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# Competitive Landscape H<sub>2</sub> Storage

## Metal Hydride | How it Works

## Safety & Certification



# H2 Storage | Competitive Landscape



**GKN Metal Hydride**



**Compressed Gas**



**Liquid**

## Upside

- **Safety:** 10 bar, ambient temp
- Non-bulk storage
- 97% efficiency w/ waste heat
- No compression to store
- Almost no maintenance

- Tubes (alone) are simple
- Known commodity

- Energy density
- 4 MT per delivered tanker
- Least expensive delivered H2

## Downside

- Small \$ premium
- Can require a booster
- Heavy

- **Safety:** 200-1000 bar
- Requires compression (CapEx, energy, maintenance)
- Stranded mass (lower yield)
- Balance of plant

- **Safety:** -253 deg C temp
- 35-40% energy loss in cooling
- Boil-off (1-3% losses daily)
- "Race against time"
- Balance of plant



# Next-gen Hydrogen Storage with Metal Hydride Tech



Green

**100% Recyclable:** Metal hydrides are often made from abundant and non-toxic materials, making them environmentally friendly and sustainable compared to other storage technologies.

Safe

**Only 2% of the stored hydrogen in a gaseous state:**

Metal hydrides are generally stable materials and offer a safer alternative to compressed hydrogen gas or liquid hydrogen, which are more prone to leakage or explosion risks.

Compact

**50 times smaller than gas storages at same pressure level (10 barg):**

Metal hydrides can store a significant amount of hydrogen in a relatively small volume compared to other storage methods, making them suitable for applications where space is limited.

Efficient

**Thermodynamic Efficient:** Metal hydride reactions typically occur at moderate temperatures and pressures, resulting in higher thermodynamic efficiency compared to other hydrogen storage methods like compression or liquefaction.

Versatile

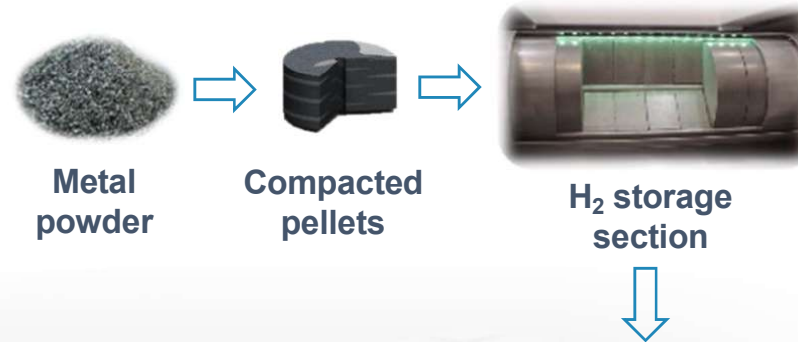
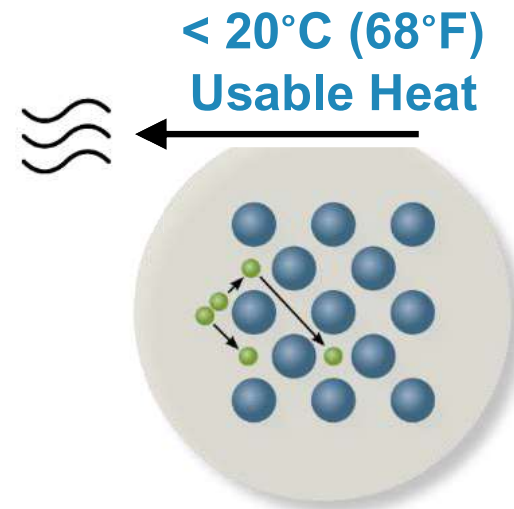
**Metal hydride storage is versatile:**

Technology can be adapted to various scales and applications, from small-scale portable devices to large-scale stationary energy storage systems, providing flexibility in deployment.

# Metal Hydride = How It Works

## Hydrogen Charge

- $H_2$  gas is fed to the metal alloy at pressure up to 10 barg
- Alloy reacts with hydrogen, creating a metal hydride and releases heat

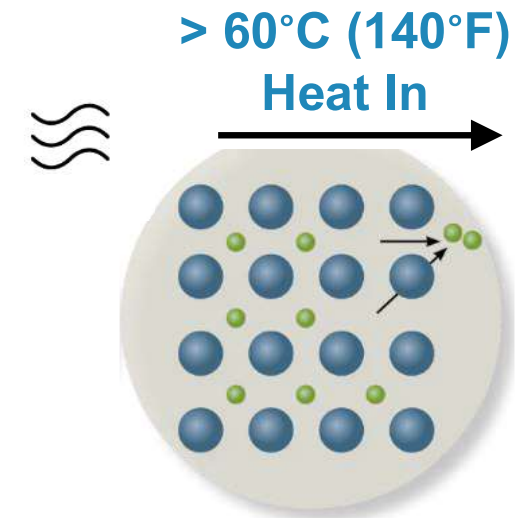


## LONG-DURATION STORAGE

- Stored without losses indefinitely until needed
- > 98%  $H_2$  chemically bonded/ solid-state
- < 2%  $H_2$  gaseous only

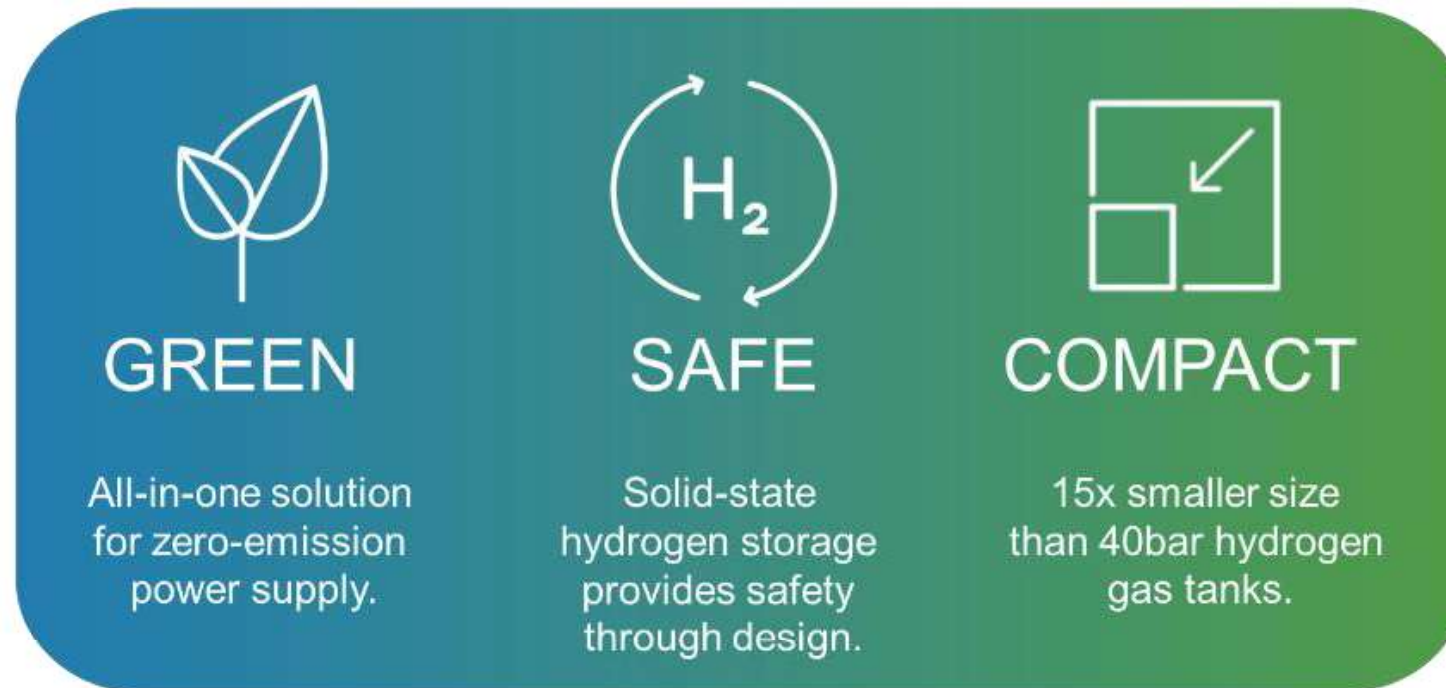
## Hydrogen Discharge

- Metal hydride is heated
- $H_2$  is released safely





# Metal Hydride by GKN = The Safest Hydrogen Storage



- ✓ Low Pressure <10 bar
- ✓ Low temperature <70 °C
- ✓ No compressor needed
- ✓ Long Life-time >25 years
- ✓ 99% capacity after 5,000 cycles

# Safety behaviour of H<sub>2</sub> charged Metal Hydrids (FeTi base)



## Water

Blistering (H<sub>2</sub>) as soon as in contact with H<sub>2</sub>O.

Oxidation of MH, exothermic reaction - minimal temperature increase of <5°C detected.

→ **No critical reaction** of the active MH material **with water**.

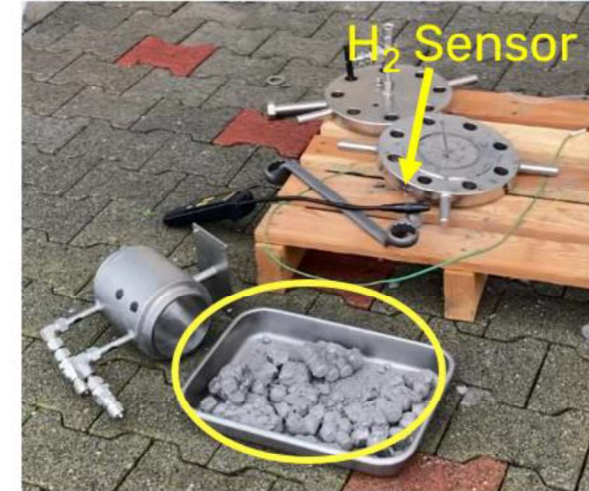


## Fire

After multiple firings with a propane burner - a flame is visible indicating that contained organic material is burning off.

