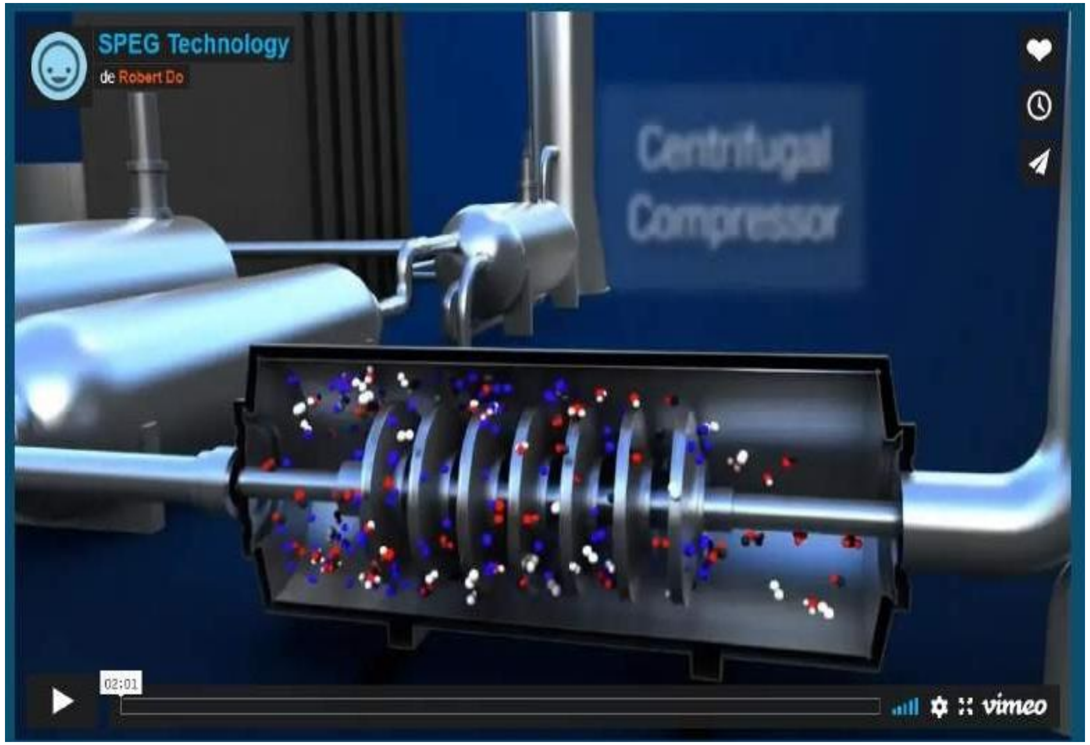
SGH2's unique gasification process uses a plasma-enhanced thermal catalytic conversion process optimized with oxygen- enriched gas. In the gasification island's catalyst-bed chamber, plasma torches generate such high temperatures (3500º-4000º C), that the waste feedstock disintegrates into its molecular compounds, without combustion ash or toxic fly ash.

As the gases exit the catalyst-bed chamber, the molecules bound into a very high-quality hydrogen-rich bio-syngas free of tar, soot and heavy metals. The syngas then goes through a water gas shift reactor before being fed into the Pressure Swing Absorber system resulting in hydrogen purity greater than 99.97% as required per the SAE-J2719 standard for use in Proton Exchange Membrane fuel cell vehicles.

The process extracts all carbon from the waste feedstock, removes all particulates and acid gases, and produces no toxins or pollution. The end result is high purity hydrogen and a biogenic CO2, which can be further captured with our CCS system to produce a carbon negative hydrogen.

