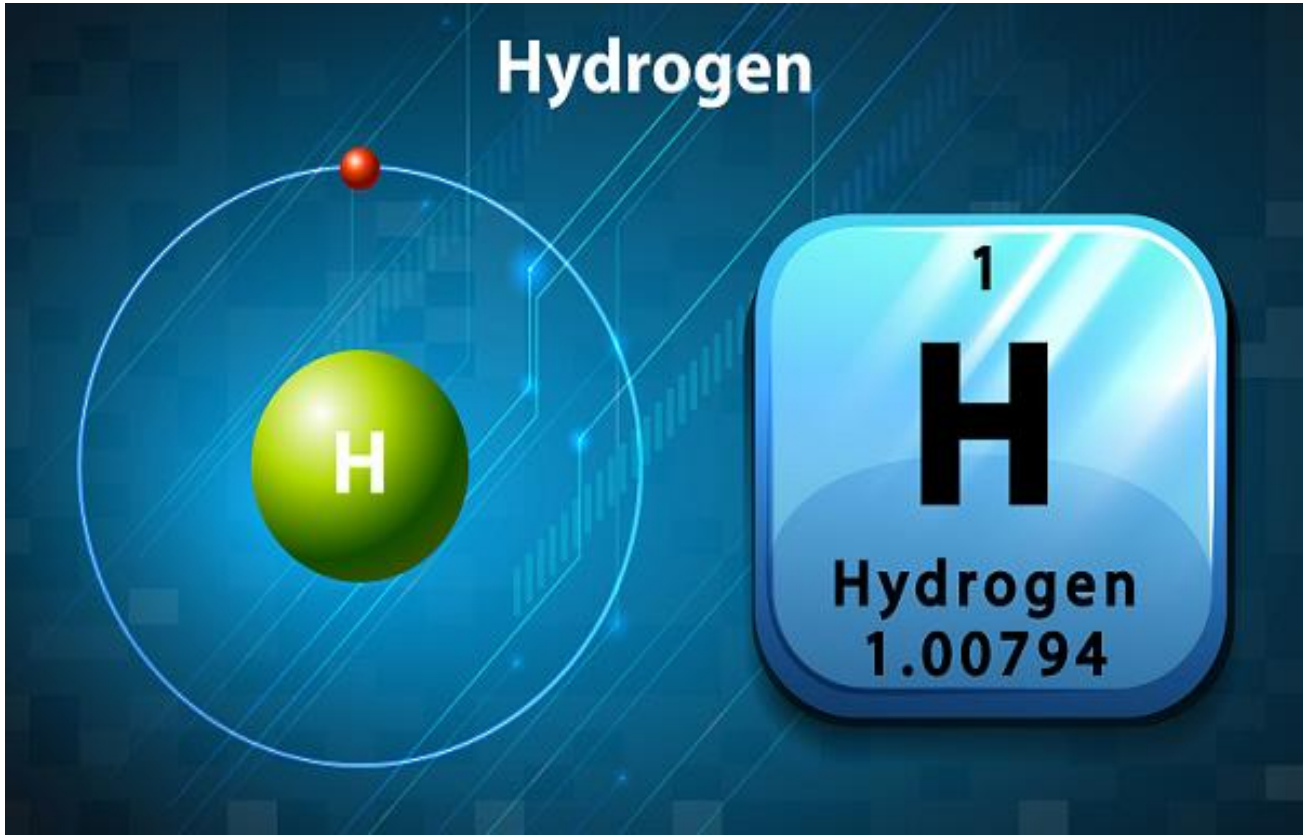
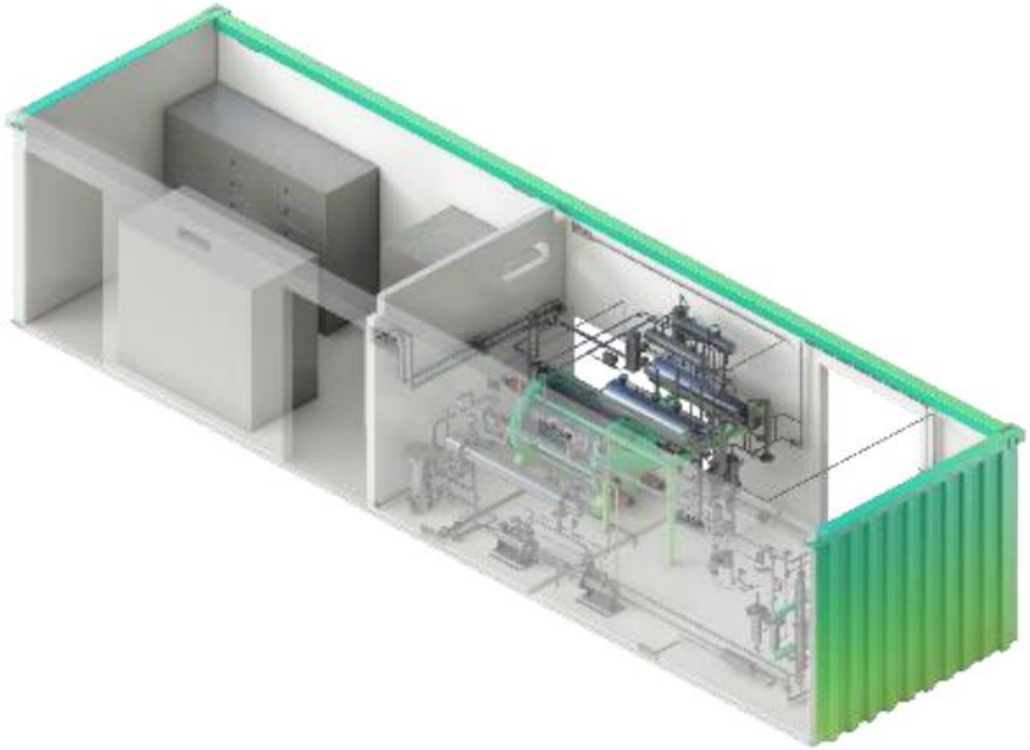
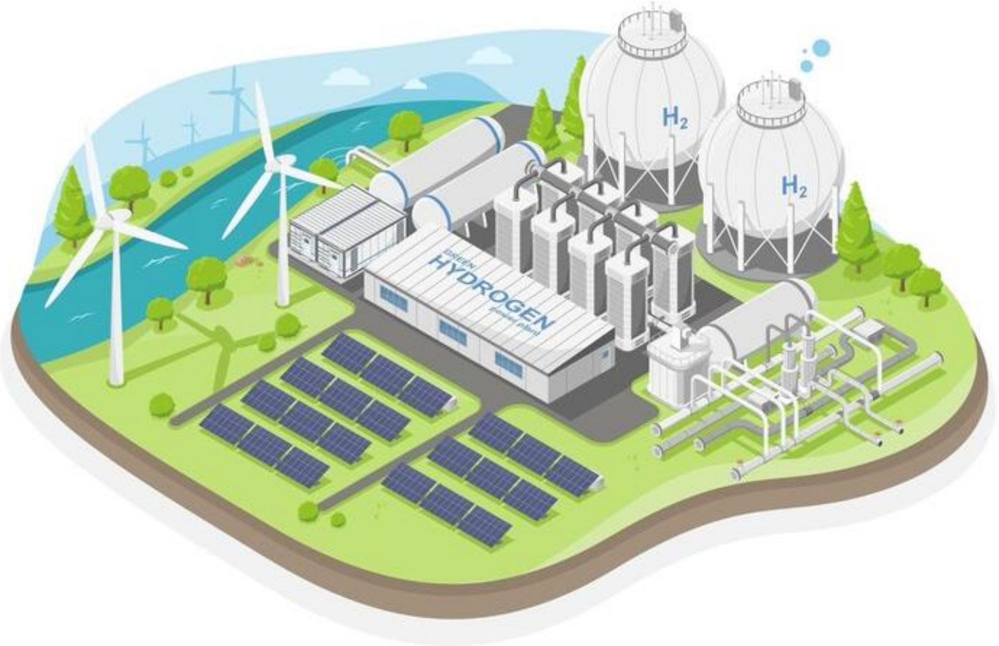
DHT ENERGY CORP
DISRUPTIVE HYDROGEN TECHNOLOGIES







Disruptive Hydrogen Technologies (DHT) Energy Corp.

DHT ENERGY CORP is a Climate Technology Company

- **Disruptive Hydrogen Technologies (DHT) Energy Corp**., (https://www.dhtenergy.com)
- Company registration No. 1331230-5 and whose registered office address is at 500 St. George St, Moncton, NB E1C 1Y3, Canada.
- DHT is 4 years old Company, derived from **a 16 years old Swiss Multinational Green Energy Company.**

DHT is a Canadian Corporation providing complete value chain services to the hydrogen and ammonia markets including Feasibility, Design, Planning, Manufacturing and Integration production systems. DHT is also active in the offtake and logistics ecosystem, with partnerships in place towards transforming big multinationals fuel production into sustainable businesses.

DHT ENERGY CORP is a Climate Technology Company

- DHT has 1 GW Alkaline Electrolyzer Manufacturing Capacity in 2025.

- DHT has a strong focus on electrolyzer efficiency, possessing confidential and proprietary IP.

- DHT has a strong R&D team which is focused on the improvement of Alkaline electrolyzers, using an excitation-based proprietary stimulus patented file package, concurrently protected in 157 countries. Its technology reduces electrolyzers energy consumption, improving the economics and Opex of green hydrogen production, therefore increasing its use cases, and providing a strong competitive advantage particularly when combined with DHT's focus on maximizing electrolyzer longevity and also establishing a very competitive project Capex.

- The intent of our company DHT Energy Corp. is that we are seeking impact in the fight against climate change. We hope we can support our partner in a faster green transition than would otherwise have been.

DHT Alkaline Electrolyser Stack Technology

- Current Hydrogen Generation Product Details
- DHT Technology Invention
- Stack Engineering Design
- Supply Chain
- Hitech Manufacturing

Key Elements of Alkaline Technology

- **Electrolyte** — **Potassium hydroxide (KOH)** 30% Concentration Higher conductivity
- **Diaphragm** — **Mesh Polyphenylene sulfide** (PPS) fabric coated with polymer and zirconium oxide. Permeable to KOH Solution
- **Electrode** — **Porous Nickle-based electrodes** Good resistance to alkali attacks, high electrocatalytic activity, Inexpensive
- **Operation** — **Equal pressure** operation within cell
- **Water Intake** — **LYE** entering both side of electrodes
- **Ion exchange** — **OH^- ion** (Moves cathode to anode)
- **Export component** — **H2 + lye** mixture | **O2 + lye** mixture

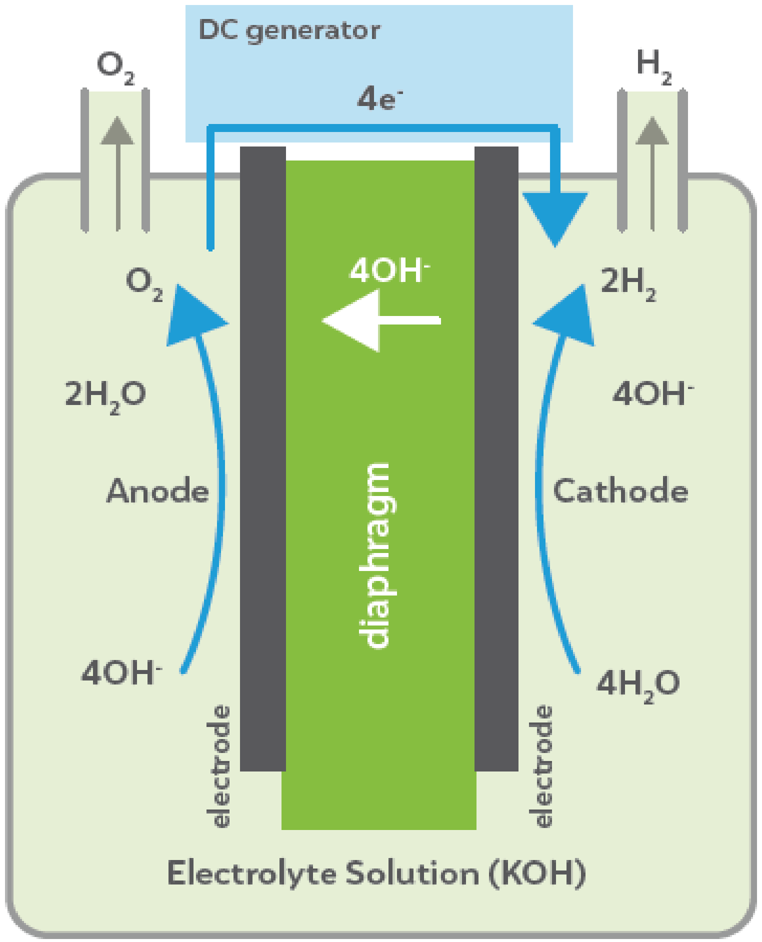
Pros:

- Mature & Proven Technology
- Non noble materials, Lower cost
- Stable operation suitable for large-scale production, High energy efficiency for steady current.