No self-advancing flame.

→ **No critical reaction** of active MH material in contact **with an open flame**.



## Air

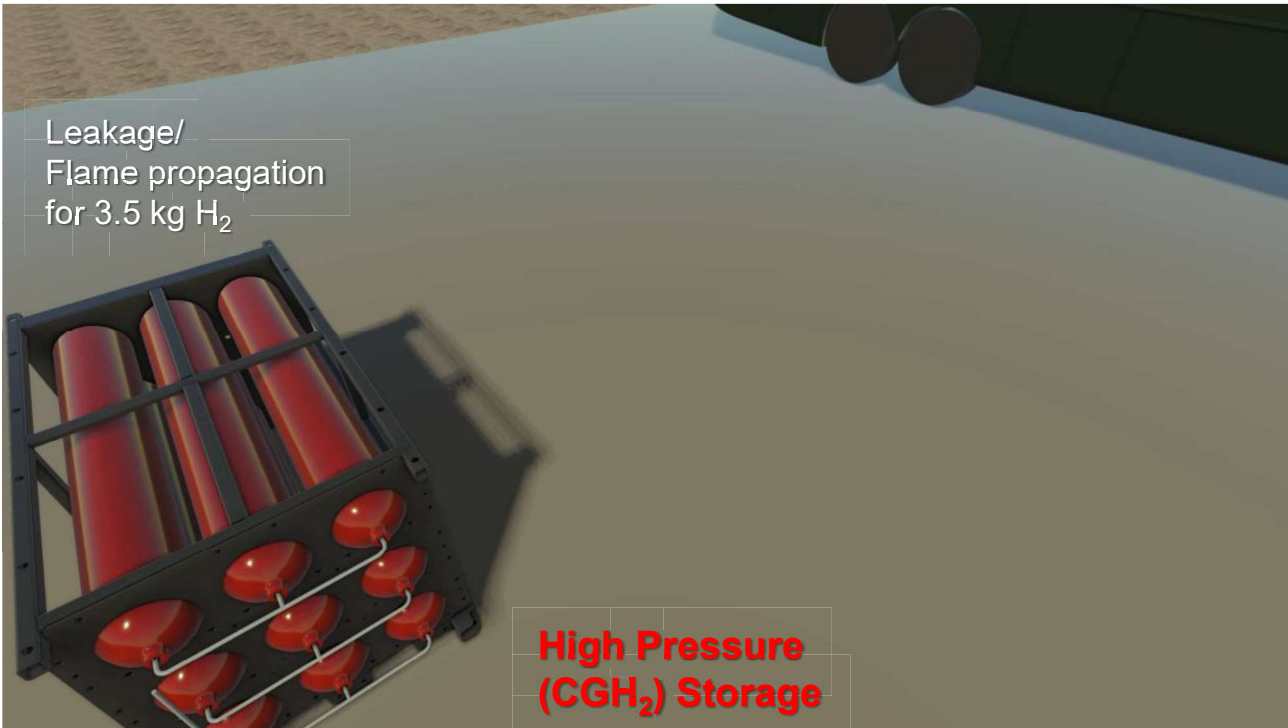
Scenario only possible when tank is unloaded.

No reaction visible when active MH material comes into contact with air. Only the release of hydrogen can be measured.

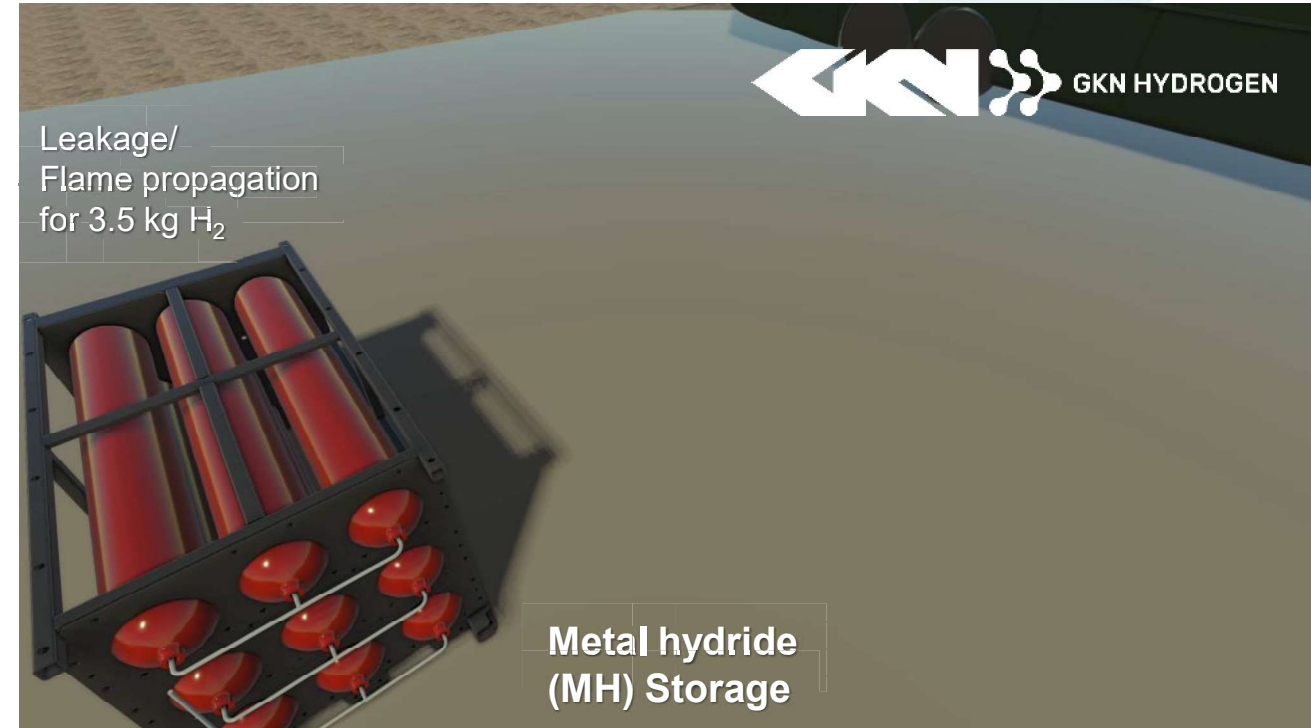
→ **No critical reaction** of the active MH material **in the air**.

# Flame Propagation in Case of Damaged Storage

High pressure hydrogen storage vs. metal hydride hydrogen storage (GKN Hydrogen)



3.5kg H<sub>2</sub> stored in a 700bar high pressure storage



3.5kg H<sub>2</sub> stored in a 35 bar metal hydride storage

→ 20 times less flame energy

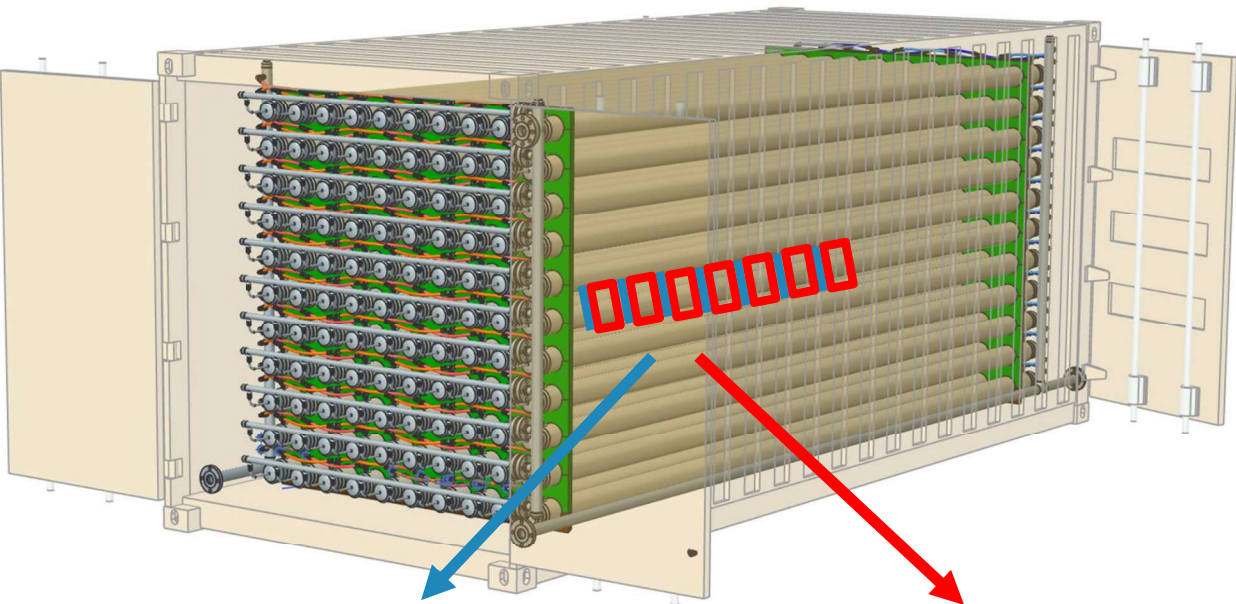


# Metal-Hydride storage

vs.