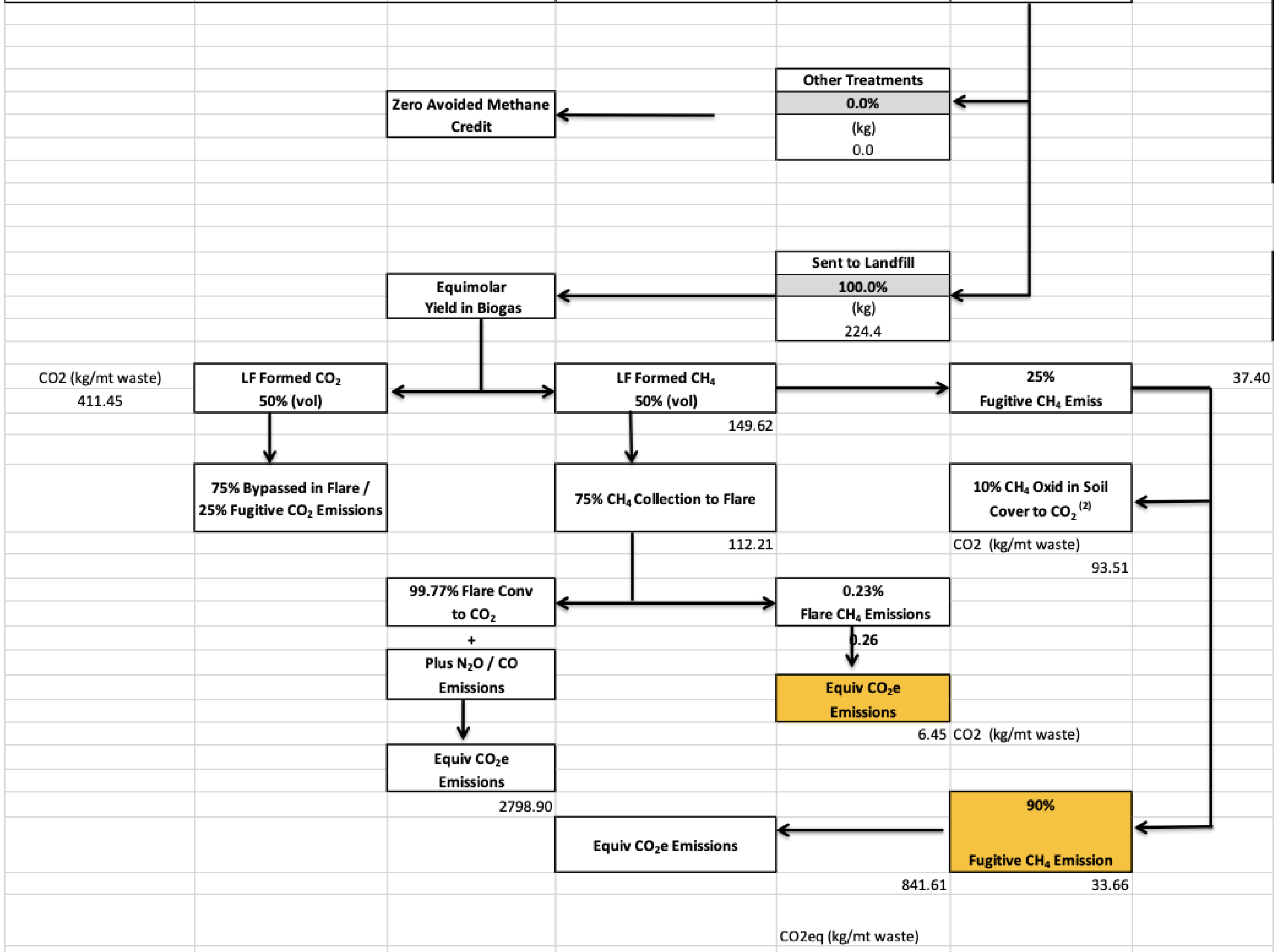
"Gasification" is the process of "partial-oxidation" (in contrast to combustion/burning which is "complete oxidation") of the waste biomass feedstock thus eliminating the polluting emissions of incinerator flue gases such as SOx, NOx, PMs and Dioxins / furans.

SPEG Technology Explained



https://vimeo.com/411145543

Basis: 1 MT Organic Waste Diverted (Wet Basis)	Degradable Organic Carbon (DOC), wet basis [1]	Fraction of DOC that remains unavailable	Fraction of DOC that is Actually Decomposed (DOC_f) [1]
	0.44886	0.50	0.50
(kg)	(kg)	(kg)	(kg)
1000.0	448.9	224.4	224.4



Other Treatments
0.0%
(kg)
0.0

Zero Avoided Methane Credit

Sent to Landfill
100.0%
(kg)
224.4

Equimolar Yield in Biogas

CO2 (kg/mt waste)
411.45

LF Formed CO_2 50% (vol)