Cons:

- Corrosive liquid electrolyte
- Less flexible operation (40-100%)
- Higher start-up time
- Footprint

Alkaline Cell Reaction

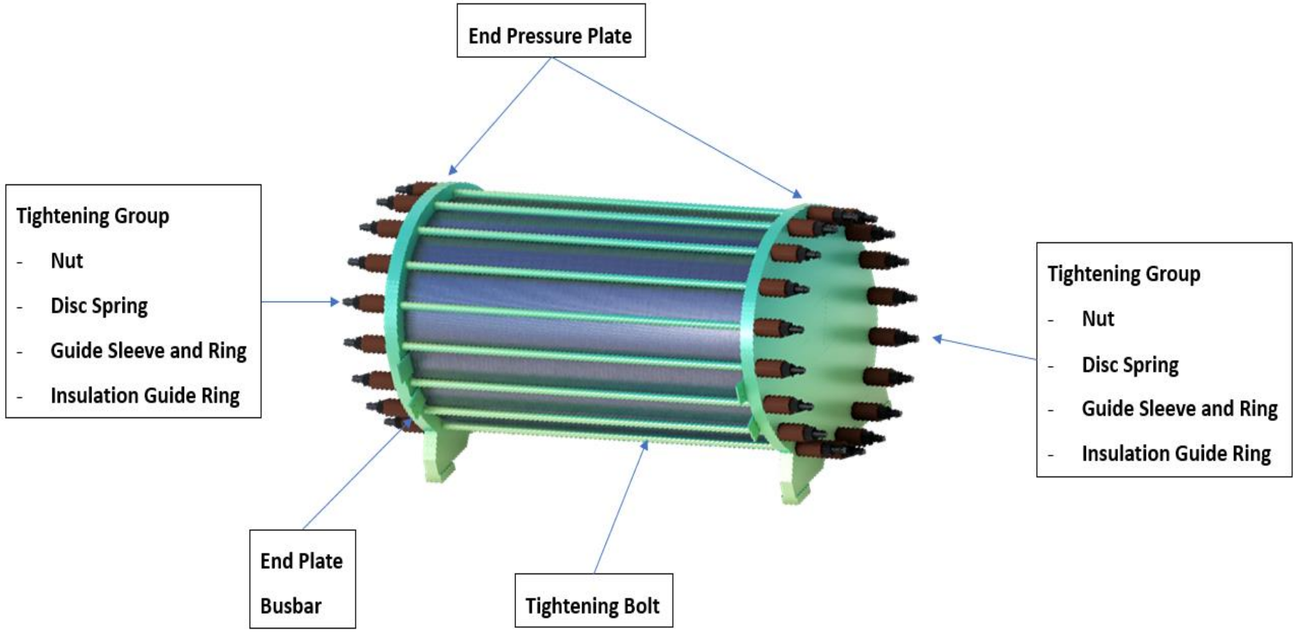


Cathode: $4H_2O + 4e^- \rightarrow 2H_2 + 4OH^-$

Anode: $4OH^- \rightarrow O_2 + 2H_2O + 4e^-$

DHT – HyZenis Alkaline Electrolyser Baseline Model

Description	DHT Base Line Model
H2 Production (Nm3/hr)	1000
O2 Production (Nm3/hr)	500
Operating Rated Voltage (V)	735
Operating Rated Current (A)	6600
DC Power Consumption (kwh/Nm3)	4.0 – 4.4
Hydrogen Purity	> 99.8 %
Purified Hydrogen Purity	> 99.99%
Operating Pressure (Mpa)	1.8
Temperature	90±5
Operating Range	20% - 110%
Cold Start Time (Min)	50
Hot Start Time (Min)	5
Stack Lifetime	100,000 hours



5 MW (1000 Nm3/hr) Alkaline Electrolyser Stack

Technical Parameters:

- Stack Diameter : ⌀ 2300 mm (End Plate)
- Stack Length : 4700 mm (End to End Plate)

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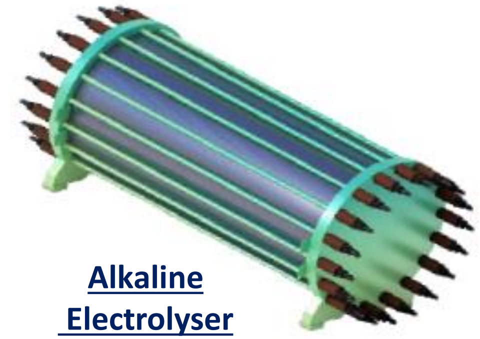
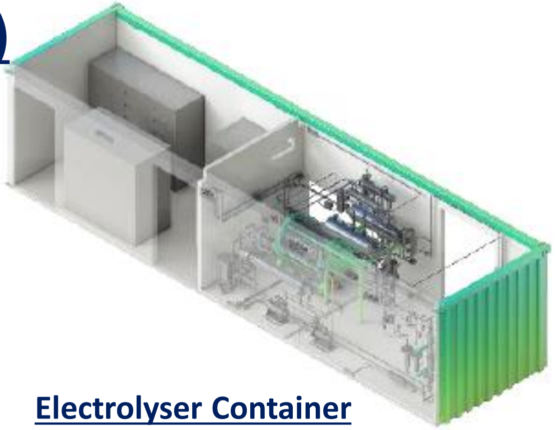
DHT – HyZenis (Alkaline Base line Models Technical Details)



Alkaline Electrolyser

Gas Separation Unit

H2 Purification Unit



Electrolyser Container

DHT BASE LINE MODEL

- Stack DC Power Consumption

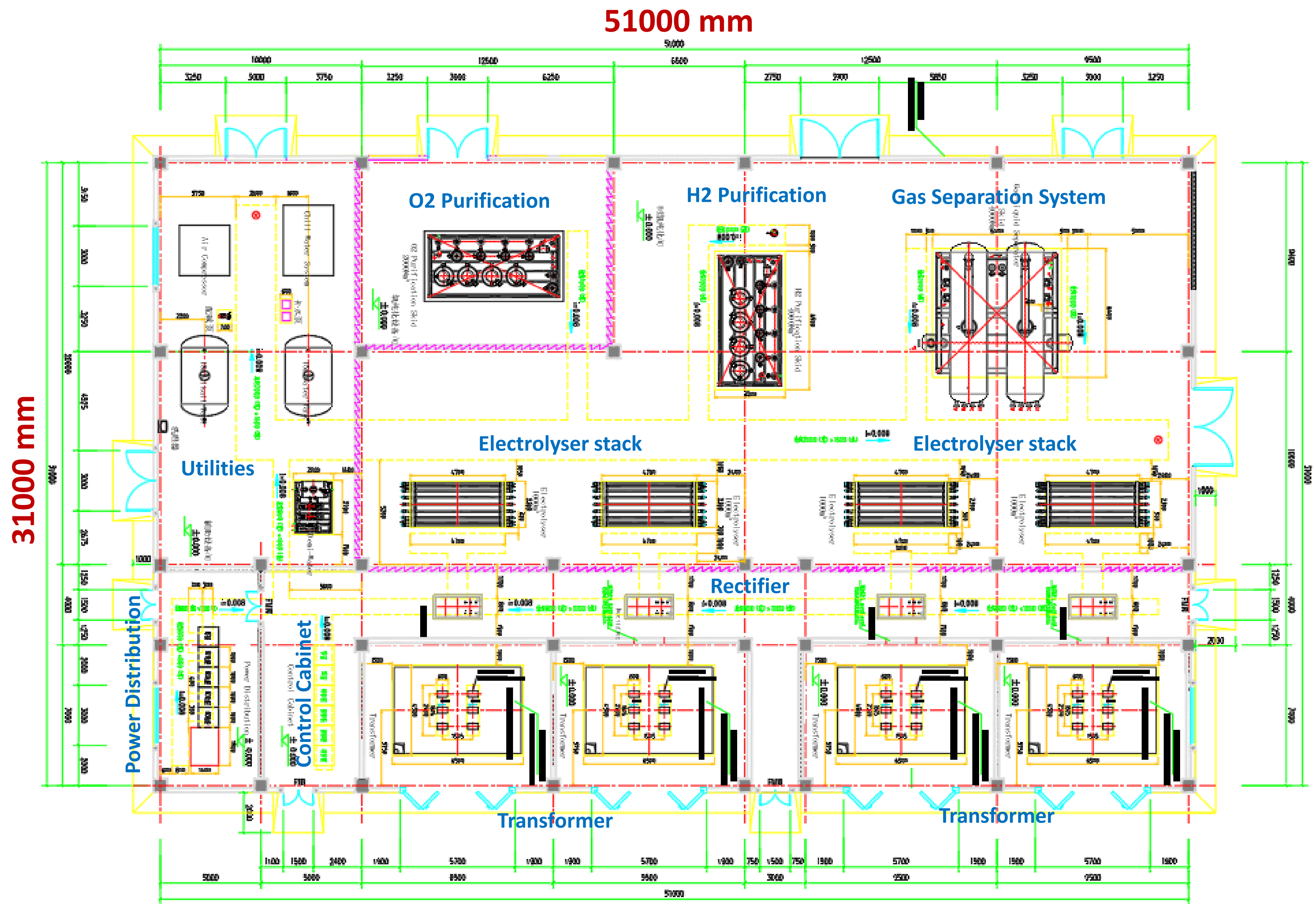
  4.0 kWh/Nm3 H2

- System Power Consumption

  4.3 kWh/Nm3 H2

Model	DHT – 0.2	DHT - 10	DHT - 100	DHT - 200	DHT – 500	DHT - 1000	DHT - 1500	DHT - 2000
Hydrogen production rate (Nm³/h)	0.2	10	100	200	500	1000	1500	2000
DC power consumption (kWh/Nm3)	/	4.4-4.6	4.3-4.5	4.3-4.5	4.3-4.5	4.0-4.4	4.2-4.4	4.2-4.5
Hydrogen purity	/	≥99.8%	≥99.8%	≥99.8%	≥99.8%	≥99.8%	≥99.8%	≥99.8%
Purified hydrogen purity	/	≥99.999%	≥99.999%	≥99.999%	≥99.999%	≥99.999%	≥99.999%	≥99.999%
Operating Pressure (Mpa)	Atmospheric Pressure	1.8/3.2	1.8	1.8	1.8	1.8	1.8	1.8
Operating Temperature (°C)	90±5	90±5	90±5	90±5	90±5	90±5	90±5	90±5
Adjustment Range	/	40-110%	30-110%	30-110%	30-110%	20-110%	20-110%	20-110%
Cold Start Time (min)	External heating	80	60	60	60	50	50	50
Hot Start Time (min)	External heating	10	8	8	8	5	5	5
Major Repair Cycle (years)	/	10	10	10	10	10	10	10

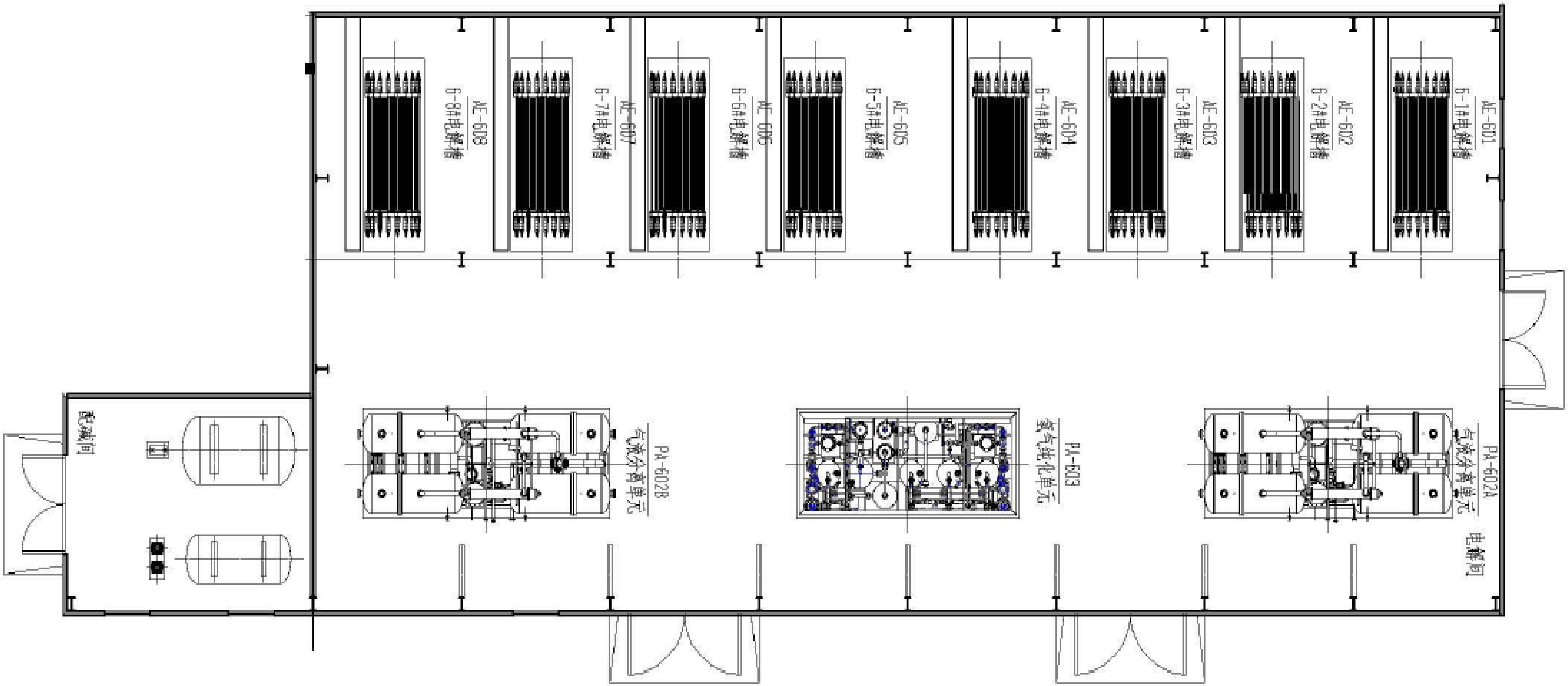
DHT- Hyzenis : 20 MW Green Hydrogen Plant Layout



DHT- Hyzenis Key Project : Sinopec Project (4-to-1 System)

- Four-to-One frame firstly applied in national large scale green hydrogen project by photovoltaic power with annual capacity of hydrogen output 20,000t.
- **Green Hydrogen** supplied to TAHE refinery and replaced hydrogen processed by gas and fossil energy.
- Listed in qualified supplier of Sinopec .
- 24 sets (50% share of the order) is awarded and delivered.

DHT- Hyzenis Key Project : Sinopec Project 4-to-1 System Plant Layout



DHT- Hyzenis Key Project : Baofeng Energy 2-to-1 System

- This project aims to produce environmentally sustainable hydrogen at a large scale, using solar energy to power electrolysis.
- The 2 to 1 modular system is an innovative approach to designing and scaling hydrogen production units, making the process more flexible, efficient, and cost-effective.
- By winning 22 of the 30 sets tendered, the design team has showcased their leadership in the hydrogen production industry.