# High pressure storage

Terra-HS200J (→ Japan version < 10barg)



2%  
gaseous H<sub>2</sub>  
(piping, porosity)

98%  
solid H<sub>2</sub>  
in metal hydride

only 4 kgGH<sub>2</sub> + 196 kgH<sub>2</sub>

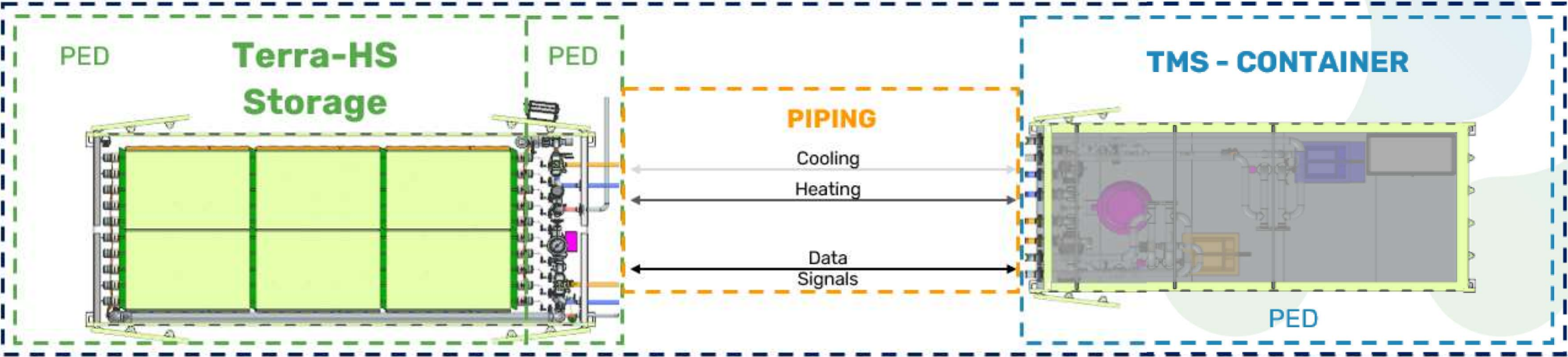
Total 200 kgH<sub>2</sub>



100%  
gaseous H<sub>2</sub>

200 kgGH<sub>2</sub>

# Certification / CE Declaration - PED



Part	Certification	Responsible	Code
Complete System	CE declaration of conformity	GKN Hydrogen + Notified Body	<b>PED</b> - Directive 2014/68/EU

Part	Certification	Codes	Part	Cert.	Resp.	Codes	Part	Certification	Codes
Pressure vessel	CE declaration of conformity	<b>PED</b> - Directive 2014/68/EU	Piping	Self decl. of conf.	Supplier or customer	<b>PED</b> - Directive 2014/68/EU	Piping	Self declaration of conformity	<b>PED</b> - Directive 2014/68/EU
Piping	CE declaration of conformity	<b>PED</b> - Directive 2014/68/EU	<div>The information in this presentation is copyrighted and may not be disclosed or used by any third party without the permission of GKN Hydrogen</div>				Electr. Safety	Self declaration of conformity	<b>EN 60204-1</b>
Electr. Safety	Self declaration of conformity	<b>EN 60204-1</b>					Electr. Safety	CE declaration of conformity	<b>EN 60204-1</b>
EX - Safety	All components compliant for ATEX - Zone 2	<b>ATEX - Directive</b> 2014/34/EU					Expansion tank	CE declaration of conformity	<b>PED</b> - Directive 2014/68/EU <b>DIN EN 13831</b>

EUROPE





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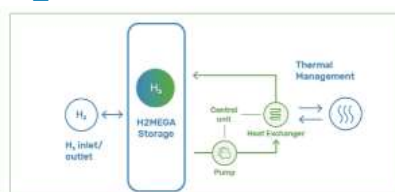
# What we offer





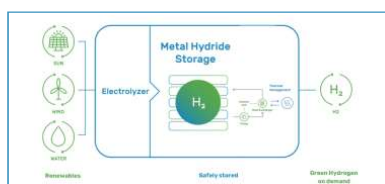
# GKN Hydrogen - Product Offering

## H<sub>2</sub>-Storage (metal hydride)



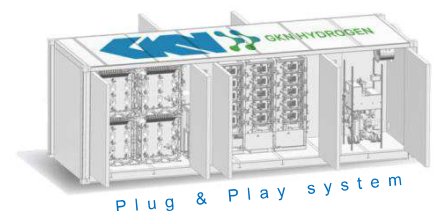
TERRA-HS storage units with 200kg H<sub>2</sub> capacity each

## Power-2-Gas



HY2 System with Electrolysis and Storage

## Power-2-Power



Terra-E Systems with Electrolysis, Storage and Fuel Cell

## METAL HYDRIDE STORAGE



**Hydrogen Storage**  
Iron-Titanium Alloy



**Energy Storage**  
200 kg per 20' container  
6.6 MWh chem energy

**Fully integrated**

- Storage
- Thermal Mgmt
- Safeties
- Controls
- Balance of plant



**H<sub>2</sub> Release Temp**  
60 - 95 deg C



**Operating Pressure**  
0.5bar(g) to 10 bar(g) max



Example layout  
400 kg Storage + Thermal Mgmt

(Example)



**Electrolyzer**  
4 MW  
~850 kg H<sub>2</sub> per 12h

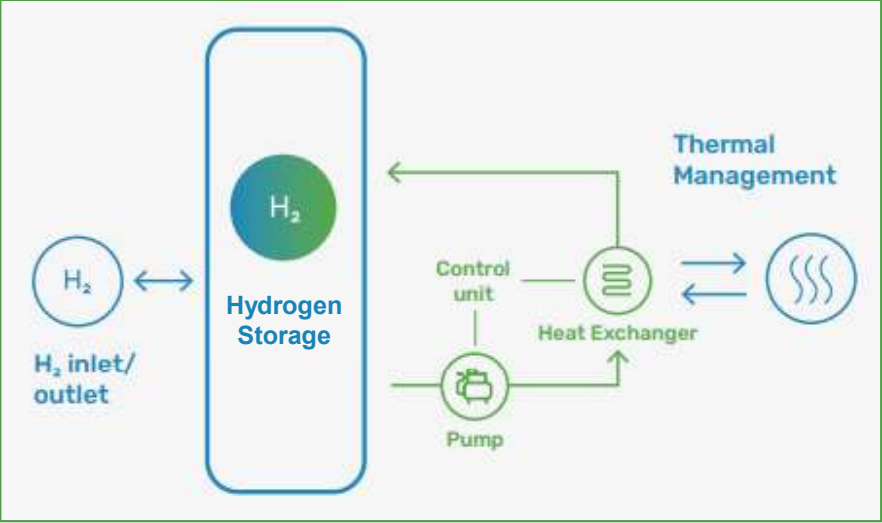


**Energy Storage**  
26.6 MWh chemical  
800 kg H<sub>2</sub> (at) 10 bar  
(or multiple tons)



**Fuel Cell**  
1 MW  
~750 kg H<sub>2</sub> per 12h

# Hydrogen Storage in Metal Hydride



TMS

Terra-HS200J  
Storage unit



Utility scale/ stackable units  
Example for 1,800kg H<sub>2</sub>

## Key Specifications



### Hydrogen Storage Capacity

Up to 200 kg / Unit  
Units can be clustered / stacked



### Transportable

By truck and train



### Pressure Range

0.5 – 10bar(g)



### Nominal H<sub>2</sub> flow

20 - 40kg H<sub>2</sub>/ h per unit



### Peak H<sub>2</sub> flow

Max. 70kg H<sub>2</sub>/ h per unit  
(for 20min)



### Output Voltages

EU 120V / 230V / 400V – 50Hz  
NA 120V / 240V / 480V – 60Hz



### Hydrogen purity requirement

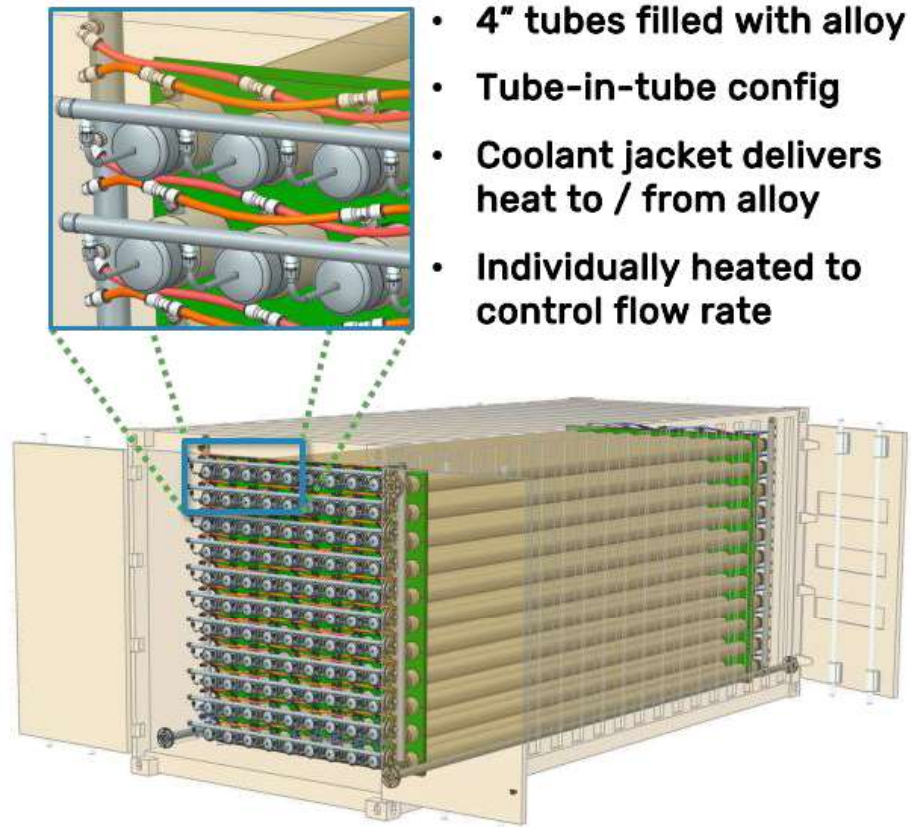
> 99.999% general or 99.97% @ specified impurities  
< -70°C dew point