LF Formed CH_4 50% (vol)
149.62

25% Fugitive CH_4 Emiss
37.40

75% Bypassed in Flare / 25% Fugitive CO_2 Emissions

75% CH_4 Collection to Flare
112.21

10% CH_4 Oxid in Soil Cover to CO_2 [2]
CO2 (kg/mt waste)
93.51

99.77% Flare Conv to CO_2
+
Plus N_2O / CO Emissions

0.23% Flare CH_4 Emissions
0.26

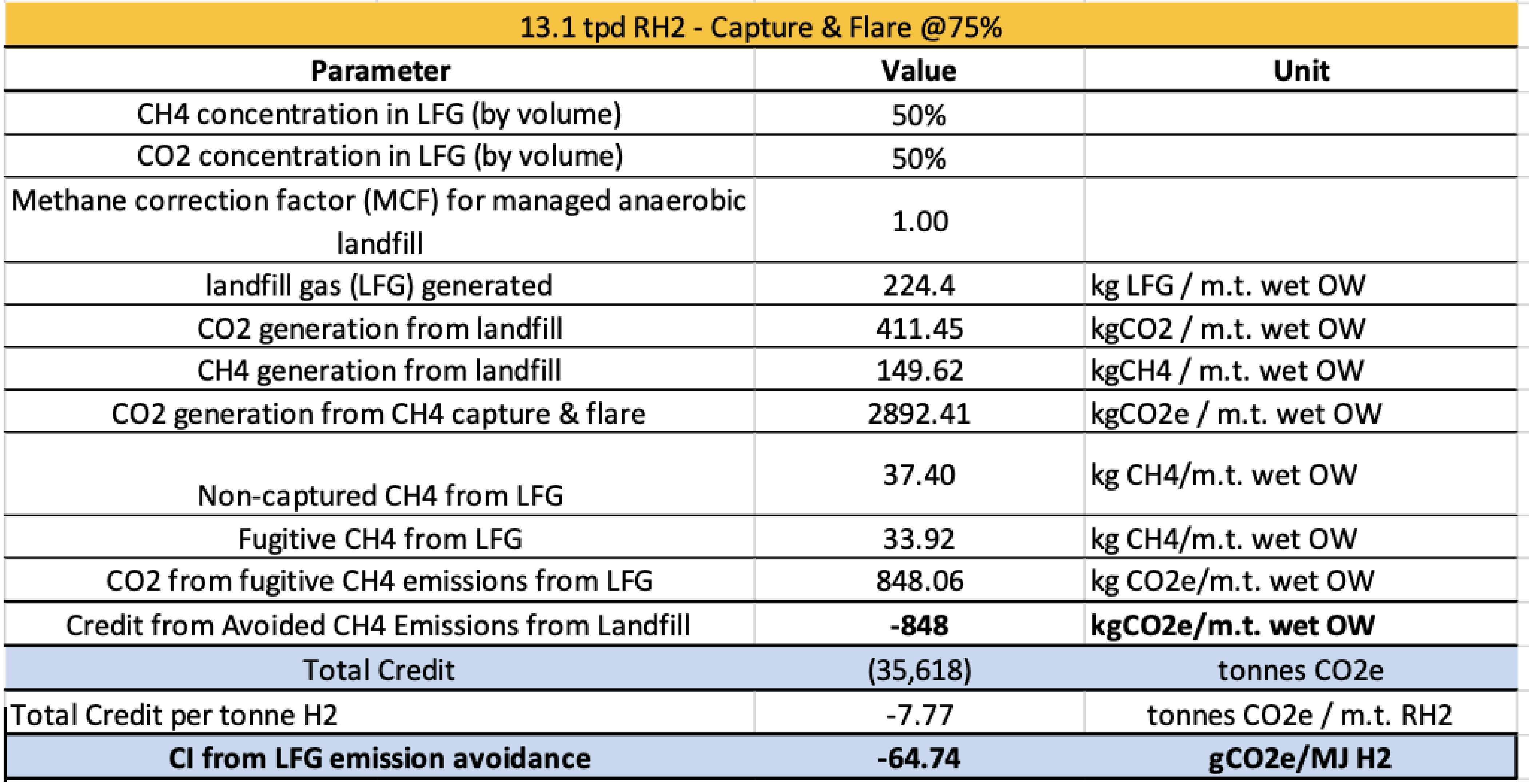
Equiv CO_2e Emissions
6.45 CO2 (kg/mt waste)

Equiv CO_2e Emissions
2798.90

90% Fugitive CH_4 Emission
33.66

Equiv CO_2e Emissions
841.61

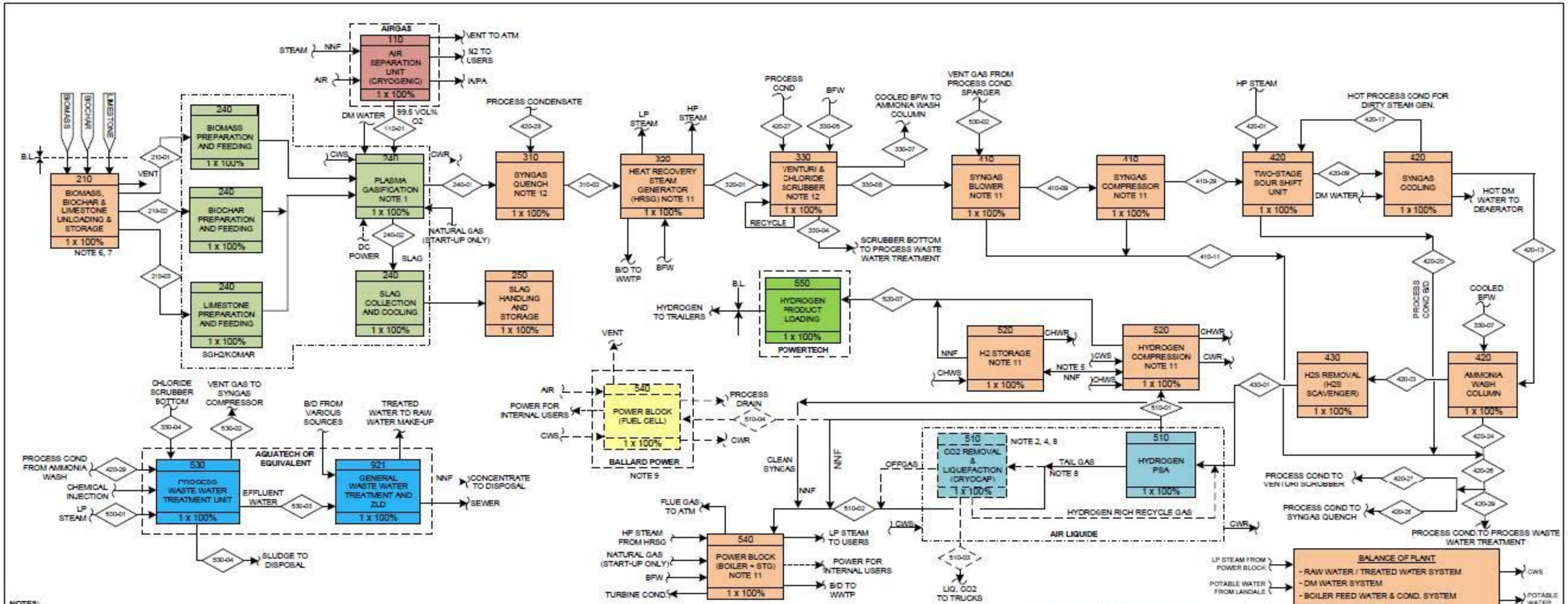
CO2eq (kg/mt waste)