Alkaline Electrolyser Design, Components, Material Specification, Codes & Standards

Key Component	Material Specification
Diaphragm / Membrane	PPS, 500 Microns (Thicker) - ZirfonPerl ® diaphragm
Electrode Anode Mesh	Ni Mesh + Coating NiAl (1 mm)
Electrode Cathode Mesh	Ni Mesh + Coating NiAl + Plasma Coating (1 mm)
Gas Distribution Layer (Anode)	Ni Mesh (10 mm Thk.)
Gas Distribution Layer (Cathode)	Ni Mesh (10 mm Thk.)
Bi-Polar Plate (Anode / Cathode)	Carbon Steel with Nickel-coated (3 mm Thk.)
Cell Frame / Structure Ring	Machined Carbon steel with Nickel Coating
Cell gasket & Sealings	EPDM, 1 mm Thickness
Bottom Frame / Tie rod assembly	Carbon steel / Alloy steel for quenching and tempering
Codes & Standards	EN 10269-42CrMo4-(Q+T) IS 513-CR3+Ni, IS 513-CR3+Ni+PECVD, ZIRFON UTP 500 + , GFRP, ISO 898-GR-8-Electroplated

S. No.	Material	Type	Quantity (kg/MW)
1.	Nickel	Critical mineral	800–3167
2.	Zirconium		94–100
3.	Molybdenum		0.15
4.	Stainless steel	Non-critical mineral	8,546–10,000
5.	Polymer		56

Material consumption for manufacturing

Stack Exploded View

Stack Assembly Process & Testing Methods this process will usually take place at project site

- Electrodes
- Cell Frame
- Diaphragm & Gasket
- End Plate / Tie Rod Assembly
- Base Frame Assembly

↓

Stack Assembly (~ 8 hr Aprox.)

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Hydrotest – 50 bar, 3 hr
Leak Test – 35 bar, 15 hr

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Activation – 24 hr
Functional Tests – 24 hr

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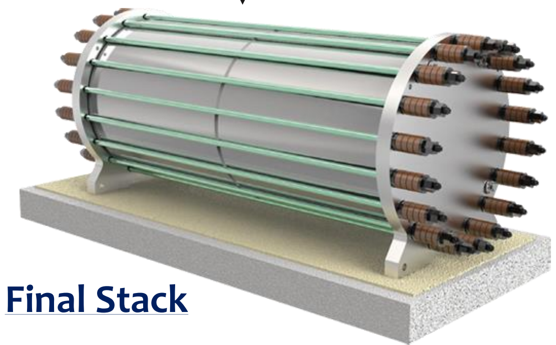


Final Stack

Stack Assembly Process

Gas Separation Unit Assembly & Testing Processes will usually take place at project site

- H2 Separator / O2 Separator → Fabrication & assembly of separator tanks with structure → Pipes and valves assembly → Interconnecting Piping → EPU Assembly
- LYE Cooler and Pump → Assembly of LYE system components with structure → Pipes and valves assembly → Interconnecting Piping → EPU Assembly
- Electric Control Panel / Analyzer Panel / Instrumentation → Control Panel assembly and cabling → Sensors and Analyzers: assembly and instrumentation → EPU Assembly
- Base Frame & Structure → Fabrication and fit up → Welding → Blasting and Painting → EPU Assembly

Electrolyser Processing Unit Testing process

- EPU Assembly Process → EPU Assembly → Hydrotest Leak Test → Purging → Dispatch

Gas Separation Unit

Codes & Standards

APPLICABLE CODES, STANDARDS AND REGULATIONS

- ISO 22734-1: Hydrogen generators using water electrolysis process.
- ASME B 31.1 - Power Piping
- ASME B 31.3 - Process Piping
- ASME B 31.12 - Hydrogen Piping and Pipelines
- ASME Section-VIII Div. I - Unfired pressure vessels
- ISO 15783- Seal-less rotodynamic pump
- API 685- Heavy Duty Seal less Magnetic Drive pump
- ISO 14687 - Hydrogen fuel quality - Product specification
- TEMA/HEI/ASME - Heat Exchangers
- IEC 60079 - Electrical apparatus for explosive gas atmospheres
- ASTM G93/G93M-19 - Standard Guide for Cleanliness Levels and Cleaning Methods for Materials and Equipment Used in Oxygen-Enriched Environments
- NFPA 2 - Hydrogen Technologies Code.
- NFPA 70 - National Electrical Code

SAFETY FEATURES

Hydrogen Leak Detection and Alarm System

- NFPA 2 (Hydrogen Technologies Code)
- IEC 60079-29-1 (Explosive Atmospheres - Gas Detectors)

Adequate Ventilation and Explosion-Proof Equipment

- NFPA 55 (Compressed Gases and Cryogenic Fluids Code):
- IEC 60079 (Explosive Atmospheres)

Emergency Shutdown System

- IEC 61511 (Functional Safety - Safety Instrumented Systems for Process Industry
- API RP 556 (Instrumentation, Control, and Protective Systems for Gas Plants)

Pressure Relief and Fire Suppression Systems

- ASME Boiler and Pressure Vessel Code, Section VIII:.
- NFPA 13 (Standard for the Installation of Sprinkler Systems)
- NFPA 2001 (Standard on Clean Agent Fire Extinguishing Systems)

Personal Protective Equipment and Regular Safety Training

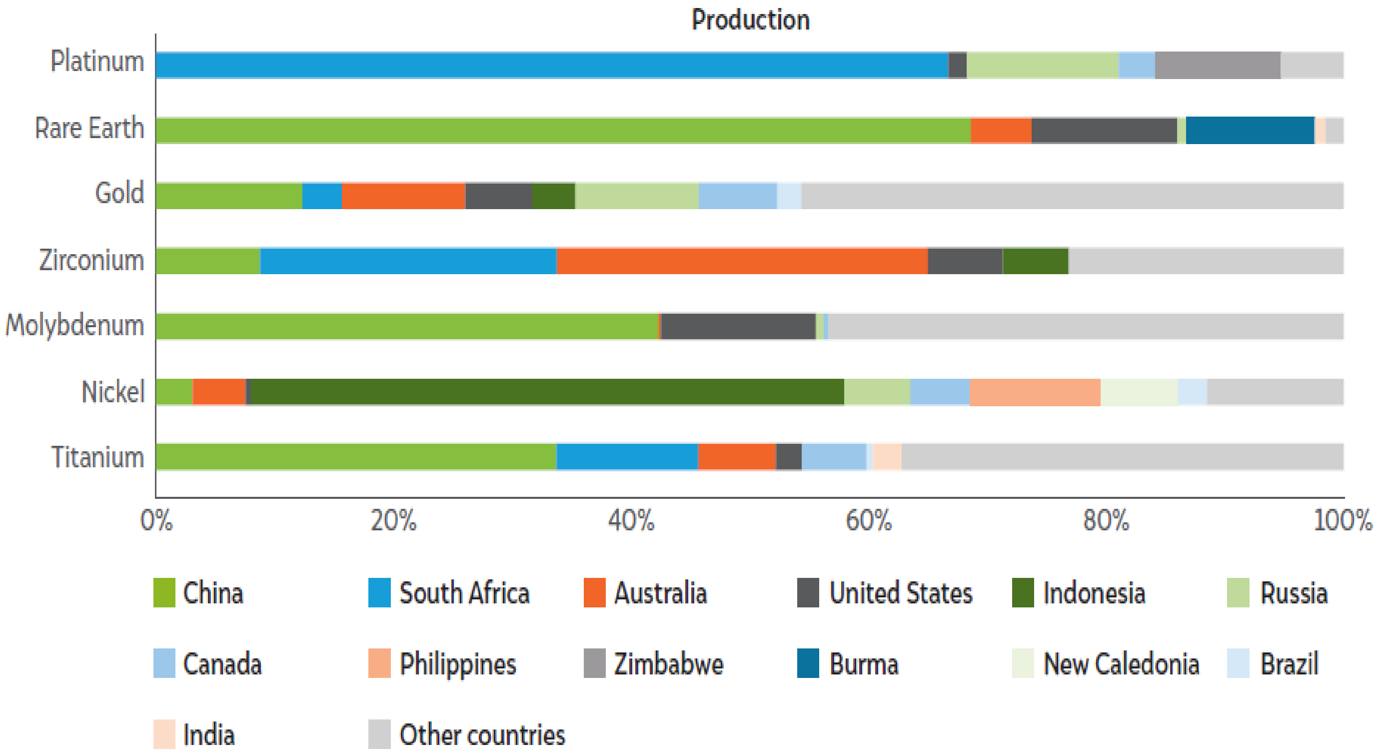
- OSHA 29 CFR 1910.103 (Hydrogen)
- OSHA 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response)

Supply chain of critical minerals

Mineral requirements for Electrolyser manufacturing

S. No.	Critical mineral	Quantity per MW (kg/MW)	Target: 20 GW by 2030 (tonnes)	Target: 112 GW by 2040 (tonnes)	Target: 226 GW by 2050 (tonnes)	Global production (2022–23) (tonnes)
PEM electrolysers						
1.	Platinum	0.075–0.5	1.5–10	8.4–56	16.9–113	180
2.	Iridium	0.076–0.7	1.52–14	8.51–78.4	17.2–158	7
3.	Titanium	414–528	8,280–10,560	46,368–59,136	93,564–1,19,328	92,00,000
4.	Gold	0.17	3	18	37	3,000
Alkaline electrolysers						
1.	Nickel	800–3,167	16,000–63,340	89,600–3,54,704	1,80,800–7,15,742	36,00,000
2.	Zirconium	94–100	1,880–2,000	10,528–11,200	2,12,44–22,600	16,00,000*
3.	Molybdenum	0.15	3	17	34	2,60,000

Mineral production globally



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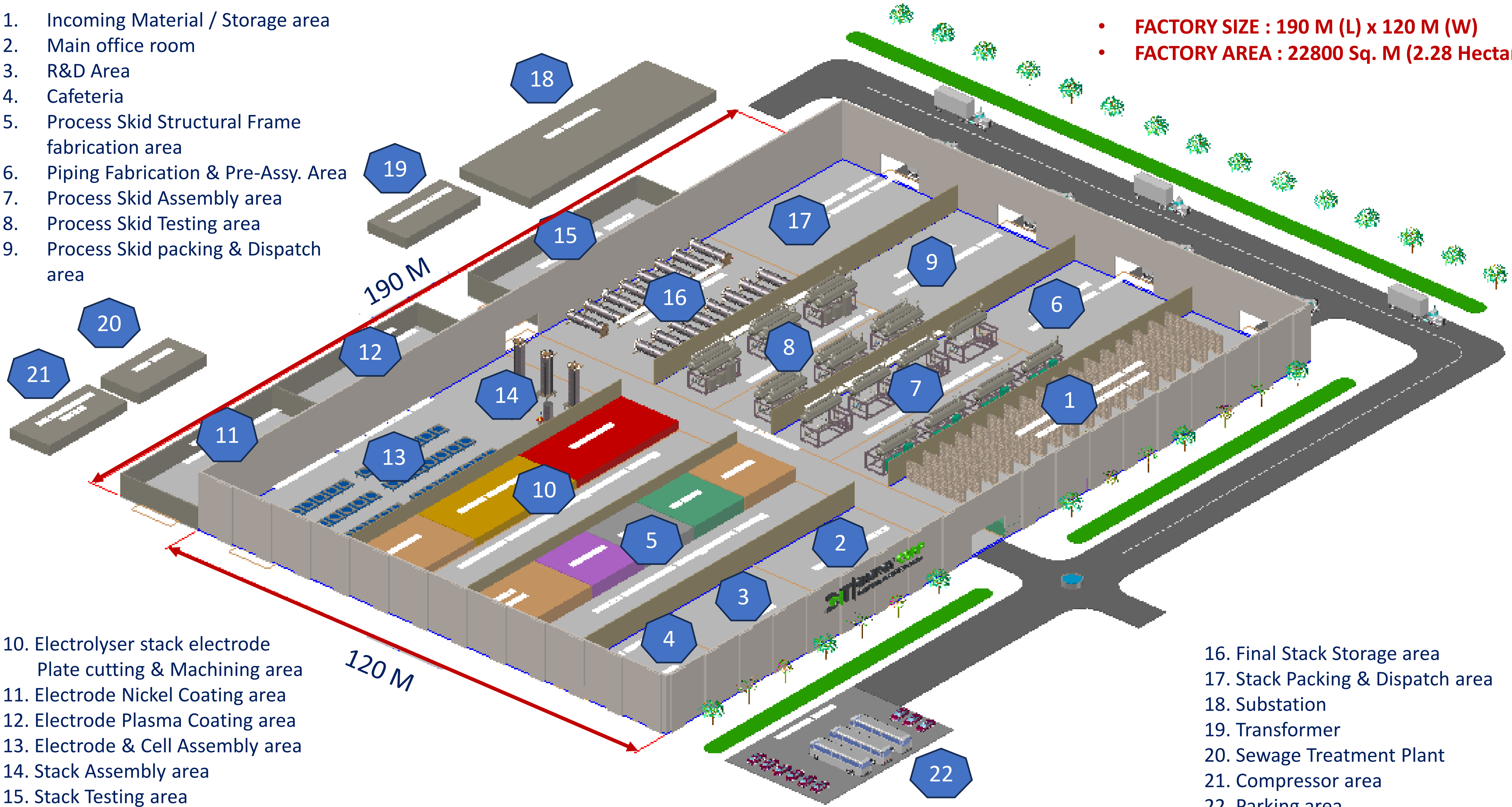
DHT Electrolyser – 1 GW Manufacturing Annual Capacity

- FACTORY SIZE : 190 M (L) x 120 M (W)
- FACTORY AREA : 22800 Sq. M (2.28 Hectare)

1. Incoming Material / Storage area
2. Main office room
3. R&D Area
4. Cafeteria
5. Process Skid Structural Frame fabrication area
6. Piping Fabrication & Pre-Assy. Area
7. Process Skid Assembly area
8. Process Skid Testing area
9. Process Skid packing & Dispatch area