### Dimensions / Weight

Container size 20 foot: 6m x 2.5m x 2.6m  
Weight: 30 – 32 tons

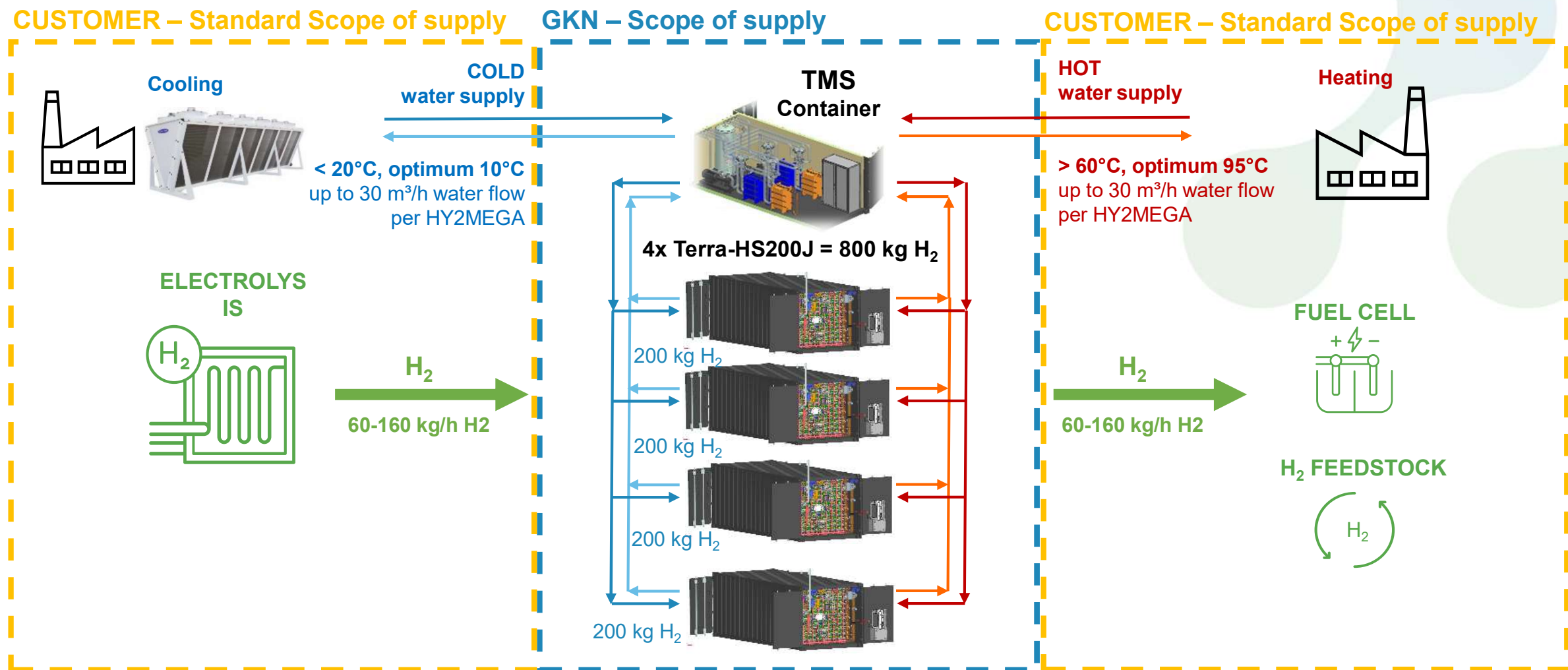
# Terra-HS200J / Proven System Engineering

## System Arrangement





# Terra-HS200J / Storage capacity example for 800 kg H<sub>2</sub>

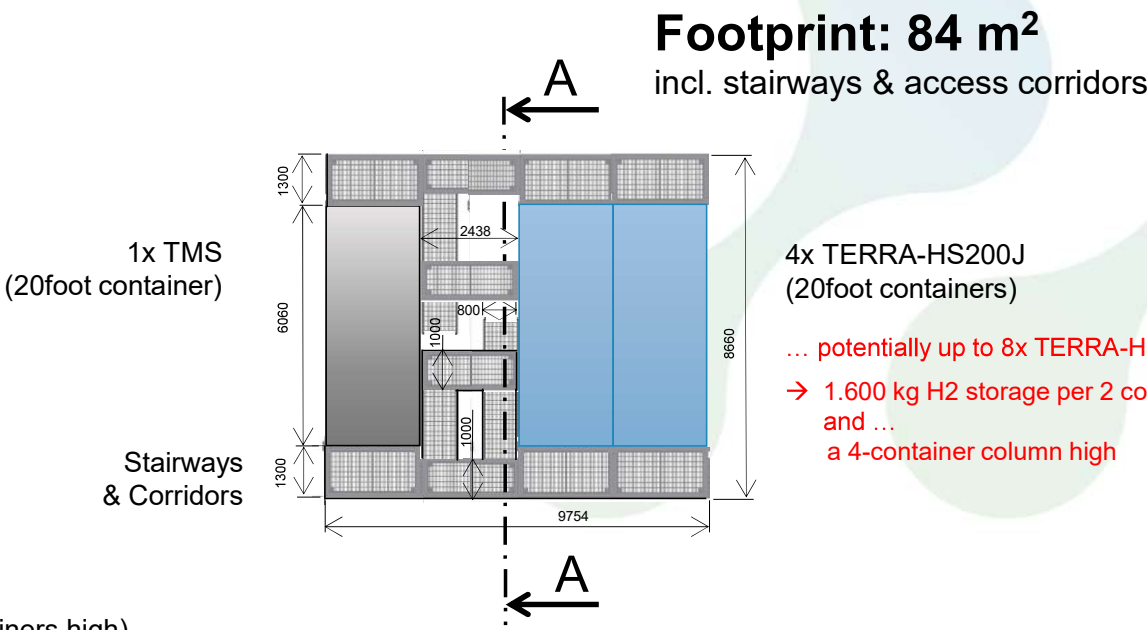
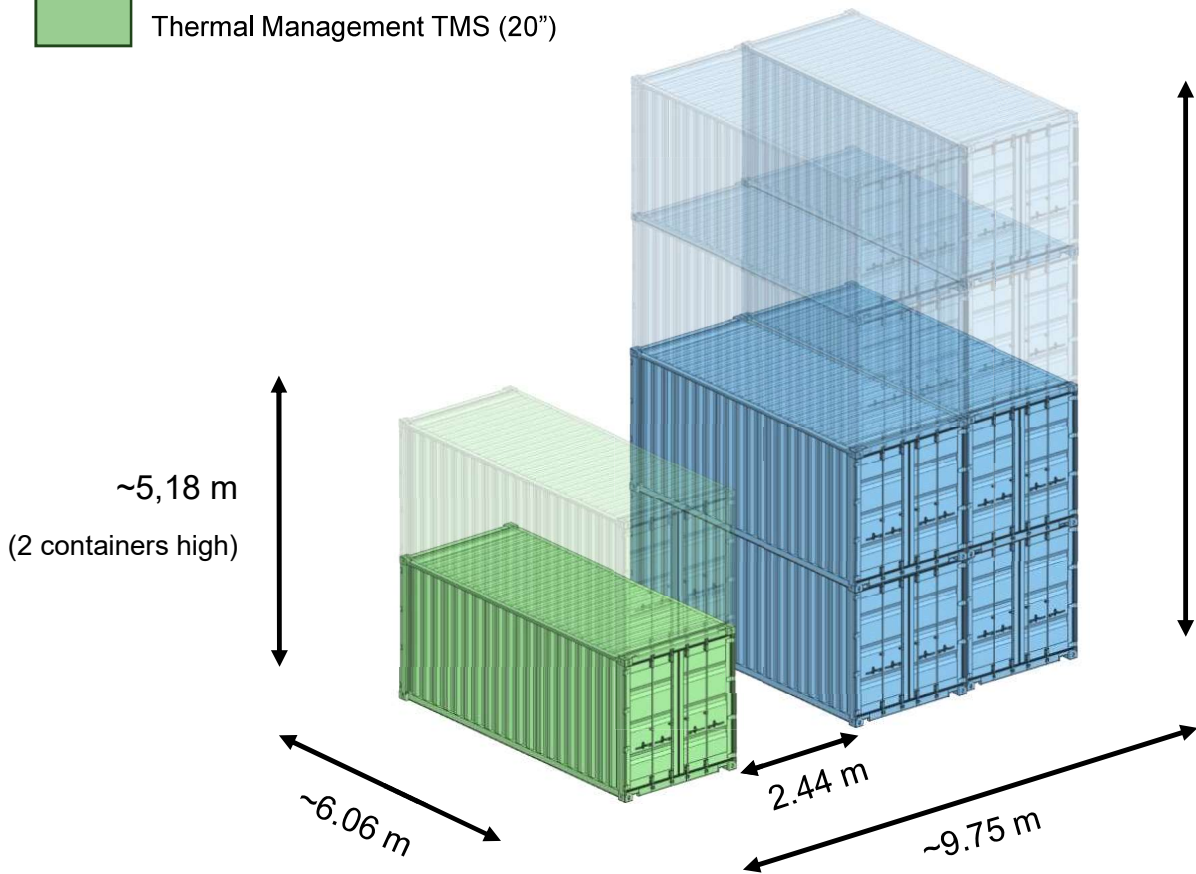