13.1 tpd RH2 - Capture & Flare @75%

Parameter	Value	Unit
CH4 concentration in LFG (by volume)	50%	
CO2 concentration in LFG (by volume)	50%	
Methane correction factor (MCF) for managed anaerobic landfill	1.00	
landfill gas (LFG) generated	224.4	kg LFG / m.t. wet OW
CO2 generation from landfill	411.45	kgCO2 / m.t. wet OW
CH4 generation from landfill	149.62	kgCH4 / m.t. wet OW
CO2 generation from CH4 capture & flare	2892.41	kgCO2e / m.t. wet OW
Non-captured CH4 from LFG	37.40	kg CH4/m.t. wet OW
Fugitive CH4 from LFG	33.92	kg CH4/m.t. wet OW
CO2 from fugitive CH4 emissions from LFG	848.06	kg CO2e/m.t. wet OW
Credit from Avoided CH4 Emissions from Landfill	**-848**	**kgCO2e/m.t. wet OW**
Total Credit	(35,618)	tonnes CO2e
Total Credit per tonne H2	-7.77	tonnes CO2e / m.t. RH2
CI from LFG emission avoidance	**-64.74**	**gCO2e/MJ H2**

note		Characterized feedstock per	Uncharacteized feedstock per CARB		Uncharacteized feedstock per CARB & Using IPCC data	
a	Basis for DOCf	**Case 1 : Paper contained in MSW**	**Case 2 : Mixed paper (MP)**	**Case 3 : MP with low CI for Power & Transport**	**Case 4 : IPCC GWP = 25**	**Case 5 : IPCC GWP = 80**
b	DOCf value	0.37	0.50	0.50	0.77	0.77
c	GWP value	25	25	25	25	80
TIER - 1 based Carbon Intensity						
d	Landfill Gas Avoidance	-47.91	-64.74	-64.74	-99.70	-319.03
e	Carbon Capture & Sequestration	-127.00	-127.00	-127.00	-127.00	-127.00
Other emissions						
f	Feedstock transport	0.49	0.49	0.00	0.49	0.49
g	SGH2 related emissions (power)	9.94	9.94	0.00	9.94	9.94
g	CO2 compression (power)	0.00	0.00	0.00	0.00	0.00
h	H2 transport	7.21	7.21	0.00	7.21	7.21
h	H2 distribution : compression & pre-cooling	11.04	11.04	11.04	11.04	11.04
Total Project Carbon Intensity Results						
	Total Project CI (gCO2/MJ H2)	**-146.23**	**-163.06**	**-180.70**	**-198.02**	**-417.35**
	Likelihood to be accepted by CARB	**Unlikely**	**Possible**	**Base Case**	**Unlikely**	**Very unlikely**



BALANCE OF PLANT

- RAW WATER / TREATED WATER SYSTEM
- DM WATER SYSTEM
- BOILER FEED WATER & COND. SYSTEM
- SERVICE / POTABLE WATER SYSTEM
- COOLING WATER SYSTEM
- FIRE WATER/ FIRE PROTECTION SYSTEM
- STORM/ OILY WATER SYSTEM
- EMERGENCY GENERATOR (DIESEL)
- ENCLOSED GROUND FLARE
- FUEL GAS SYSTEM
- INSTRUMENT AIR / PLANT AIR/ NITROGEN
- START-UP BOILER
- SANITARY WATER SYSTEM

LP STEAM FROM POWER BLOCK
POTABLE WATER FROM LANDALE
CWR
TREATED WATER FROM ZLD
CHEMICALS
NATURAL GAS FROM B/L
POWER FROM LCE

CWS
POTABLE WATER
BFW
UTILITY WATER
DEMIN WATER

NOTES:

1. RAW SYNGAS WILL BE AVAILABLE AT THE B/L FROM THE SGH2 LICENSED PLASMA GASIFICATION UNIT.
2. RECOVERY OF HYDROGEN ACROSS PSA UNIT IS CONSIDERED AS 85% AND 99.97% H2 PURITY. AFTER CRYOCAP INSTALLATION DURING FUTURE OPERATION, H2 RECOVERY IS CONSIDERED AS 98%. TO BE CONFIRMED UPON RECEIPT OF AIR LIQUIDE DATA.
3. ALL COMPRESSOR INTER-COOLING IS BY AIR COOLERS.
4. UTILITY REQUIREMENTS IN CRYOCAP H2 UNIT TO BE CONFIRMED UPON RECEIPT OF AIR LIQUIDE DATA.
5. ONE CONNECTION FROM VARIOUS STAGES OF H2 COMPRESSOR TO STORAGE IS PROVIDED. SAME CONNECTION WILL ALSO BE USED FOR H2 DRAW OFF FROM STORAGE TO VARIOUS STAGES OF H2 COMPRESSOR FOR TRAILER LOADING.
6. BIOMASS WILL BE RECEIVED VIA TRUCKS AT THE UNLOADING STATION IN THE FORM OF BALES. FROM UNLOADING STATION THE BALES WILL BE TRANSFERRED TO EITHER BIOMASS STORAGE OR TO FEED PREPARATION AREA (240) VIA FRONT END LOADERS. RANDOM BIOMASS FEEDSTOCK SAMPLING WILL BE PERFORMED FOR QUALITY CONTROL PURPOSES.
7. BIOCHAR & LIMESTONE WILL BE RECEIVED IN SUPER-SACKS. UNLOADING AND STORAGE WILL BE HANDLED MANUALLY BY FORKLIFTS. SUPER-SACKS WILL BE STORED IN THE SAME BUILDING AS THE BIOMASS STORAGE. BIOCHAR AND LIMESTONE CONVEYING AND TRANSFER TO GASIFIER FEEDING AREA WILL ALSO BE HANDLED BY FORKLIFT.
8. CO2 REMOVAL & LIQUEFACTION (CRYOCAP) INSTALLATION IS DEFERRED TO NEXT PHASE PENDING CO2 FF-TAKE, HENCE PSA TAIL GAS WILL BE DIRECTLY ROUTED TO THE POWER BLOCK.
9. FUEL CELL INSTALLATION DEFERRED TO NEXT PHASE.
10. ASIDE FROM THE UNIT SCOPES DEPICTED, SUPPORT WILL BE ENGAGED WITH DUKE ENGINEERING FOR CSA SCOPE, ABB FOR OSBL E&CSI SCOPE, AND GS ENGINEERING AND CONSTRUCTION CORP. (GS E&C) FOR POTENTIAL MODULARIZATION SCOPE.
11. PACKAGE DUTY SPECIFICATIONS/ DATASHEETS, ENGINEERING SPECIFICATIONS AND STANDARDS, REVIEW AND OVERALL OWNERSHIP BY FLUOR. DESIGN, ENGINEERING AND SUPPLY OF PACKAGE AS SKID MOUNTED/MODULAR SYSTEM BY BRADTCO.
12. DESIGN AND ENGINEERING BY FLUOR. EQUIPMENT SUPPLY BY BRADTCO.