10. Electrolyser stack electrode Plate cutting & Machining area
11. Electrode Nickel Coating area
12. Electrode Plasma Coating area
13. Electrode & Cell Assembly area
14. Stack Assembly area
15. Stack Testing area
16. Final Stack Storage area
17. Stack Packing & Dispatch area
18. Substation
19. Transformer
20. Sewage Treatment Plant
21. Compressor area
22. Parking area

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DHT – HyZenis (Joint Development Manufacturing Partner)

Investor

- Shaanxi Coal and Chemical Industry Group

Team

Well-known electrolyzer management team

Technology

The first tier R&D team from Tongji University

Government Support

Jiaxing, Zhejiang Province

Business Scope

- Hydrogen Production Technology Development
- Hydrogen Equipment Manufacturing
- On-site Hydrogenation Integrated Station Design and EPC
- Hydrogen Plant Design and EPC
- Hydrogen Production Base Operation and Maintenance
- Green Hydrogen Project Development

Excellent Location
An hour's drive away from Shanghai, Suzhou, and Hangzhou

Phase - 1

- 7500 m2 single-story factory
- 600MW production capacity
- Commence production in May 2024

Phase 2 (Ongoing)

- 30000 m2 of land with self-built factories
- 2GW production capacity with full automation
- Commence production by end of 2025

Phase 3 - Planning

- 16667 m2 of land with self-built factories
- 3GW production capacity in total
- Commence production in 2026

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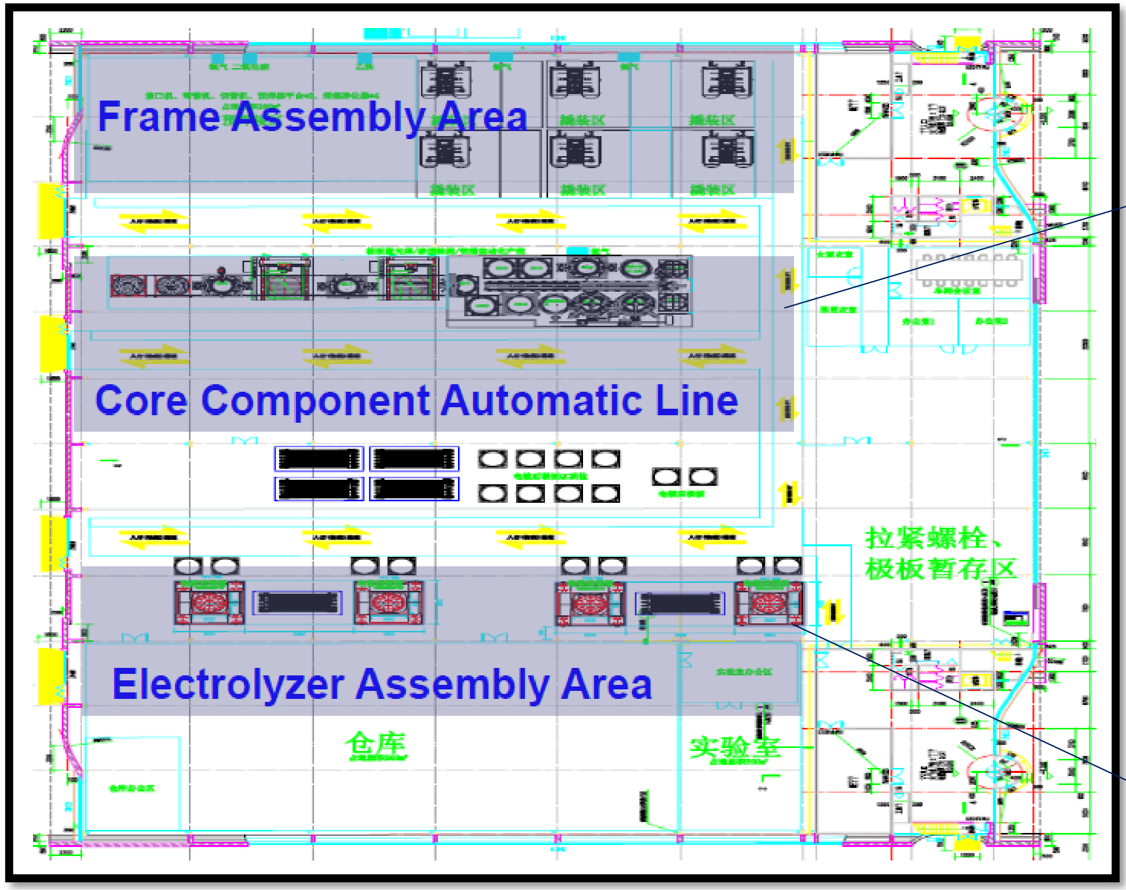
DHT – HyZenis (Manufacturing Partner)

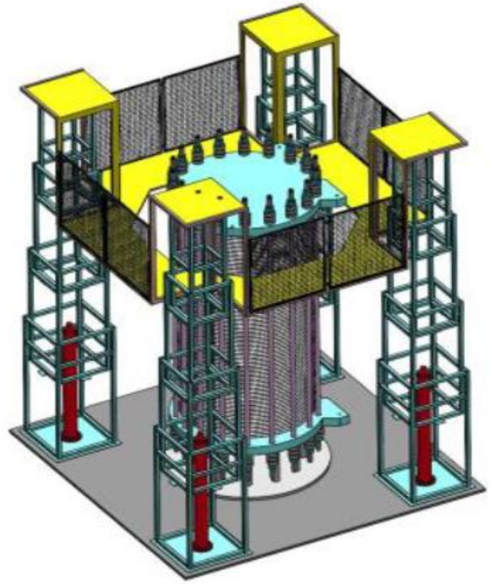
100% Automation, 100% Standardization, 100% Auto-inspecting, 100% Traceable



Factory Area – 7500 m2

Core component Automation Line

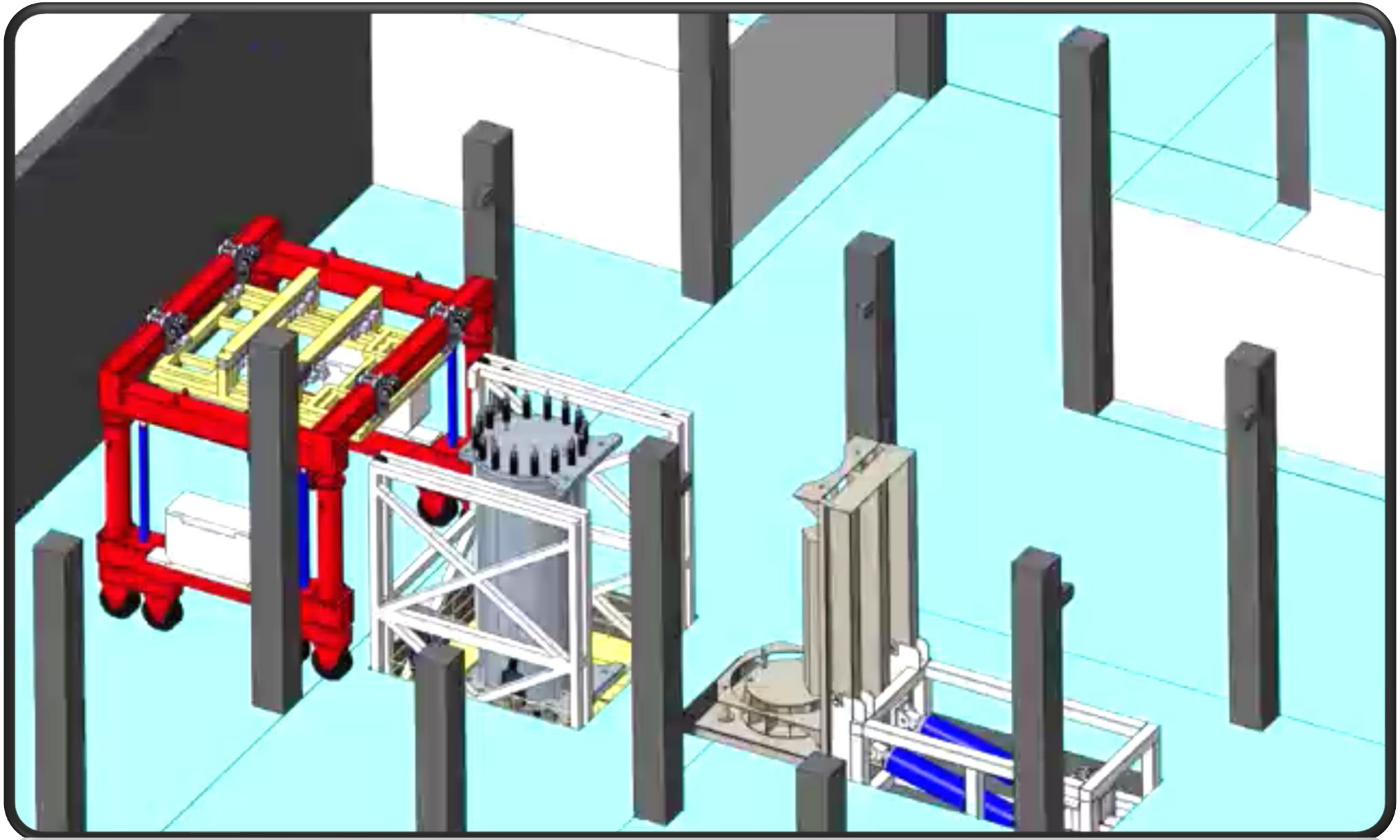
Electrolyser Assembly Area



Electrolyser Vertical Assembly

- **Features: 100% automatic line for core component and process**

Electrolyser Stack Assembly & Testing Process will usually take place at project site location



DHT – Airox Nigen Equipments Pvt. Ltd., India (Joint Development Manufacturing Partner)

- **M/s. AIROX NIGEN EQUIPMENTS PVT. LTD.** was started in the year 1993 in INDIA by Mr. Anil K. Agrawal .
- Since 2006 Airox Nigen had begun supplying the high-tech pressurized water electrolysis by bipolar electrolysis technology. Now had working experience more than 75 such projects within small span . Airox Nigen is the only Company in India making their own Bipolar System.
- Airox Nigen has supplied & commissioned more than 2500 Adsorption based Gas Generators and Dryers including exports.
- Already a leader in adsorption technology and the largest supplier in Asia pacific region

Airox House 58. 59 Akshar Industrial Estate Sector 2 Moriya Opp Zydus Cadila Changodhar AHMEDABAD- 38 22 13, GUJARAT, INDIA.

AIROX NIGEN

- Total Area Available : 30000 square. Feet
- **Factory Area : 8500 Sq.m,**
- **Factory Capacity : 400 MW**
- Office Area : 4000 square. Feet
- Guest House : 2000 square. Feet

DHT – Airox Nigen Equipments Pvt. Ltd., India (Joint Development Manufacturing Partner)

200 kw kw Stack + Process skid

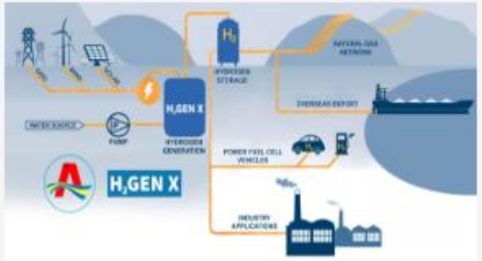
250 kw Skid Mounted Stack + Process skid

1MW Stack + Process skid

1MW Alkaline Electrolyser Stack

Electrolyser Container

DHT – Airox Nigen Equipments Pvt. Ltd., India (Joint Development Manufacturing Partner)



Green Hydrogen
View Project »


Hydrogen By PSA
View Project »


Bio-Gas System
View Project »


Air & Gas Purifiers
View Project »


Automation


PLC Systems


Instrumentation


Engineering Services


Compressor & Blower
View Project »


Comp.. Air Systems
View Project »


Desiccant Air Drier
View Project »


Oxygen Gas Generator
View Project »

DHT Technology
&
Research and Development Roadmap

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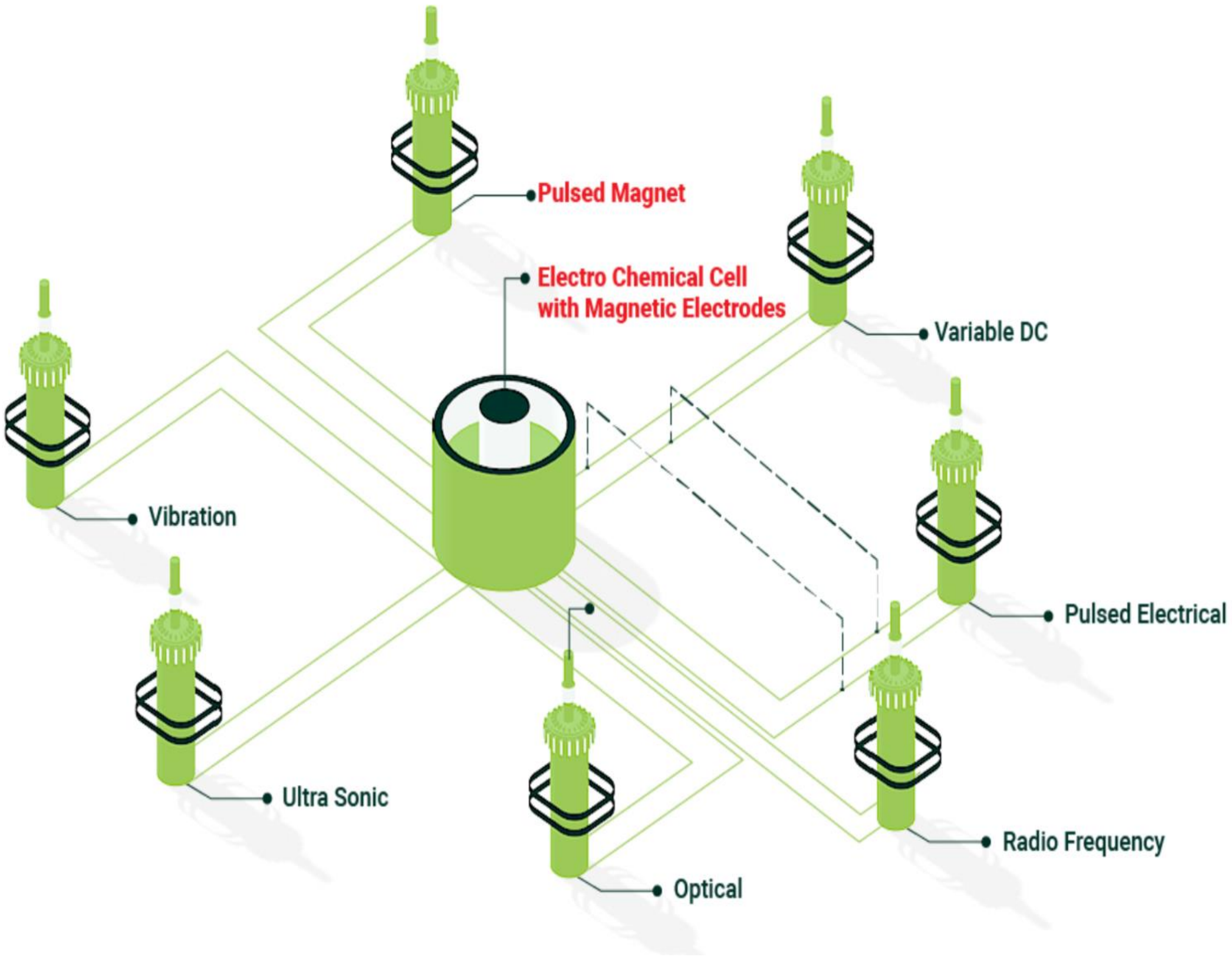
Background of DHT Energy Corp. Hydrogen Production Invention