# Hydrogen storage cluster - expandable modular layout

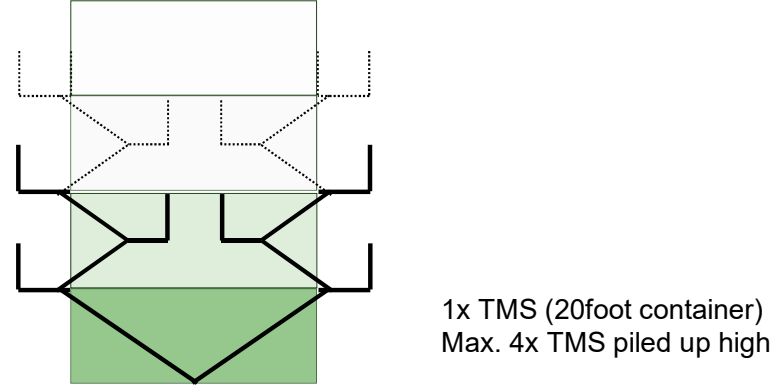
Example: 1,600 kg H<sub>2</sub> storage capacity

8x Terra-HS200J = 8x 200 kg H<sub>2</sub> plus 1-2x TMS

- TERRA-HS250 (20")
- Thermal Management TMS (20")

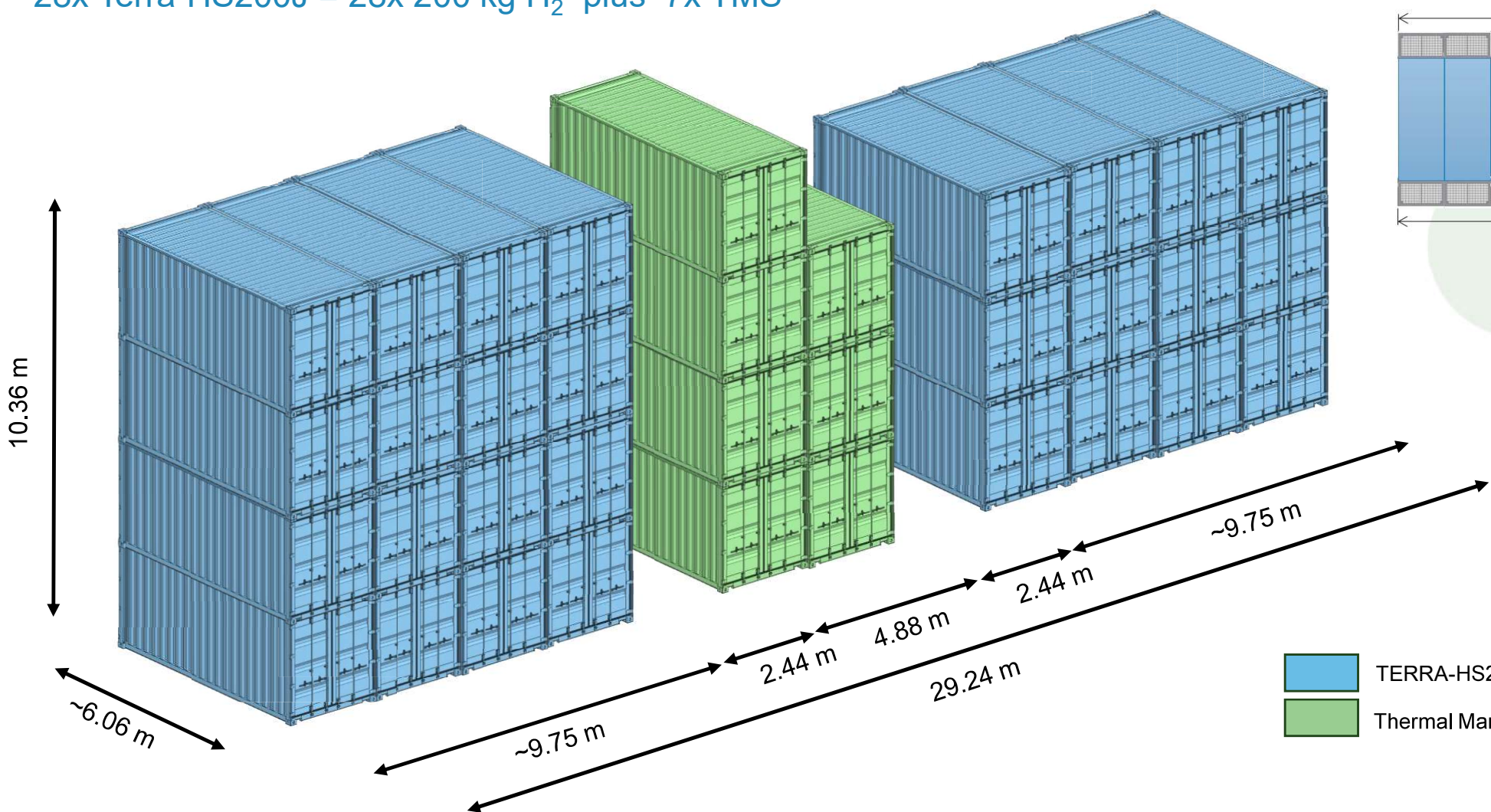


Cut A-A (schematic view)

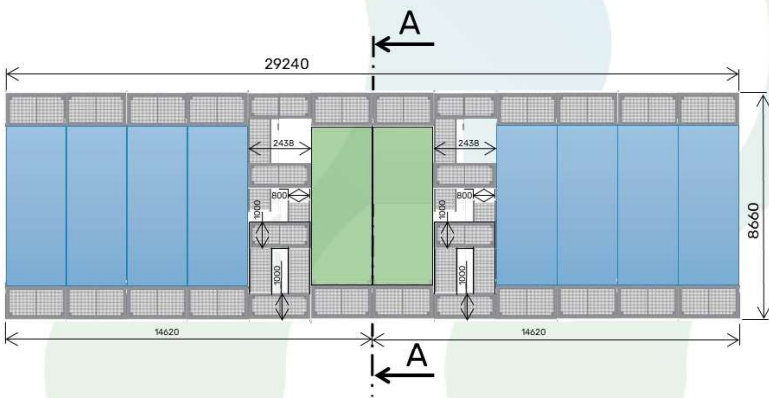


# Hydrogen storage - Modular Layout

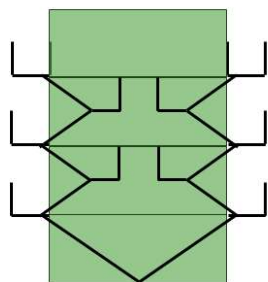
Example: 5,600 kg H<sub>2</sub> storage capacity  
28x Terra-HS200J = 28x 200 kg H<sub>2</sub> plus 7x TMS



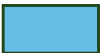

**Footprint: 253 m<sup>2</sup>**  
incl. stairways & access corridors



Cut A-A (schematic view)



Stairways and corridors  
4x containers high  
(20foot each)

-  TERRA-HS200J (20")
-  Thermal Management TMS (20")



# Terra-HS200J Storage Cluster

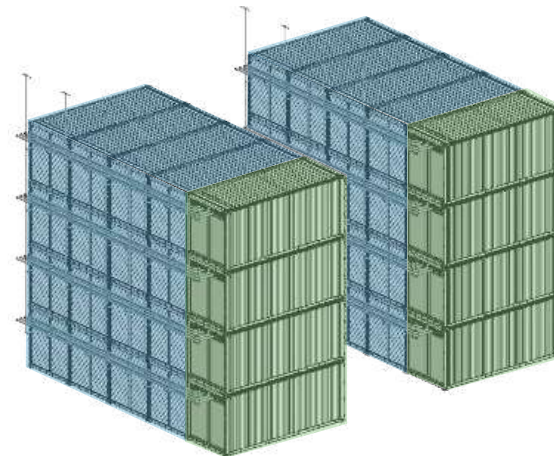
Example: 6,400 kg H<sub>2</sub> storage capacity

32x Terra-HS200J = 32x 200 kg H<sub>2</sub> plus 8x TMS (20foot containers)

→ 1,120 kg H<sub>2</sub>/ hour over 4 hours duration (spec.)