NOTE 10

- 🟧 FLUOR SCOPE
- 🟦 AIR LIQUIDE SCOPE
- 🟩 SGH2 TECHNOLOGY SCOPE
- 🟥 AIRGAS SCOPE
- 🟨 BALLARD POWER SCOPE
- 🟩 POWERTECH SCOPE
- 🟦 AQUATECH OR EQUIVALENT SCOPE

ABBREVIATIONS

B/D: BLOWDOWN
B/L: BATTERY LIMIT
BFW: BOILER FEED WATER
COND: CONDENSATE
CHWR: CHILLED WATER RETURN
CHWS: CHILLED WATER SUPPLY
CWR: COOLING WATER RETURN
CWS: COOLING WATER SUPPLY
DM WATER: DEMINERALIZED WATER
GEN: GENERATION
STG: STEAM TURBINE GENERATOR
WWTP: WASTE WATER TREATMENT PLANT

REV	DATE	REFERENCE DWG NUMBER	BY	CHK	APPV	APPV
A	18-MAY-22	ISSUED FOR INTERNAL REVIEW	MNK	KS	RR	
0	23-MAY-22	ISSUED FOR CLIENT REVIEW	KS	MNK	RR	
1	08-JUN-22	RE-ISSUED FOR CLIENT REVIEW	KS	MNK	RR	
2	16-JUN-22	ISSUED FOR CEQA APPLICATION	KS/AH	MNK	RR	
3	30-JUN-22	ISSUED FOR FEL-2	KS/SB	MNK	RR	
4	19-JUL-22	ISSUED FOR DESIGN	KS/SB	MNK	RR	

REV	DATE	REFERENCE DWG NUMBER	BY	CHK	APPV	APPV
4A	22-JUL-22	RE-ISSUED FOR DESIGN	SJB	OS	NK	
4B	05-AUG-22	RE-ISSUED FOR DESIGN	KS	SS	NK	

FLUOR®
SG H2 ENERGY

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CONTRACT
A8XG
DESIGNED BY
KS
CHECKED BY
MNK
SUPERVISOR
RR
APP DATE
LEAD ENG./SPEC.
APP DATE
FLUOR
APP DATE
CLIENT
APP DATE

SGH2 LANCASTER BIOMASS TO RENEWABLE HYDROGEN PROJECT

BLOCK FLOW DIAGRAM

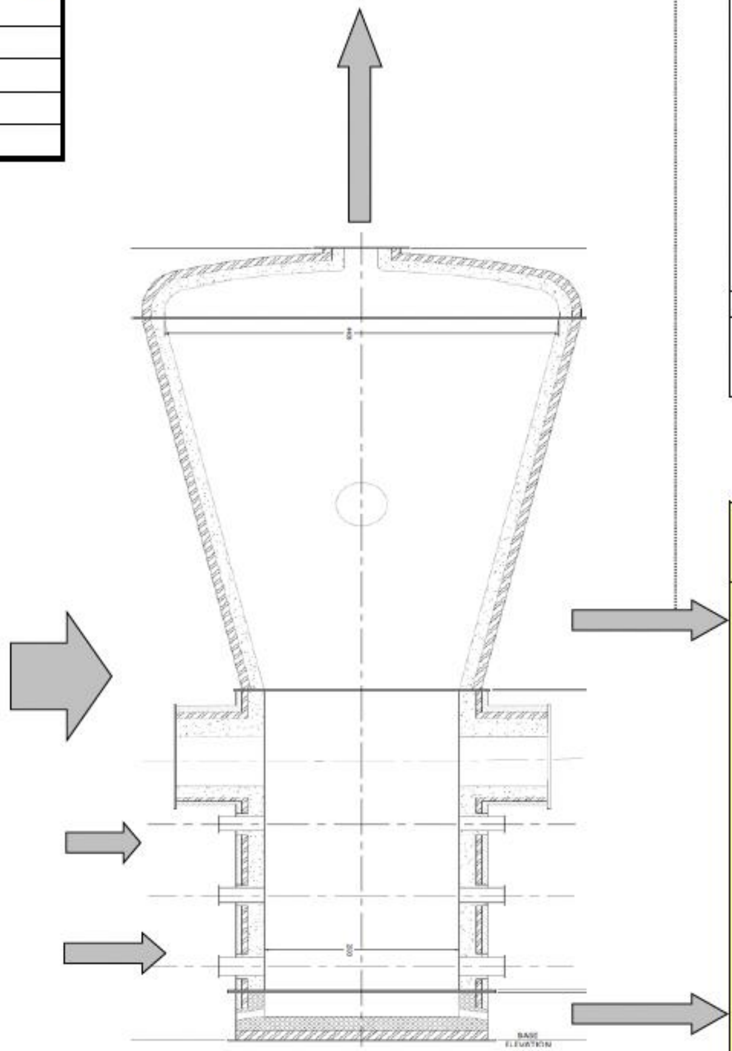
SCALE
NONE
DRAWING NUMBER
A8XG-000-225-BFD-001
REV.
4B