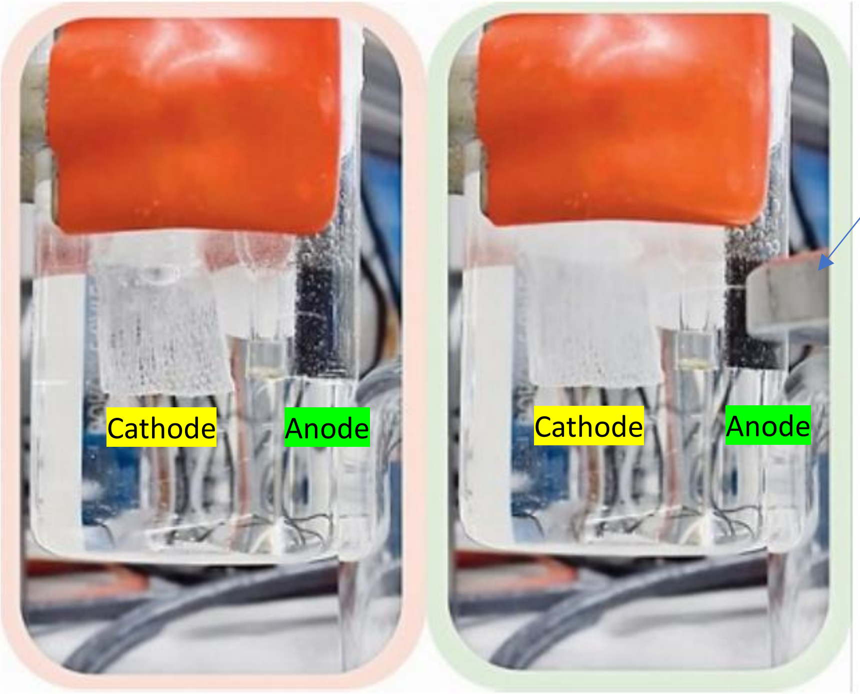


DHT Next Gen Model

Electrochemical Cell with Magnetic Electrodes

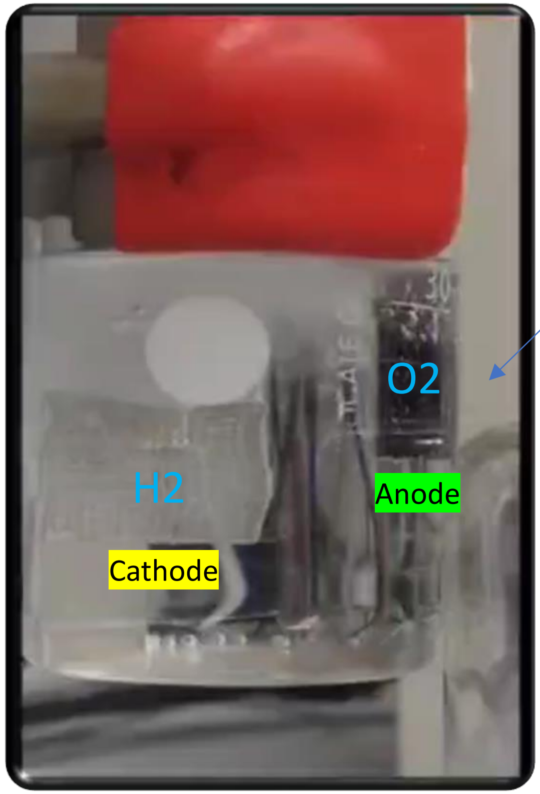
- ✓ Pulsed Magnet Power Supply
- ✓ Pulsed Electrical Power Supply
- ✓ Variable DC Power Supply
- ✓ Vibration Power Supply
- ✓ Radio Frequency Power Supply
- ✓ Ultrasonic Power supply
- ✓ Optical Power Supply

Background of DHT Energy Corp. Hydrogen Production Invention



Neodymium Magnet

A gently bubbling electrolyzer (left) suddenly doubles its output of Hydrogen (H2) and Oxygen (O2) when a magnet is placed next to the anode (right).



Neodymium Magnet

- **Challenge Addressed** : We Targeted the ***oxygen-evolution reaction (OER)***
- **Innovation** : Coated a ***Nickel foam anode with magnetic nickel zinc ferrite*** and used it in an electrolyzer running at about ***1.6 V***
- **Magnetic Enhancement** : When the commercial Neodymium Magnet placed next to the anode, its ***doubled the current density*** at the anode without requiring any additional voltage.
- **Efficiency Gains** : This doubled the rate of oxygen production and caused an equivalent ***increase in hydrogen output***.
- **Energy Savings :** Achieved higher hydrogen output without requiring additional electrical energy, ***improving the efficiency of the electrolyzer***.

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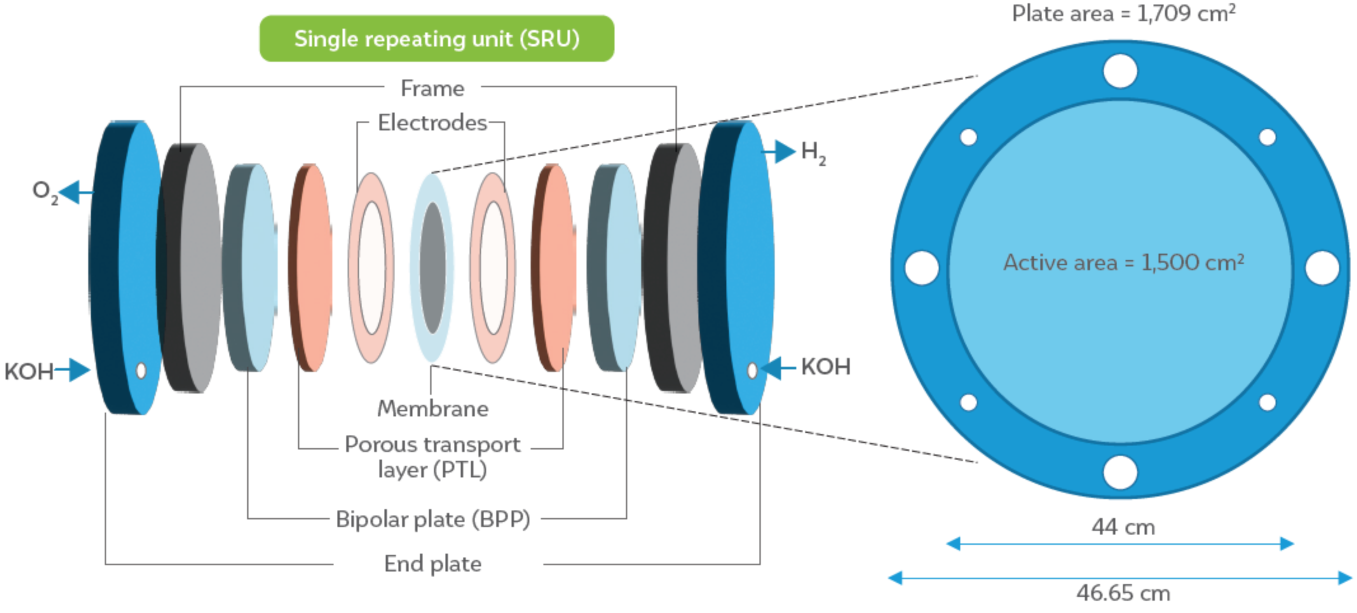
Effect of Voltage, Current Density, Temperature & Pressure for H2 Production

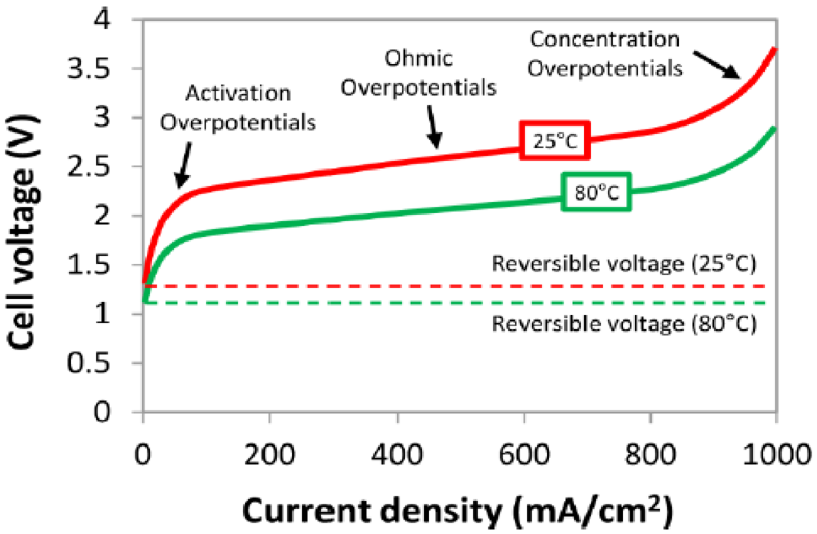


Cell Voltage (V):

- Voltage = No. of cells x V per cell
- Reversible voltage U_{rev} = 1.229 V
- Thermoneutral voltage U_{th} = 1.48V
- **DHT Voltage U_{dht} = 1.6 V**

Current (I) :

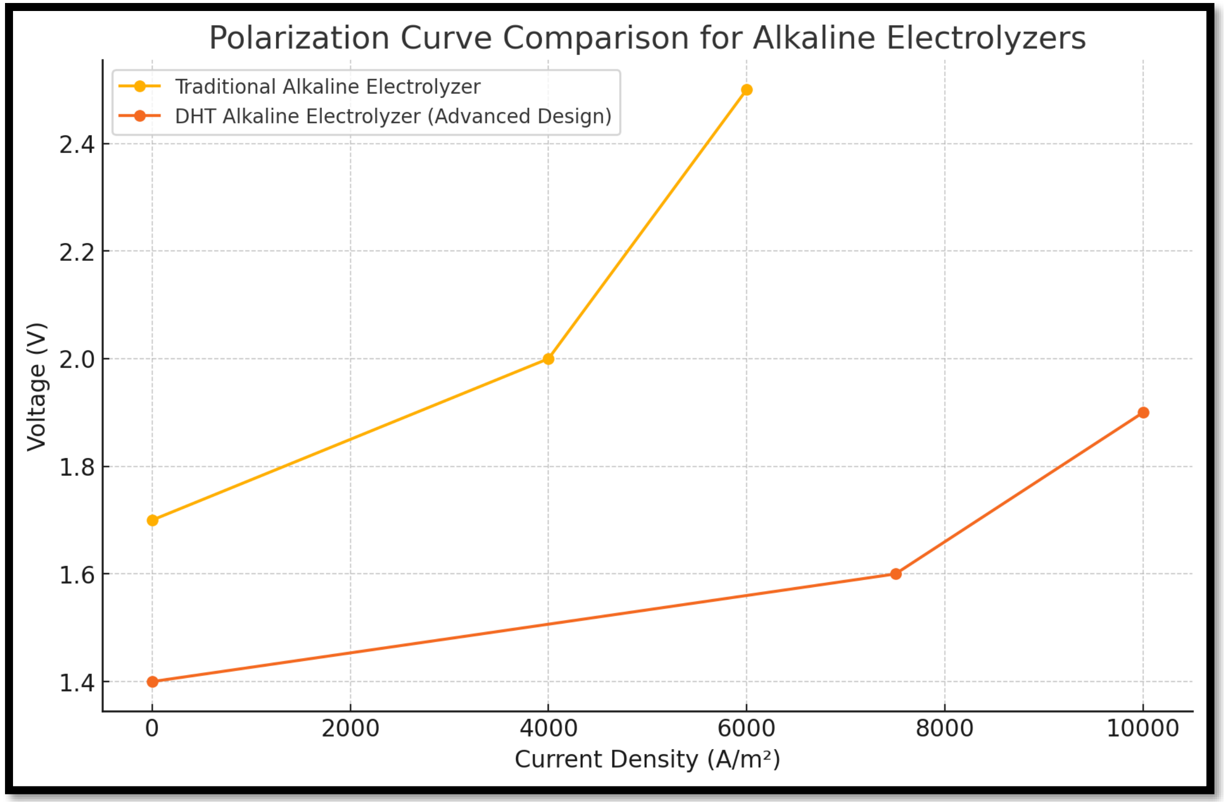
- Current (I) = Current Density x Active Area
- **DHT Current (I) = 2X Current Density** x Active Area



Loses Due to Overpotential

- V_{act} : Activation Overpotential (0.2 V) - **Is Reduced with more Pressure**
- V_{ohm} : Ohmic Overpotential (0.6 V) - **Is Reduced with more Temperature**
- V_{con} : Concentration Overpotential (0 V) - **Is Reduced with High Current Densities**
- $V_{cell} = V_{rev} + V_{ohm} + V_{act} + V_{con}$
- $V_{cell} = 1.2V + 0.6V + 0.2V + 0V =$ **2 V (Traditional Voltage)**

Polarization Curve Comparison



Formula

- Power = Voltage (v) x Current (I)
- Voltage = No. of cells x Voltage per cell
- Current (I) = Current density (j) x Active area (A/cm2)
- H2 Production = 0.41 x No. of cells x Current (KA)

DHT Base Line Alkaline

Voltage : 2 V
No. of cell : 100
Cell Active area : 5000 cm2
Current density : **4000** A/m2

H2 Prod: 7.4 kg/hr

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DHT Next Gen Alkaline

Voltage : 1.6 V
No. of cell : 100
Cell Active area : 5000 cm2
Current density : **7500** A/m2

H2 Prod: 13.8 kg/hr

The DHT Next Gen Electrolyser is nearly **1.87 times more productive**, or **86.5% higher in hydrogen production**, compared to the Traditional Alkaline Electrolyser.