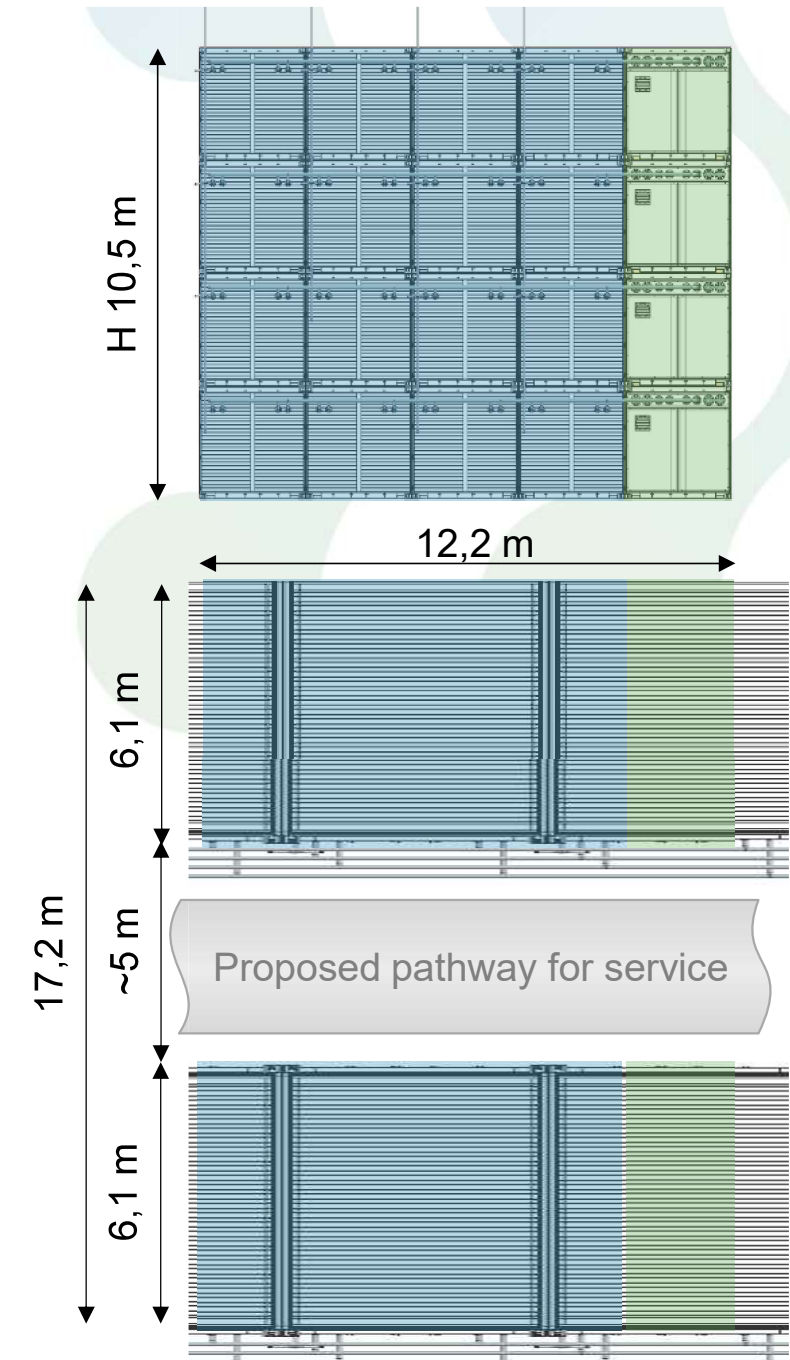
- Layout
  - Max. 4 containers stacked high
  - 2 or more rows
- Rough Footprint Dimensions
  - min. Ground floor: 17,2 m x 12,2 m
  - excl. surroundings

→ ~210 m<sup>2</sup>



**Layout Example:**  
for 6,400 kg H<sub>2</sub>

6,400 kg enable 1.1 MW  
electrical power for 96 hrs

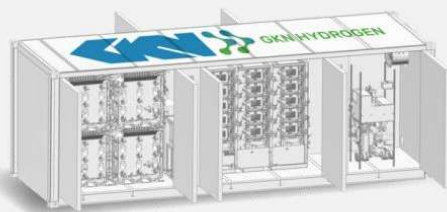


**GREEN. SAFE. COMPACT.**

# Power-2-Gas Applications

## Application

- Green H<sub>2</sub> industrial thermal heating
- Thermal baths and sauna
- University and R&D/ fuel cell testing
- Combined Heat & Power (CHP)/ thermal back-up units

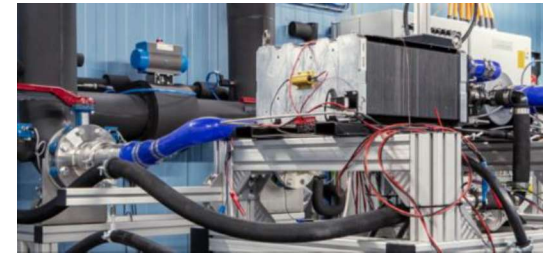


Terra-HS

Renewables for direct heat generation



R&D/automotive fuel cell testing



Commercial Buildings



Hotels



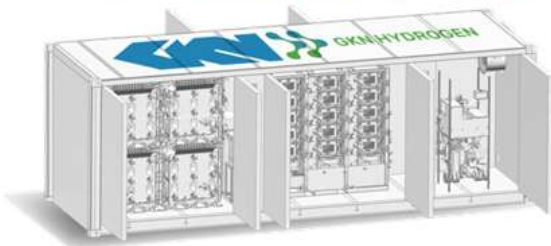
Thermal baths and sauna



# Power-2-Gas Applications | Turnkey Container Solution

## HY2 Power-2-Gas System

NEW - available H2 - 2025



### Dimensions

25foot integrated container  
7.5 m x 2.5m x 2.6m /  
20,000 – 28,000kg

### Key Specifications



#### Energy Storage Capacity

4 MWh chemical  
115kg H<sub>2</sub>



#### Electrolyser

10 – 20kg H<sub>2</sub> per 24h  
24 - 48kW power



#### Nominal H<sub>2</sub> flow

Up to 10kg per h



#### Peak H<sub>2</sub> flow

12kg up H<sub>2</sub> (for 30min)

### Thermal management (TMS)

Standard: Customer supplies cold <15°C and hot water >65°C

Customized: On-board autarch TMS system for cold and hot energy need

## Key performance data:

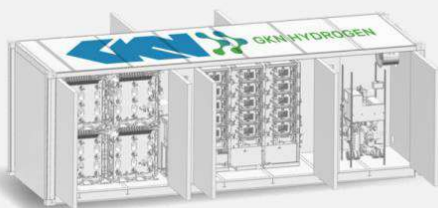
- up to 48 kW electrolysis (= 20 kg H<sub>2</sub> per 24h)
- 115 kg H<sub>2</sub> storage
- up to 10 kg/h H<sub>2</sub> flow



# Power-2-Power Applications

## Application

- Remote / Off-Grid
- Energy Balancing
- Back-up Power
- Micro Grid
- Combined Heat & Power