LANCASTER Project - Base Case

2/2/23 9:42 AM

Vol.(Nm^3/hr)	*8,221*
Syn Gas	
Temp ° C	*1204*

	Waste Paper Composition (% Wt)
Volatile Matter	80.08
Fixed Carbon	8.53
Inert	1.54
Moisture	9.85
Tot	**100.00**



Syn Gas Composition (gas only)		
Consituent	Weight %	Volume %
CO	66.70%	49.05%
CO_2	18.26%	8.55%
H_2	2.89%	29.49%
N_2	2.13%	1.56%
H_2S	0.04%	0.02%
H_2O	9.83%	11.24%
Ar	0.15%	0.08%
HCN	0.00%	0.00%
COS	0.00%	0.00%
CH4	0.00%	0.00%
HCl	0.00%	0.00%
Total	100.00%	100.00%
	kcal/kg	MJ/kg
HHV	2647	11.08
LHV	2439	10.20

	Power Input MW (LHV)	**Mass Input kg/hr**
Feedstock	22.9	5000
Fluxing agent		50
Catalyst	2.0	250
Enriched Air		2214
Thermal Plasma Torch *Temp ° C*	0.8	182
Total	**25.7**	**7696**

Mass Output kg/hr	**Power Output MW (LHV)**	
	4.1	SynGas Sensible
	21.4	SynGas Chemical
7553		Syngas
	0.7	Heat Losses incl. CW interfaces
		Slag
142	0.2	Slag sensible
7694	**26.4**	**Total**

STRATEGIC PARTNERS

Feedstock

Feedstock

The municipality and/or

ALLAN COMPANY

Syngas

Gasification island

SG H2 ENERGY

FUELING A CLEAN ENERGY FUTURE, TODAY

Process Integration and Balance of Plants

FLUOR®

BLACK & VEATCH

H2 Production

Air Liquide
creative oxygen

ABB

Linde

Hydrogen Off taker

Global leaders in O&G and industrial gases

Performance Guarantees

Munich RE

SGH2 LANCASTER: BEST IN CLASS CONSORTIUM

Lancaster City
US Senate & Congress (CA)
SGH2 Energy
Iwatani
Fluor
Stork
ABB
Marubeni
Chart Industries
Sempra Infrastructure
Mitsubishi
Toyota North America
Sojitz