High current density

- More electrical current flows on electrode surface.
- Achieving higher hydrogen output, as the rate of hydrogen production is directly proportional to the current density.
- Enables compact designs for electrolysis cells.
- Reduces system size and potentially lowers capital costs by generating more hydrogen per unit of electrode area.

R&D Milestones and Timeline For NextGen Model

Timeline	Q3 2025	Q4 2025	Q1 2026	Q2 2026	Q3 2026
	Concept Development	Design and Engineering	Prototyping and Testing	Scale-Up, Manufacturing & Testing	Commercial Deployment
Phase 1	Feasibility studies, material testing, and initial prototypes.				
Phase 2		Detailed designs, modeling simulations, and lab-scale prototypes.			
Phase 3			Pilot-scale prototypes, performance validation, and optimization.		
Phase 4				Full-scale production setup and initial batch manufacturing.	
Phase 5					Market-ready products and customer demonstrations.

Components & Stack Development Plan

Electrodes Development

- Optimize anode and cathode design for higher efficiency and longevity.
- Develop new coating methods leveraging DHT Technology.
- Improve electrochemical performance through novel materials.

Cell Frame Design

- Lightweight yet durable cell frames.
- Enhanced mechanical stability and chemical resistance.
- Modular and scalable designs.

Advanced Membranes

- High ionic conductivity and chemical stability.
- Reduced hydrogen crossover.
- Compatibility with alkaline environments.

Gaskets

- Improved sealing performance.
- Chemical resistance and long-term durability.
- Reduced assembly time and ease of integration.

Cell Arrangement

- Enhanced flow distribution for uniform performance.
- Compact design for higher volumetric efficiency.
- Scalable configurations for various capacities.

Assembly & Testing

- Leak tests and pressure validation to identify and address assembly defects.
- Initial voltage and current testing under controlled conditions for baseline performance evaluation.
- Conducting long-duration tests for efficiency, durability, and operational stability under load conditions.

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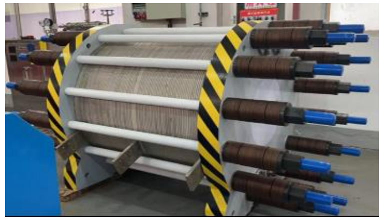
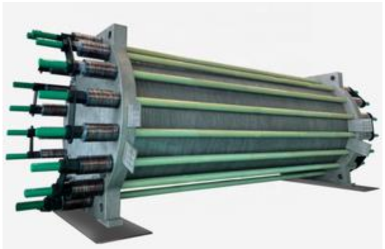
R&D Lab Objectives - Component Validation





Cell components Validation

- Material Validation
- Dimensional and Physical Integrity
- Functional Testing

Phase 1 Testing

- Thickness
- Adhesion
- Hardness
- Porosity

Phase 2 Testing

- Single Cell,
- Current : 1 Acm-2
- Pressure : 1 Bar
- Testing :

  500 hrs

Phase 3 Testing

- 10 Cells
- Current : 1 Acm-2
- Pressure : 10 Bar
- Testing :

  1000 to 1500 hrs

Phase 4 Testing

- Full Stack 25 Cells
- Current : 2 Acm-2
- Pressure : 30 Bar
- Testing :

  2000 to 5000 hrs

Phase 5 Testing

- Full Stack
- Current : 2 Acm-2
- Pressure : 30 Bar
- Testing :

  1000 hrs

- ➢ The R&D lab helps test and approve local stack components faster.
- ➢ Quick testing and improvements ensure better component choices, lowering manufacturing costs.
- ➢ This approach leads to new ideas and innovations in technology.

DHT Technology Baseline vs Next Gen

Description	DHT Base Line Model	DHT Next Gen Line Model
H2 Production (Nm3/hr)	1000	1000
Voltage (V/cell)	2	**1.6**
Current Density (A/cm2)	0.4	**< 0.75**
DC Power Consumption (kwh/Nm3)	4.0 – 4.4	**3.54 - 3.8**
Hydrogen Purity	> 99.8 %	> 99.8 %
Purified Hydrogen Purity	> 99.99%	> 99.999%
Operating Pressure (Mpa)	1.8	**< 3**
Temperature	90±5	<90
Operating Range	20% - 110%	15% - 110%
Cold Start Time (Min)	50	**< 15 - 30**
Hot Start Time (Min)	5	5
Stack Lifetime	100,000 hours	100,000 + hours

Energy required at equilibrium,

$$\Delta G = 237.1 \frac{kJ}{mol} \leftrightarrow 2.94 \frac{\mathrm{kWh}}{\mathrm{Nm^3}} \leftrightarrow 32.66 \frac{\mathrm{kWh}}{\mathrm{kg}}$$ (LHV)

Min. energy requirement to run electrolyser at const. temperature.

$$\Delta H = 285.8 \frac{kJ}{mol} \leftrightarrow 3.54 \frac{\mathrm{kWh}}{\mathrm{Nm^3}} \leftrightarrow 39.33 \frac{\mathrm{kWh}}{\mathrm{kg}}$$ (HHV)

LHV $\Delta G = 237.1\ kJ/mol$

HHV $\Delta H = 285.8\ kJ/mol$

1 Kg H2 = 11.126 Nm3

Base Line: Efficiency = $\frac{39.33}{48.95}$ = 80%

New Gen: Efficiency = $\frac{39.33}{42.22}$ = ~ 90% Aprox.

DHT Target Power Consumption
44.5 kwh/kg to 39.3 kwh/kg

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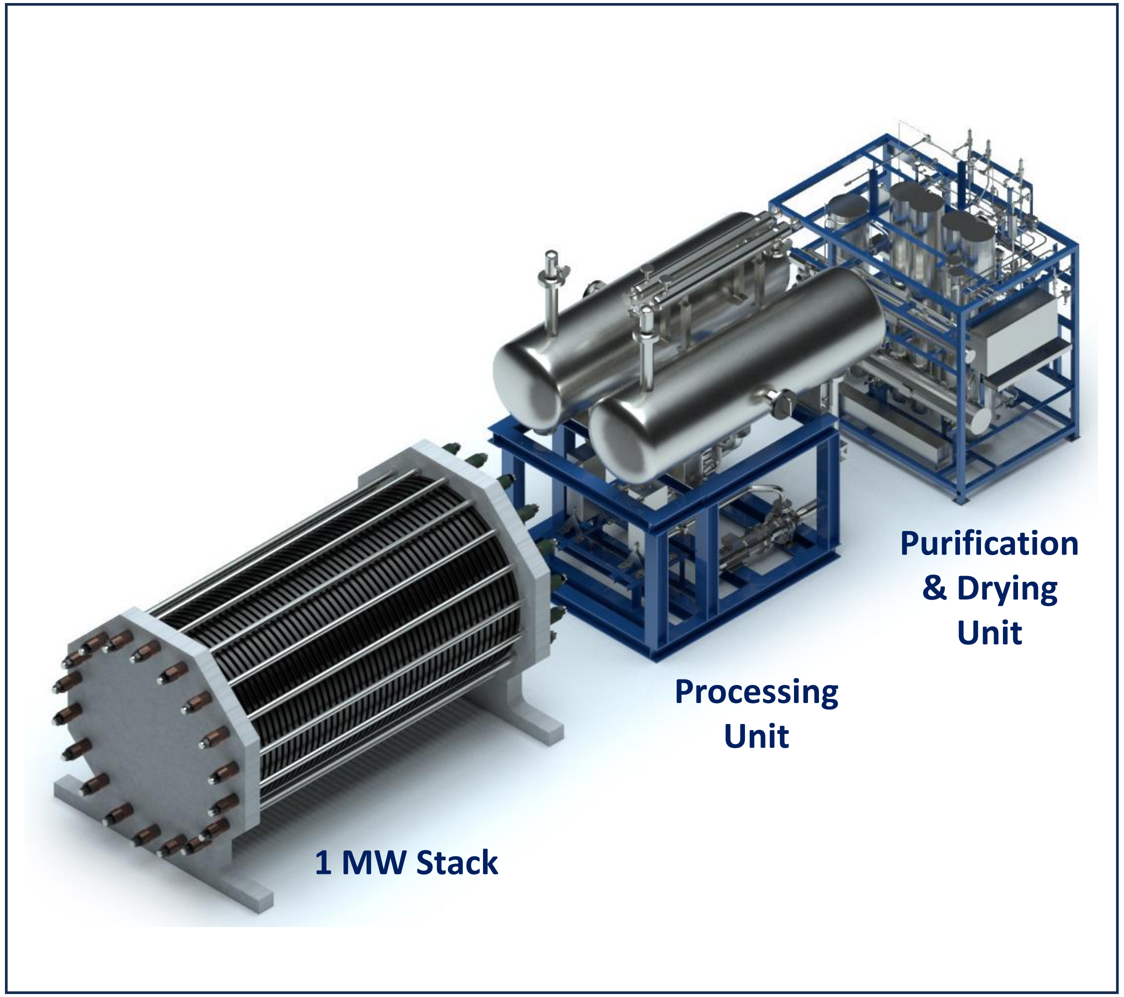
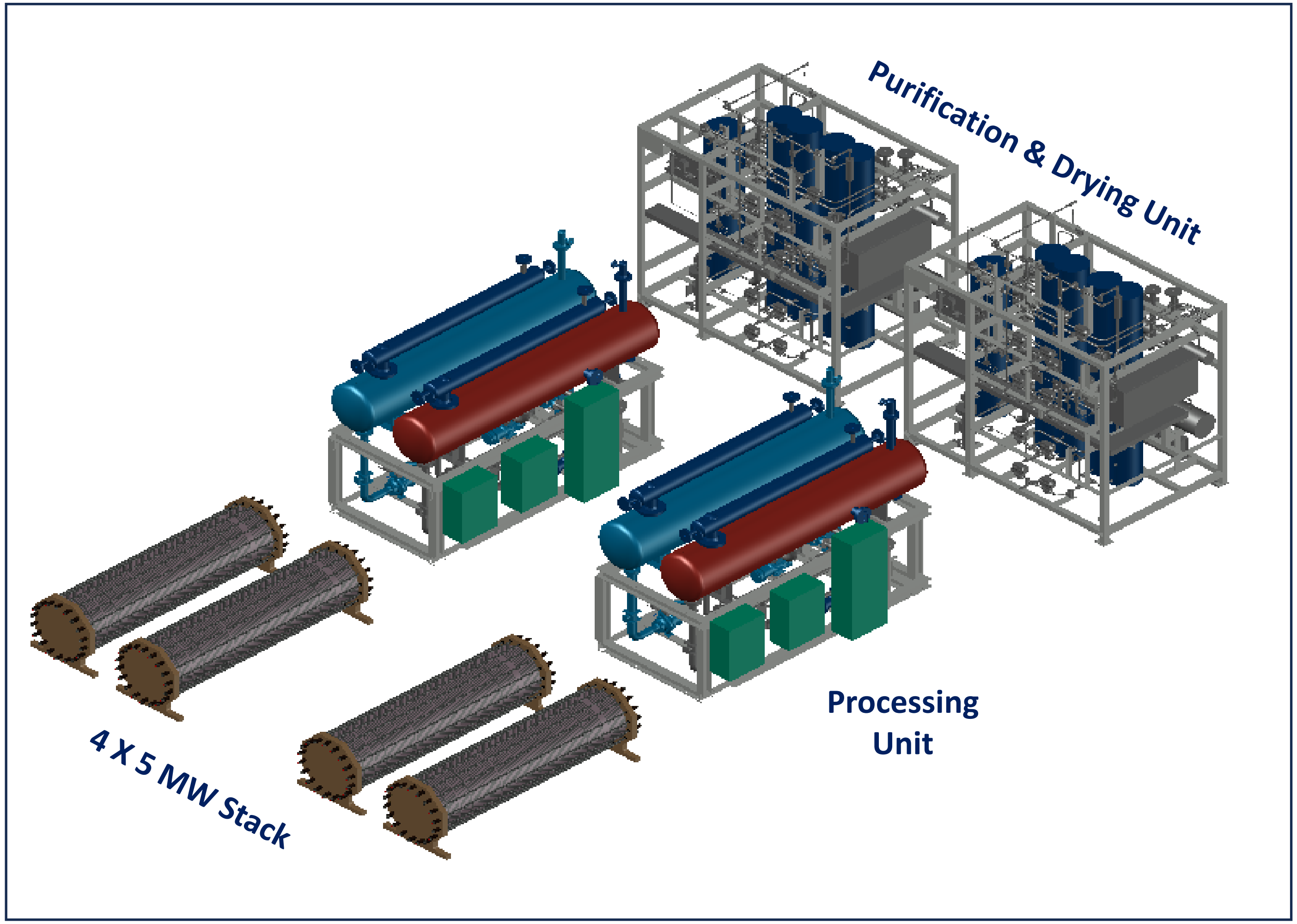
DHT Alkaline Electrolyser - Typical Model