Terra-E+

Hotels



Commercial Buildings



Large Residential Areas



EV Charging Infrastructure



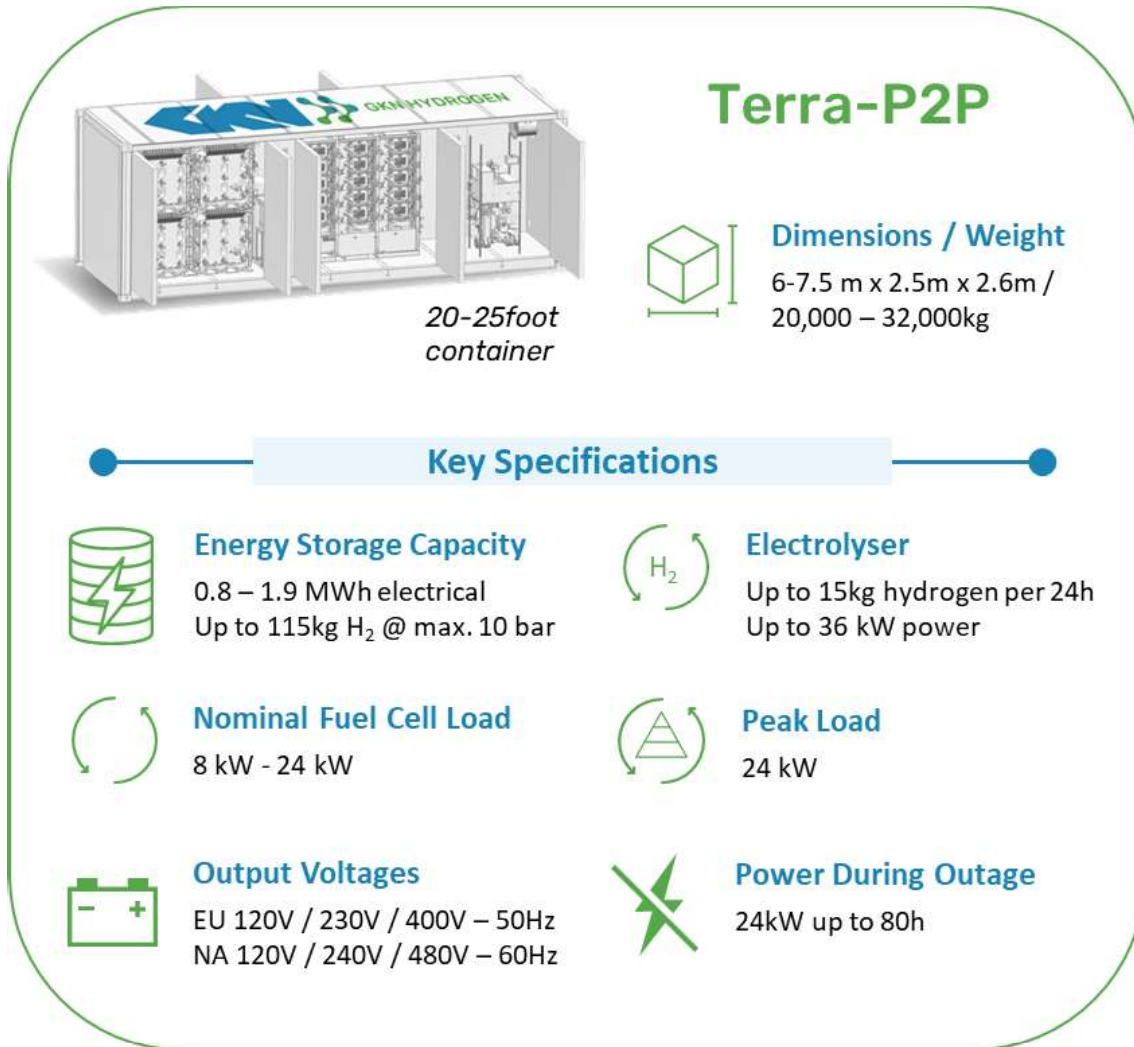
Utilization of Renewables



University and R&D Test Infrastructure



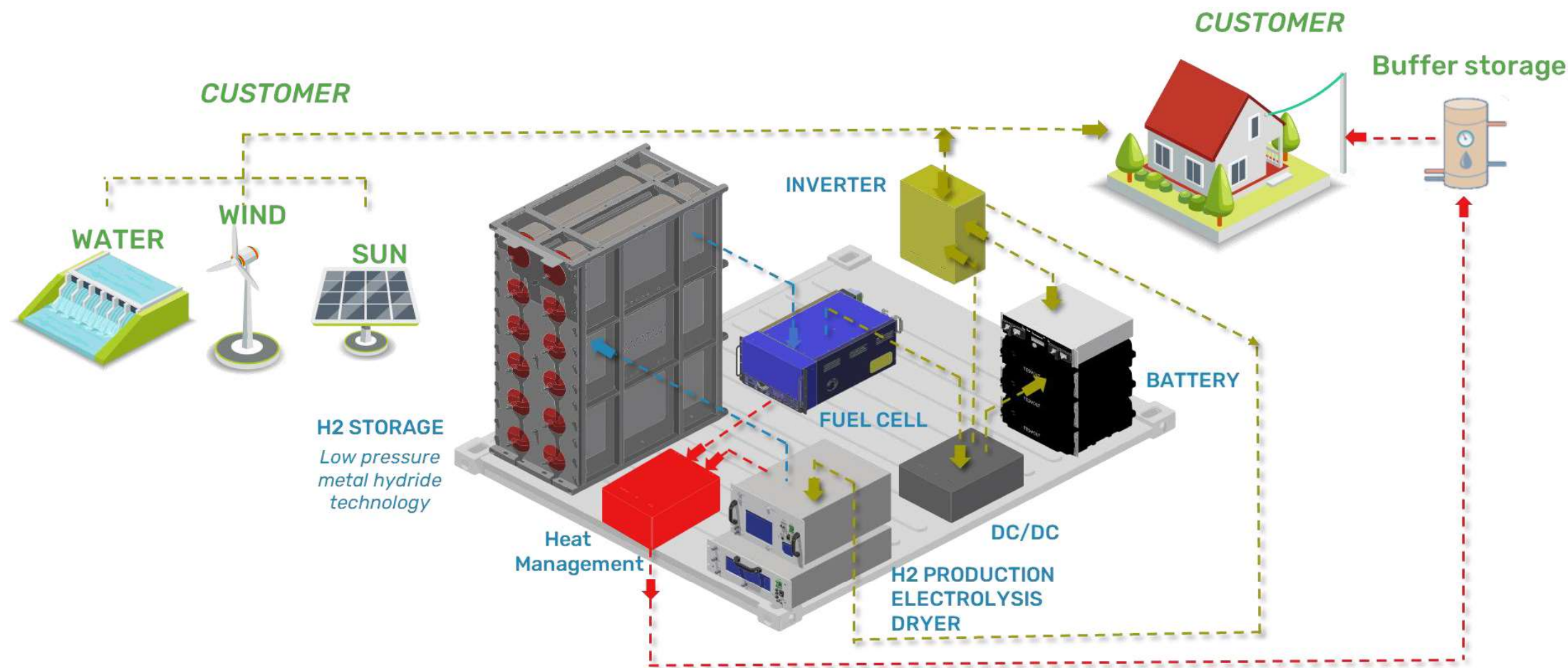
# Power-2-Power Systems | Turnkey Container Solution



## Key performance data:

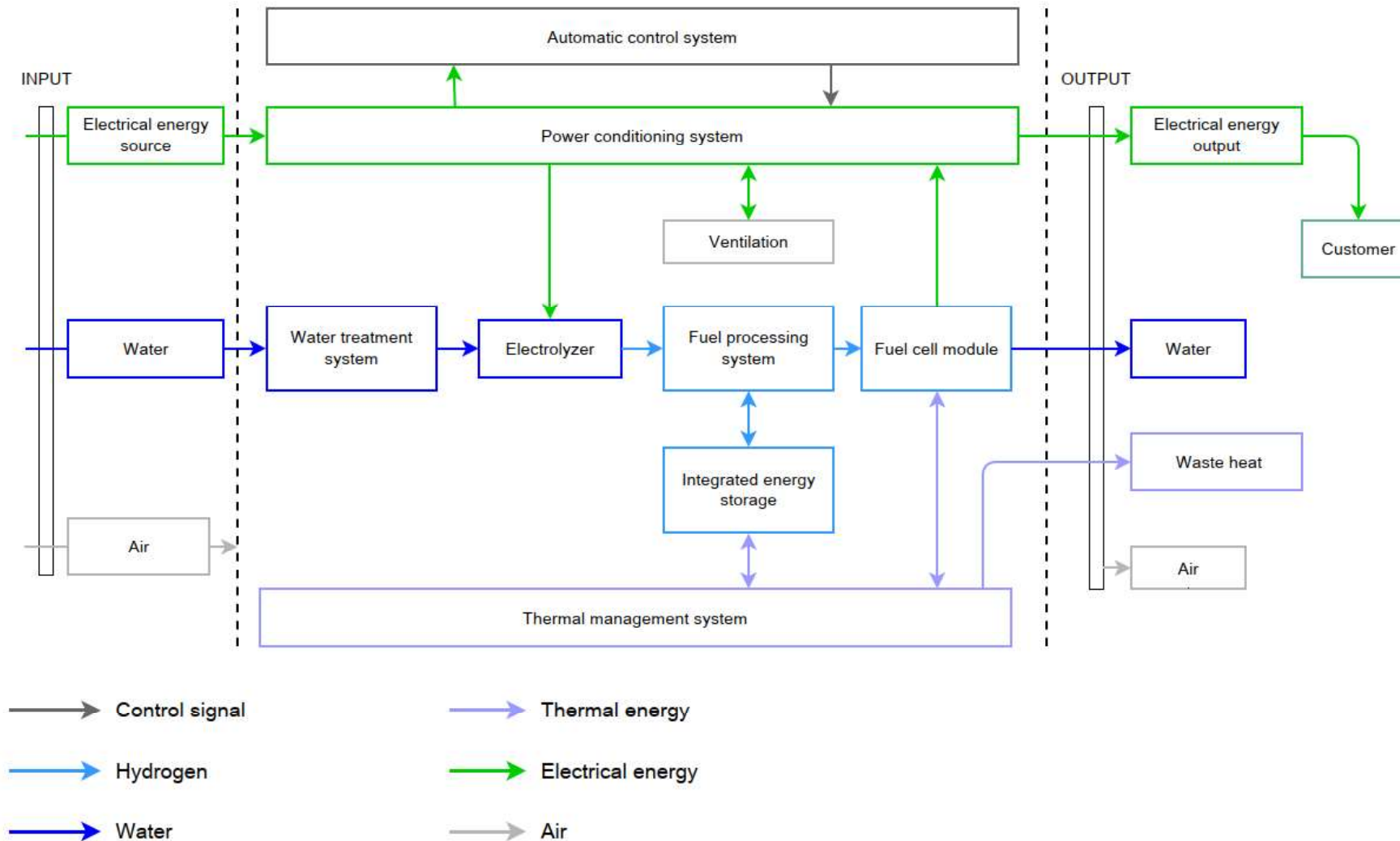
- up to 36 kW electrolysis power
- up to 115 kg H<sub>2</sub> storage
- up to 24 kW fuel cell power