SIGNING CEREMONY SEPTEMBER 2021

SGH2 LANCASTER

LARGEST BASELOAD CLEAN HYDROGEN PRODUCTION PLANT IN U.S

GENERATING 4.5 MILLION KG OF CLEAN HYDROGEN ANNUALLY

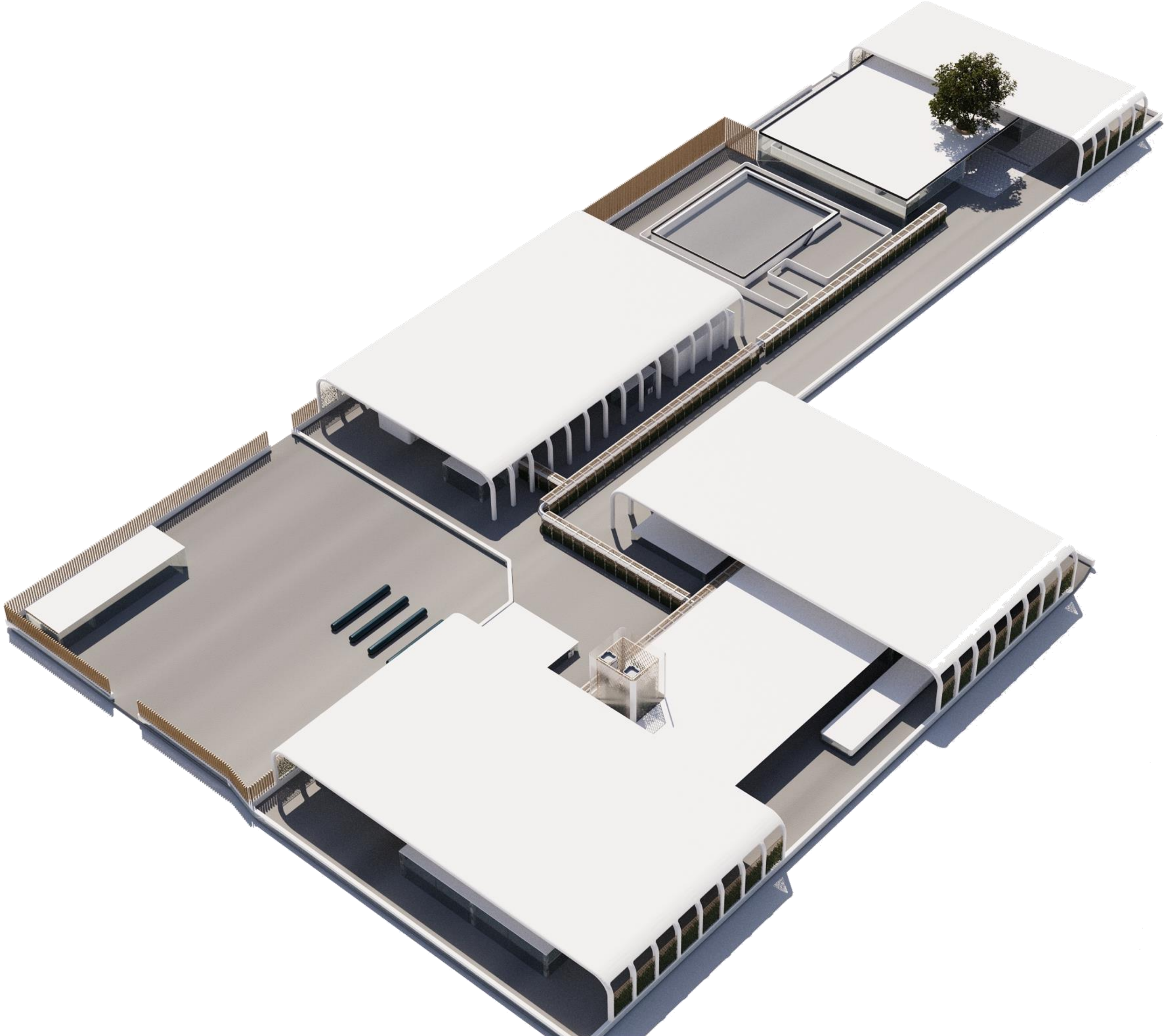
10 YEAR OFF-TAKE CONTRACTS WITH THE LEADING HYDROGEN FUELING STATION OPERATORS

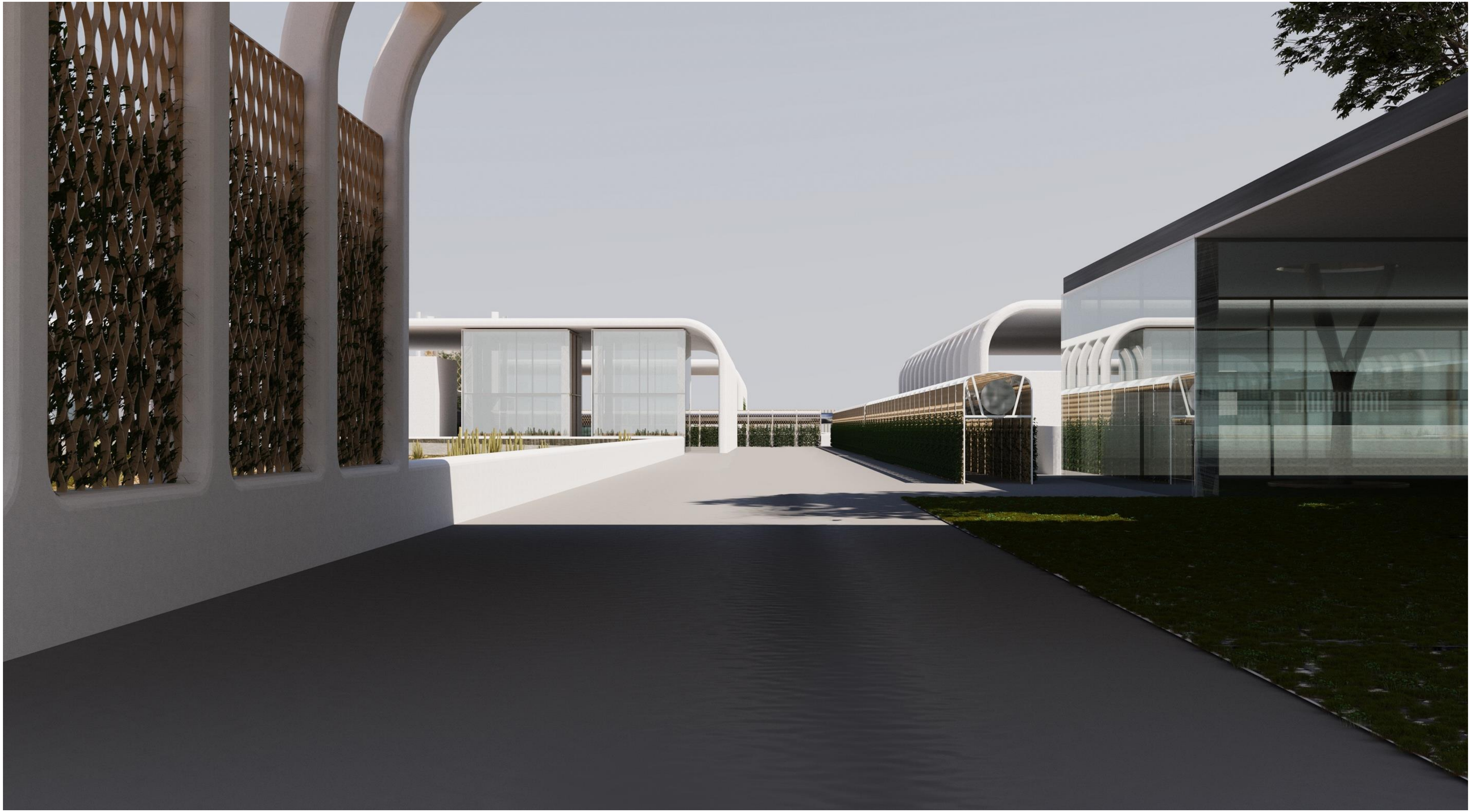
PUBLIC - PRIVATE PARTNERSHIP WITH THE CITY OF LANCASTER USING 120 TONS/DAILY OF UNRECYCLABLE MIXED PAPER WASTE.