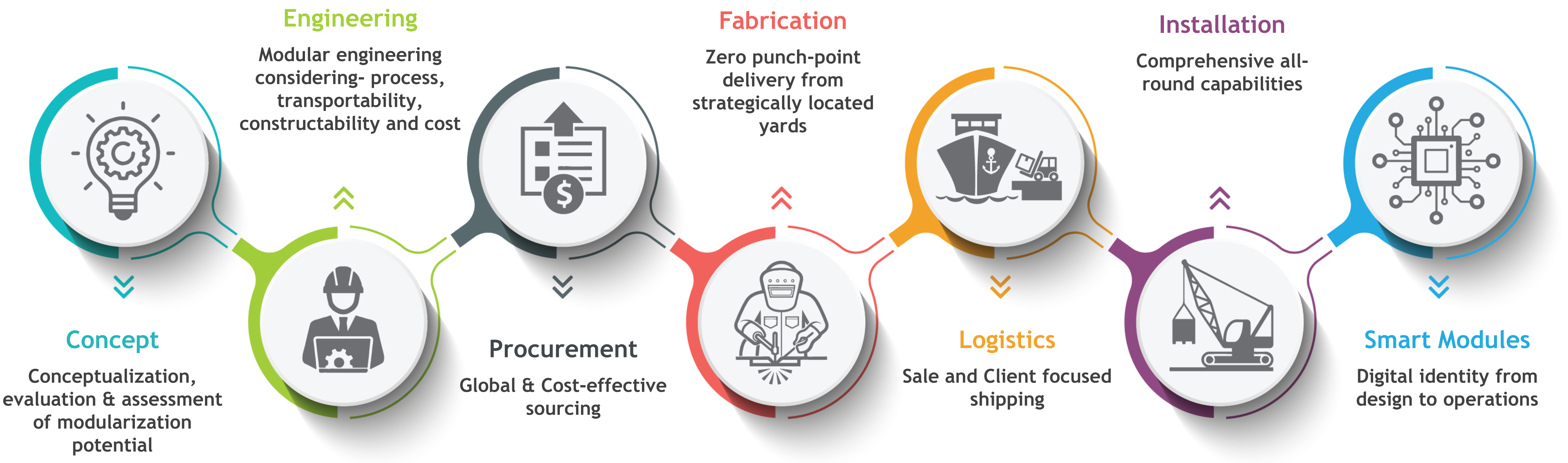




1 MW DHT Alkaline Electrolyser Model

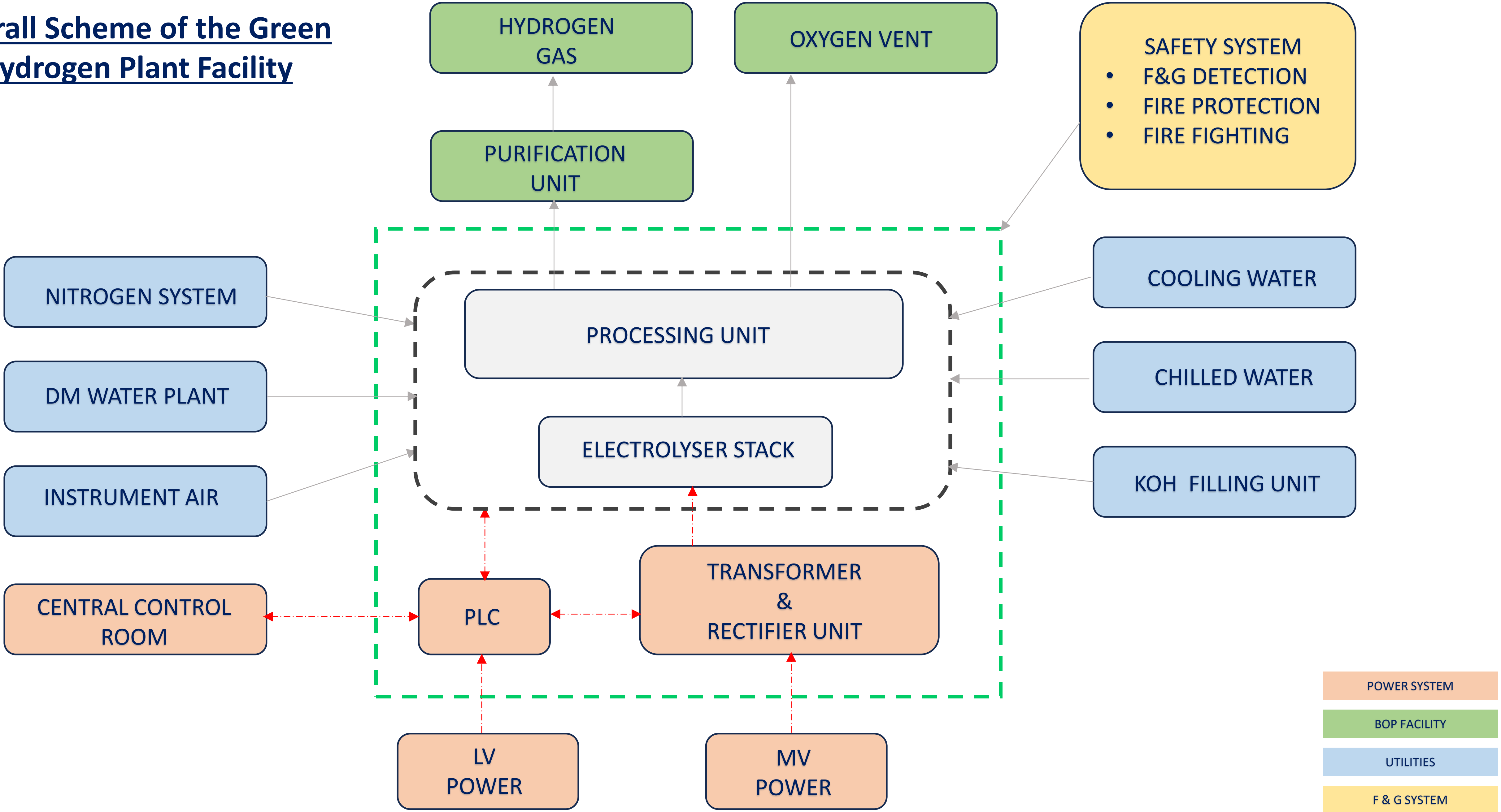
20 MW Alkaline Electrolyser Cluster Model

DHT Energy Corp. – EPC Hydrogen System Integration



DHT Energy Corp. is a leading solution provider for hydrogen system integration. Specialization in the Design, Engineering, and Execution of cutting-edge green hydrogen production systems. With a focus on sustainability and innovation DHT Energy is committed to driving the global transition to clean energy through advanced integration engineering.

Overall Scheme of the Green Hydrogen Plant Facility



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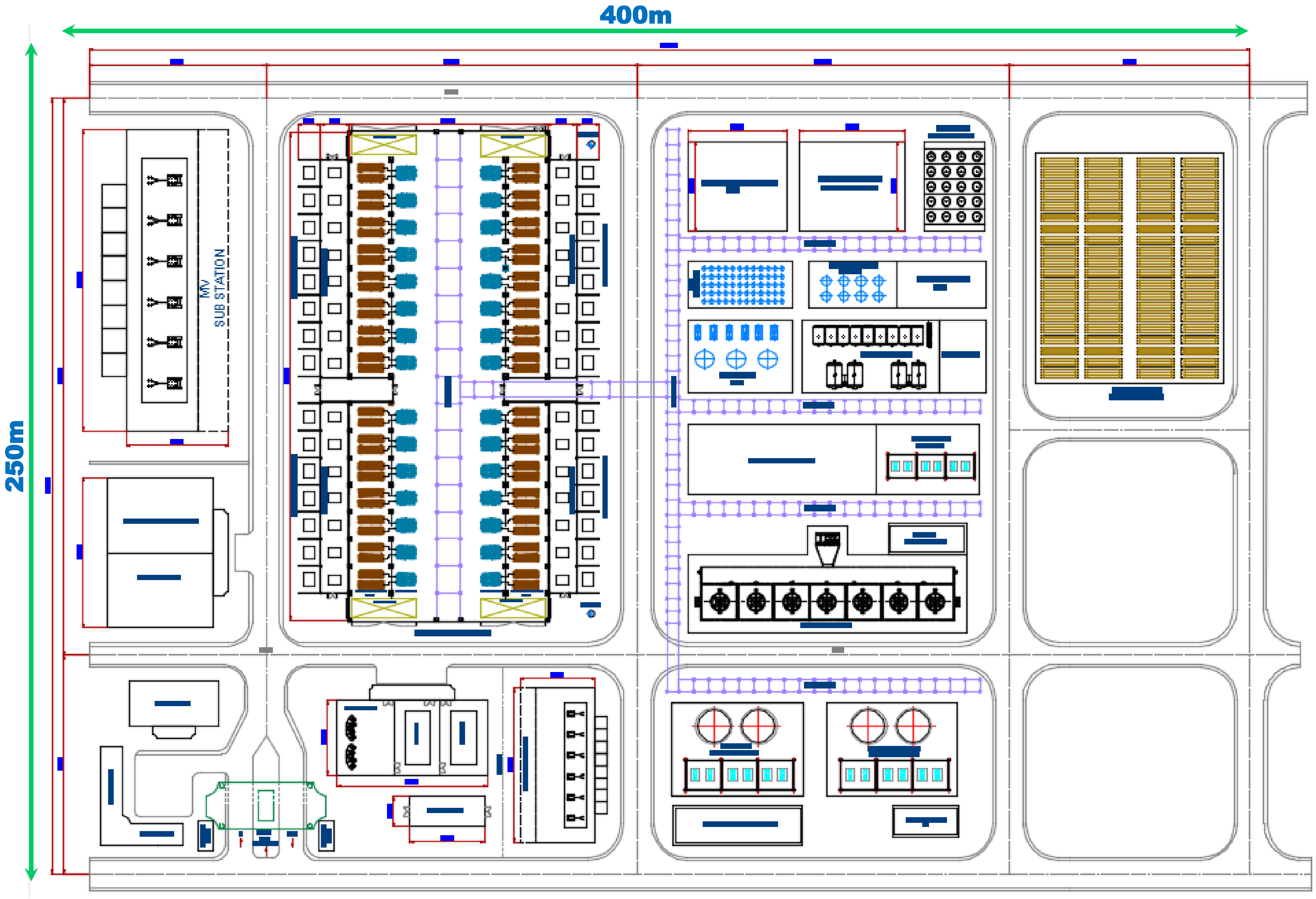
300 MW Green Hydrogen Plant Layout 2D



Balance of Stack (BOS)

- Electrolyser Stack - 5 MW (60 Nos.)
- Processing Unit (H2 & O2 Gas Separation Unit)
- Power & Control System
  - Transformer
  - Thyristor Rectifier
  - PLC & SCADA System
  - Instrument & Control System

Balance of Plant (BOP)

- Purification Unit (H2 Gas)
- Power System
  - MCC Panels
  - UPS
- Utilities
  - Demineralized water Unit
  - Chiller Unit (Gas Cooling & Purification)
  - Cooling Unit (KOH Cooling)
  - KOH Filling Unit (To Electrolyser Stack)
  - Instrument Air
  - Nitrogen Air
- Safety System
  - Fire Water Pump
  - Fire Water Tank
  - F & G Detector

Plant Area = 400 m (L) x 250 m (W)
Total Area = 100,000 Sq. m (10 Hectare)

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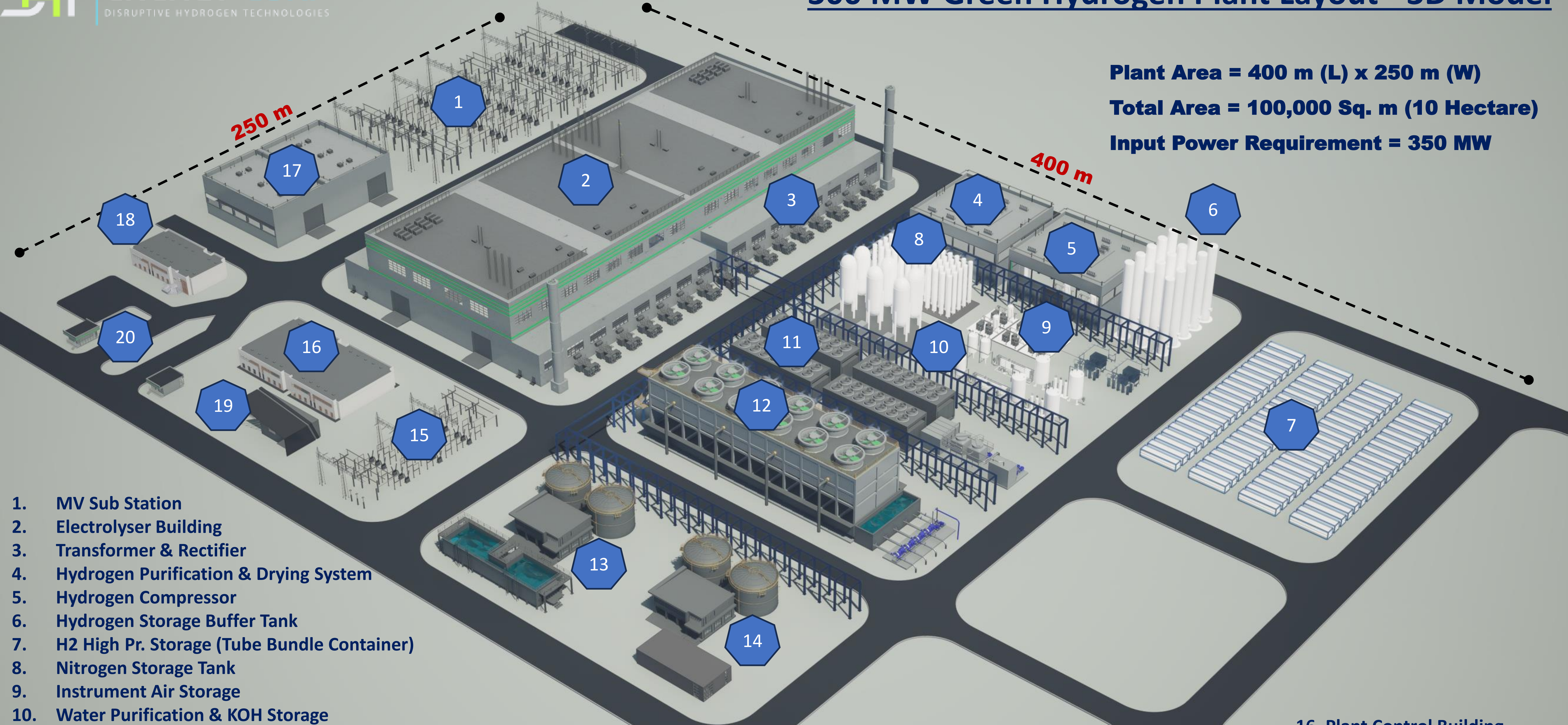
300 MW Green Hydrogen Plant Layout - 3D Model