AWARDED $3 MILLION CEC GRANT.

CEQA/CUP APPROVED DECEMBER 12, 2022

OPERATING 24/7, 350 DAYS ANNUALLY





SGH2 Sierra Project

Largest baseload clean LIQUID hydrogen production plant in U.S

Generating 11.5 million kg of LIQUID HYDROGEN

Operating 24/7, 350 days annually

Partnership with IWATANI, off-take contract to supply HRS.

MOU with SIERRA INSTITUTE, 360 tons/day of forest residues from forest clearings, preventing wildfires

Awarded $500,000 DOC Grant phase I . Eligible for phase ii $25 M Grant

KEY FACTORS

Favorable location & permitting

California, the most advanced clean energy state in the US, has strong policies and funding for ambitious hydrogen and fuel cell technology adoption in transportation and power. The state's transportation sector is its largest source of GHG emissions, generating 37% of total emissions. **California aims to install a minimum 200 hydrogen refueling stations by 2025 and 1,000 stations by 2030 to fuel one million fuel cell vehicles.**

Strong Economies of Scale

With production cost benchmark of clean H2 at less than US$2.5 per kg, The Lancaster facility will be able to derive strong economies of scale for the entire clean H2 value chain. Production facility is modular and easily scalable.

Outcompetes All Other Hydrogens

SMR (Steam Methane Reformer) of natural gas to produce grey H2 generates carbon emissions of 12.3 kg CO2/kg of grey H2.

Renewable Natural Gas (RNG) as a feed for making clean H2 can only be produced at small quantities and a high price making H2 from RNG cost inefficient and limited in quantity, due to the scarce amount of wet fermentable waste feedstock.

Green power-to-gas or electrolytic H2 : (i) intermittent production due to availability of renewable power; (ii) high energy load of 60 KW/h required to produce1 kg of H2; (iii) high costs of power; and (iv) high demand for large land and water usage resulting in currently high costs of US$6-$8 per kg clean H2.

SGH2 TYPICAL MODULAR PROJECT

SMALL FOOTPRINT, BIG CAPACITY

LAND REQUIREMENT

5 acres (2 hectares) for the processing modular plant. The rest of the acreage will depend on the amount of feedstock storage required and how hydrogen is stored and transported from the site.

FEEDSTOCK REQUIREMENT

120 MT per day of biomass (equivalent to 6 trucks a day) with a minimum of 4,000 Kcal/Kg calorific content and ideally with no more than 25% moisture.

CARBON NEGATIVE CLEAN H2 PRODUCTION

13 T of H2 per day or 4,550 T per year.

Equivalent to 15 million Nm^3 per year of natural gas.

SGH2 CORPORATION
THE WORLDWIDE SOLUTION

CAN SCALE QUICKLY

Stacked modular design is built for rapid scale and linear distributed expansion, at lower capital costs, and a fraction of the land required by other green hydrogen facilities reliant on large scale solar and wind farms. All engineering and construction is standardized and quality assured, performed in collaboration with the largest engineering, procuring and construction companies in the world such as Fluor Group.

PROVIDES CLEAN HYDROGEN YEAR-ROUND, 24/7

Unlike other hydrogen production reliant on solar or wind, the SPEG process operates on a year-round base load capacity and can produce hydrogen at scale more reliably.

FUELING A CLEAN ENERGY FUTURE, TODAY

Bloomberg New Energy Finance analysis predicts dramatic greenhouse gas reductions when green hydrogen becomes cost competitive, and forecasts green hydrogen costs dropping to U.S. $2 per kilogram by 2030 in India and Western Europe. SGH2 is producing greener than green hydrogen at that cost today.

ACCELERATION PHASE: 6 PROJECTS

Rolling Out Between 2023-2024

GROWTH PHASE 2024-2040

SGH2 HAS CREATED WAVES OF POSITIVE NEWS FLOW

Forbes

The World's Biggest Green Hydrogen Plan is Planned for California. Its Prospects For Electric Power and Transportation?

abc NEWS

Why green hydrogen is the renewable energy source to watch in 2021

S&P Global Platts

Zero-carbon could be cost-competitive in transport sector by 2030

Los Angeles Times

First of its kind hydrogen plant planned for Los Angeles County

THE WORLD NEWS

California City approves the world's largest green hydrogen plan that turns trash into clean power

RECHARGE

Green than green hydrogen to be produced at same cost as grey H2 at world's largest facility

See more at www.SGH2Energy.com

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FUELING A CLEAN ENERGY FUTURE, TODAY

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