Plant Area = 400 m (L) x 250 m (W)

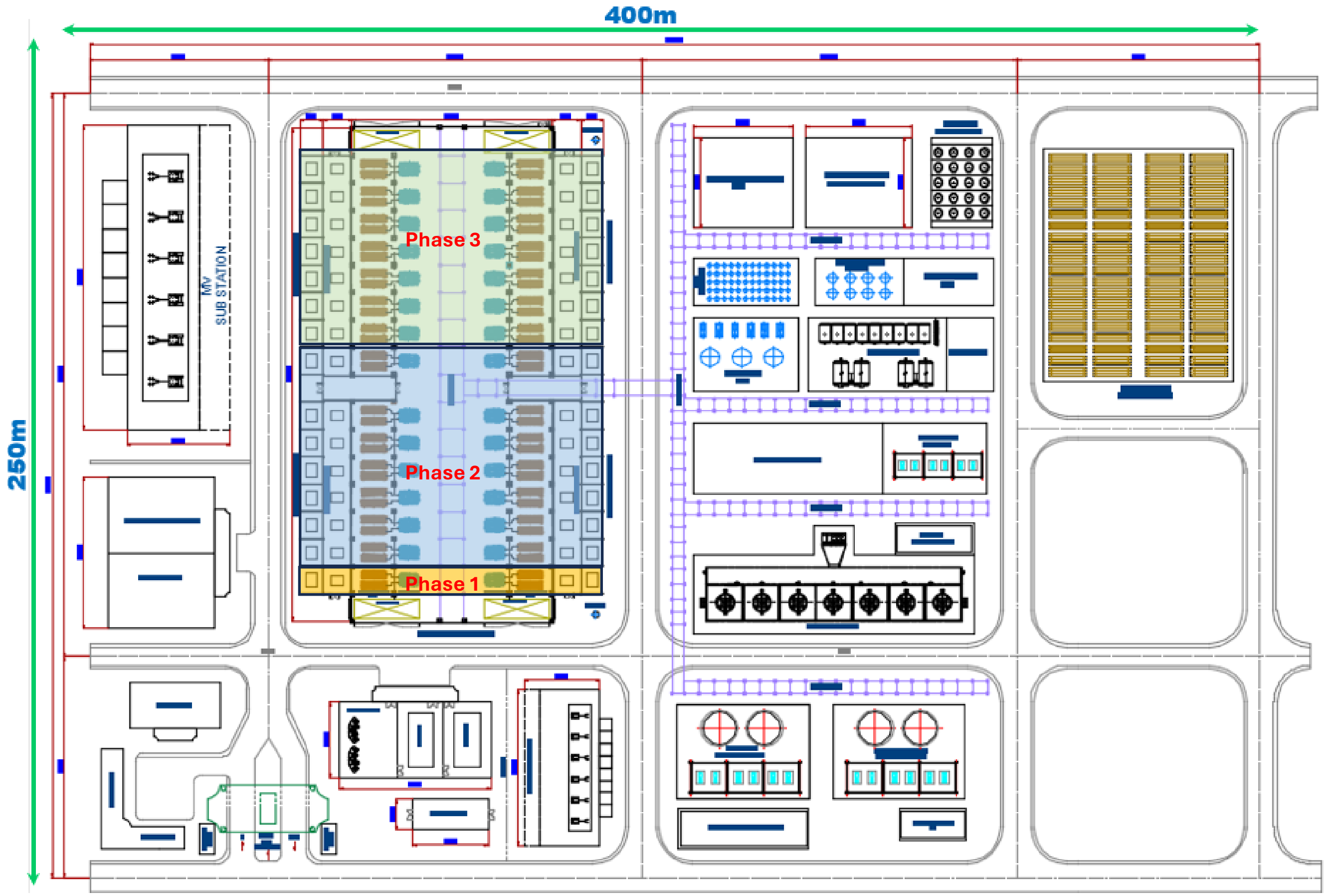
Total Area = 100,000 Sq. m (10 Hectare)

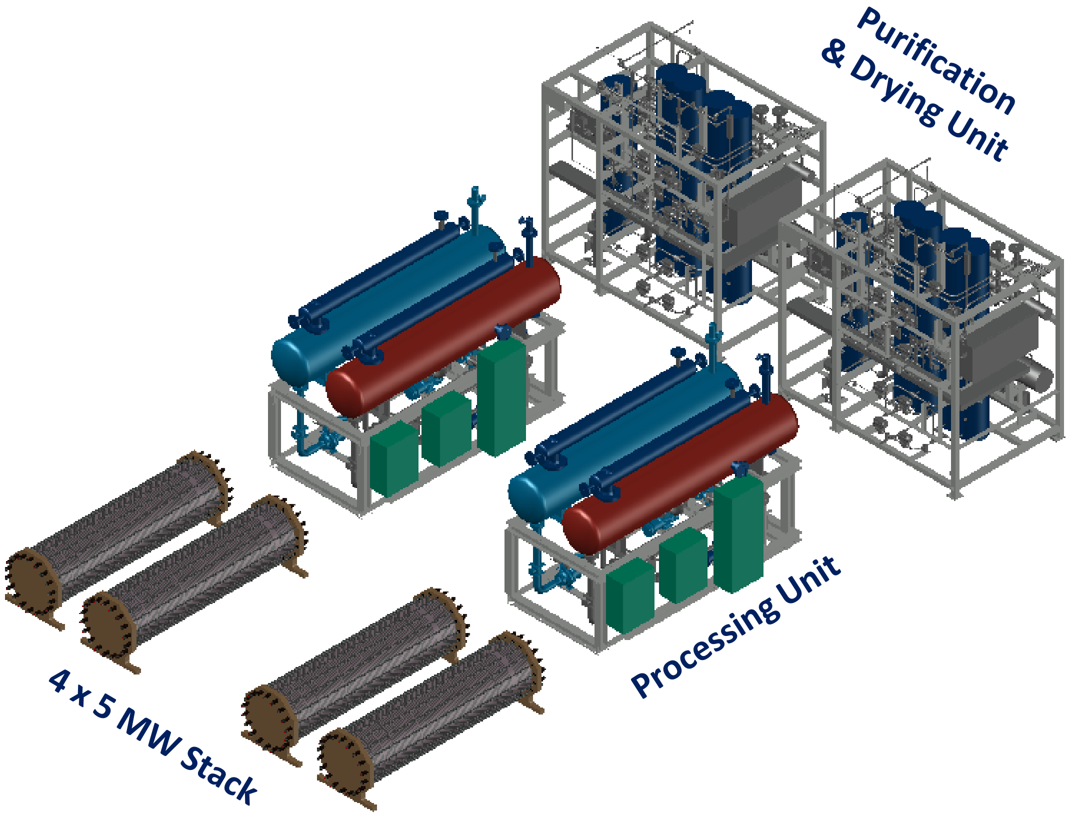
Input Power Requirement = 350 MW



1. MV Sub Station
2. Electrolyser Building
3. Transformer & Rectifier
4. Hydrogen Purification & Drying System
5. Hydrogen Compressor
6. Hydrogen Storage Buffer Tank
7. H2 High Pr. Storage (Tube Bundle Container)
8. Nitrogen Storage Tank
9. Instrument Air Storage
10. Water Purification & KOH Storage
11. Chilled Water System
12. Cooling Water System
13. Fire Water Storage Tank
14. Raw Water Storage Tank
15. Utilities Sub Station
16. Plant Control Building
17. Maintenance & Storage
18. Admin Building
19. Document Room
20. Entrance & Parking

300 MW Green Hydrogen Plant Layout – Phase Planning



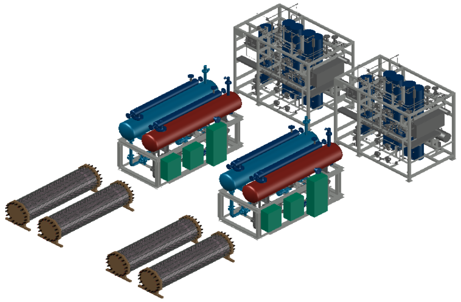


Electrolyser Stack : 20 MW (Clusters) x 15 Nos. = 300 MW
H2 Generation : 60000 Nm3/h

Time Frame	Electrolyser Size (MW)	Power Requirement (MW)	H2 Production (TPD)	Electrolyser Land Required (Area m2)	H2 Storage (Ton)
Phase 1	20	25	6.5	3000	10 Ton
Phase 2	150	175	48.5	8000	15 Ton
Phase 3	300	350	100	8700	30 Ton

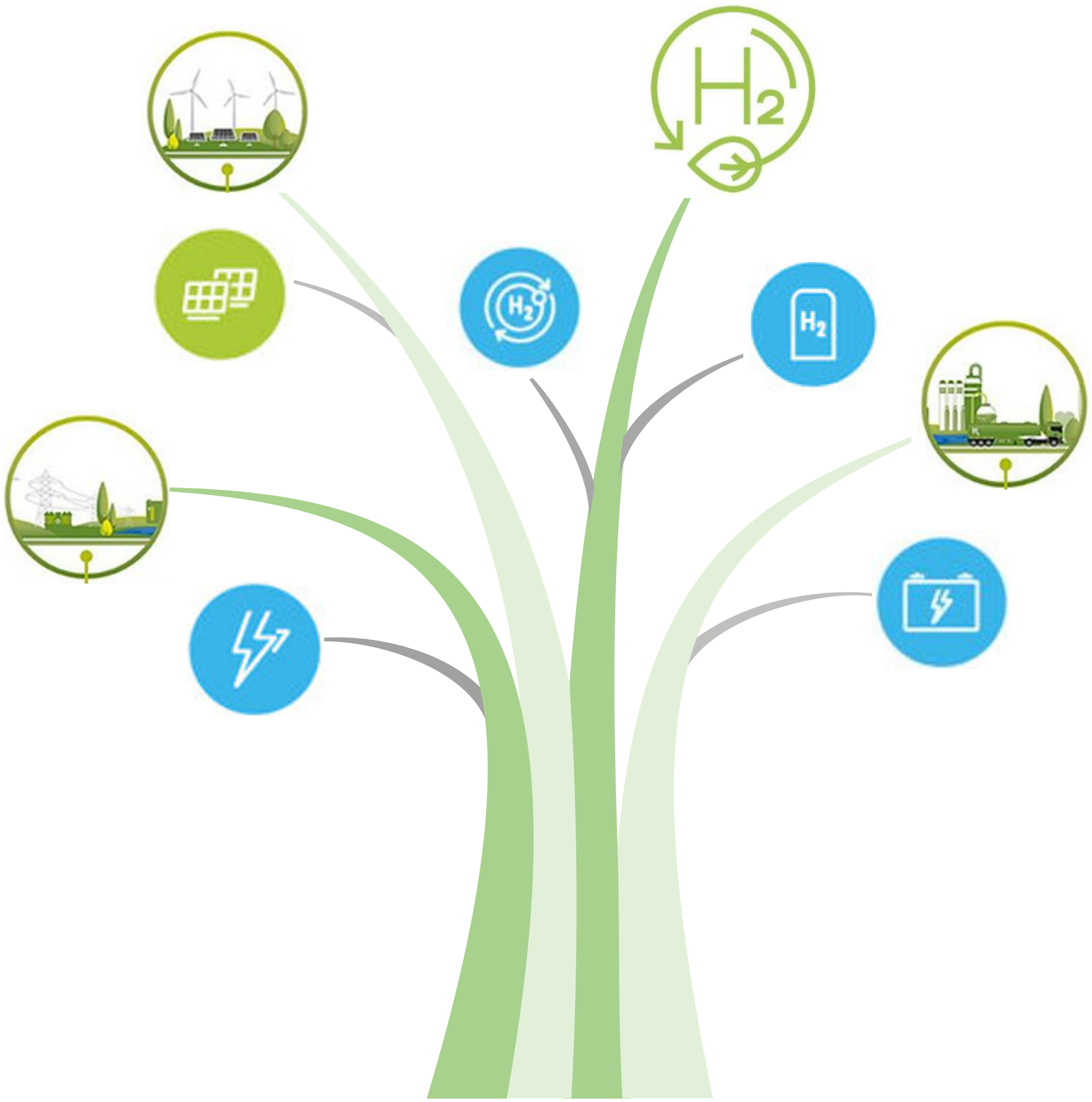
300 MW Green Hydrogen Plant : Input Parameters

Utilities	Requirement
Demineralised Water	54 m3/h
Cooling Water (For Electrolyser)	5100 m3/h
Cooling Water (For Compressor)	65 m3/h
Chilled Water (For Purifier)	275 m3/h
Nitrogen Gas (Emergency Purging)	14600 Nm3
Nitrogen Gas (For Compressor)	10 Nm3/h
Nitrogen Gas (For Purifier)	5 Nm3/h, 5-8 barg
Instrument Air	410 Nm3/h, 6-8 barg
DC Power (For Electrolyser)	300 MW



300 MW Green Hydrogen Plant
(Electrolyser Stack : 20 MW (Clusters) x 15 Nos.)

Description	Specification
Product	H2 Gas
H2 Gas Production	60000 m3/h
H2 Gas Production	5394 kg/hr
Temperature	50 Deg C
Pressure	30 barg
Purity	99.999%
H2O-Content in H2 (ppmv)	< 1
O2-Content in H2 (ppmv)	< 1



Thank You