# Power-2-Power Systems | Simplified Energy Flow



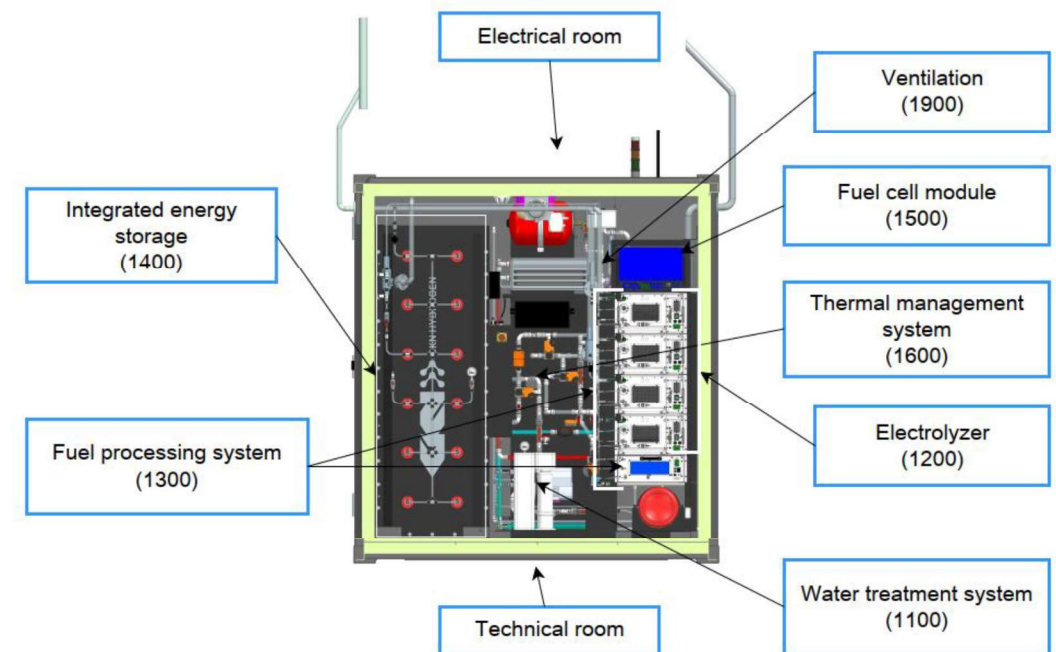
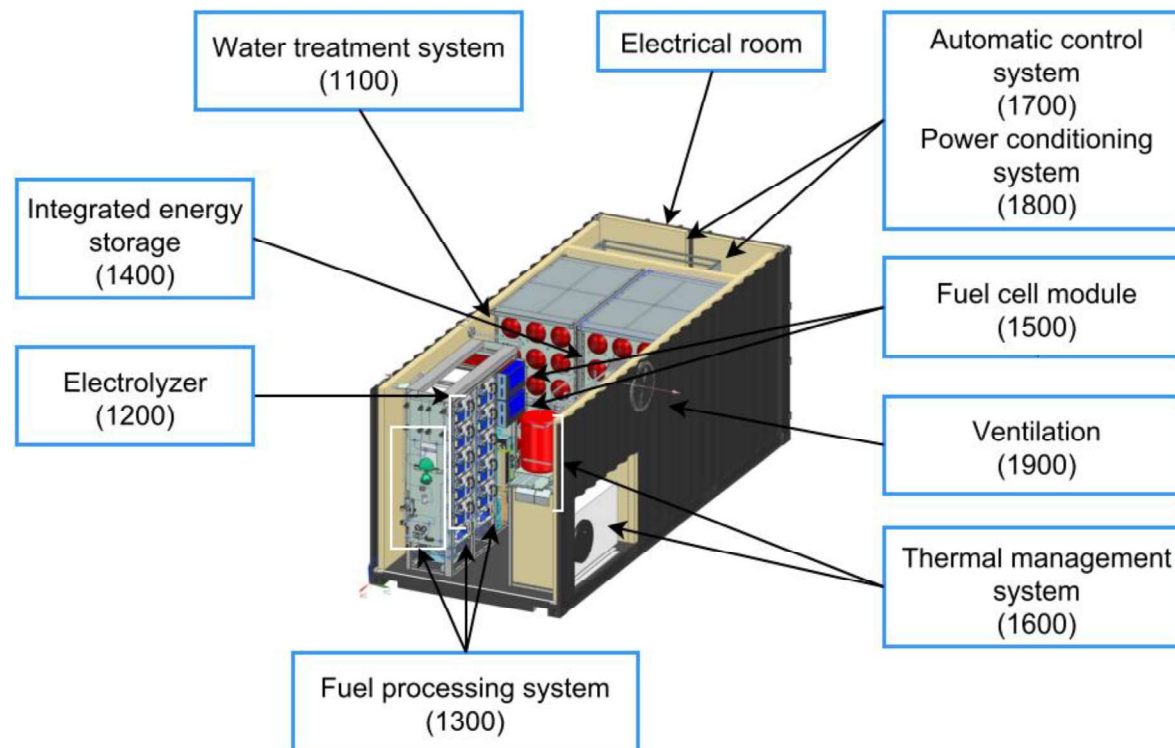


# Power-2-Power Systems I Functional Overview



# Power-2-Power Systems I System Areas

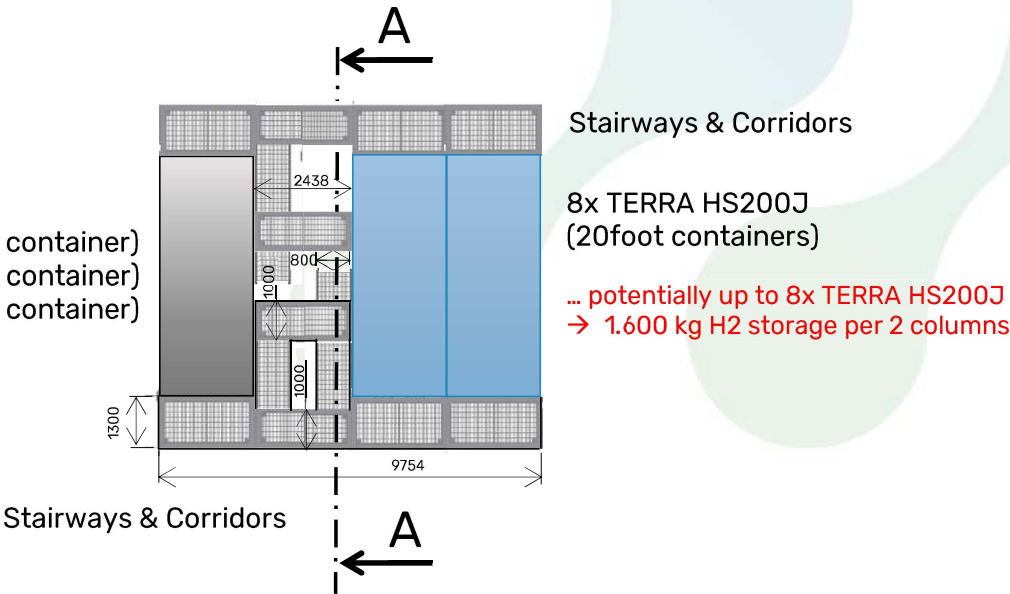
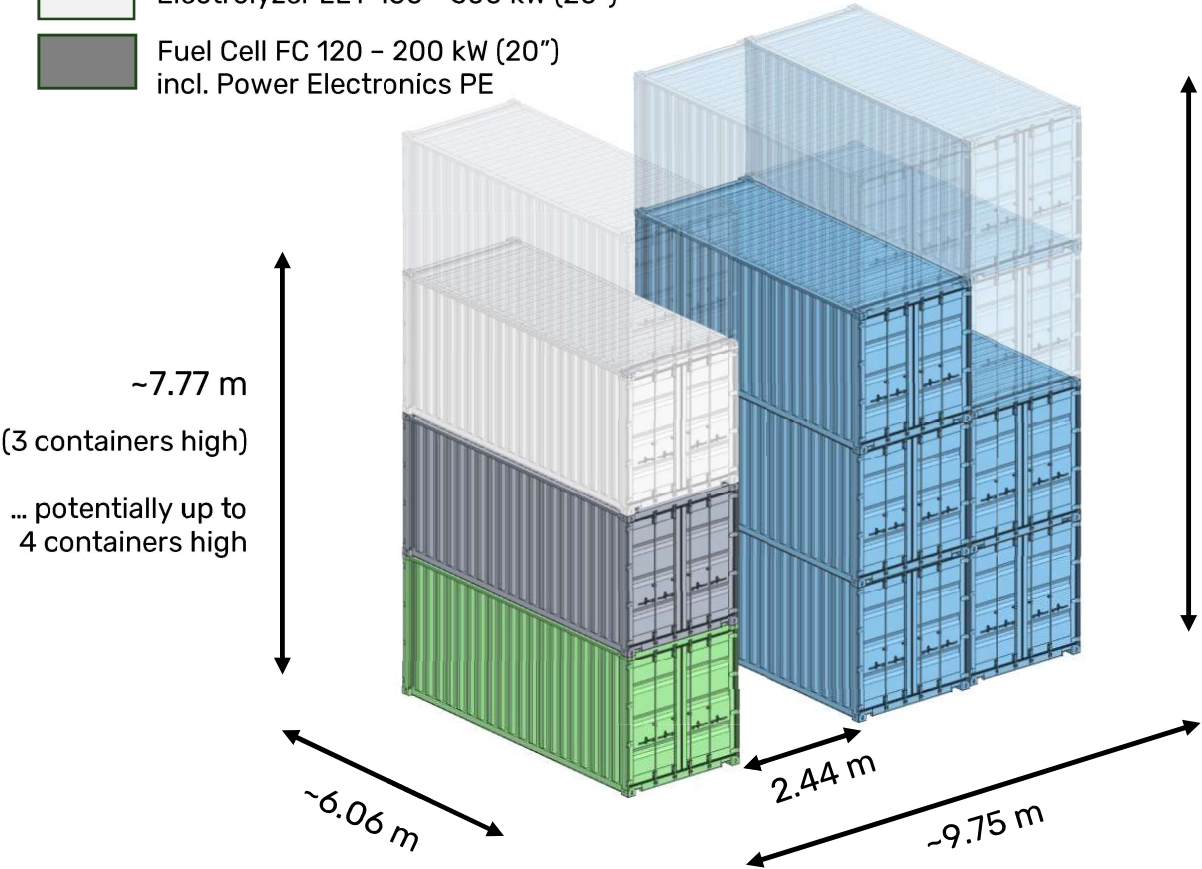
The system comprises various assemblies (major components), which cover hydrogen production, storage and reconversion into electricity. Thermal waste heat recovery is feasible and improves the roundtrip system efficiency .



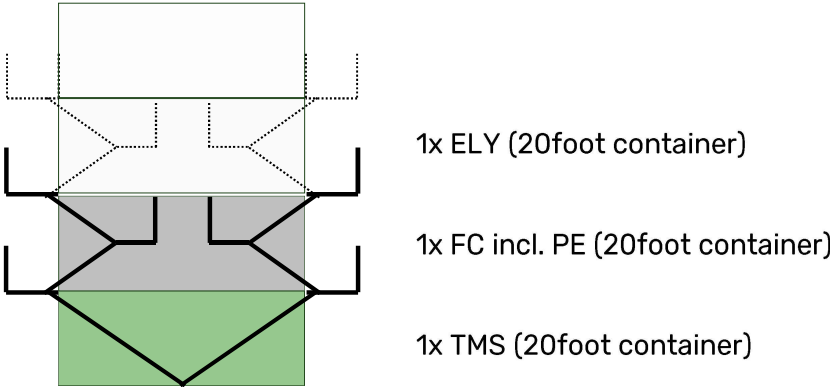
# P2P / P2G systems with Modular-Container-Approach

Example: **1,600 kg H<sub>2</sub> storage capacity = 53.3 MWh chemical or 26.6 MWh electrical**

- TERRA-HS200J (20")
- Thermal Management TMS (20")
- Electrolyzer ELY 150 – 300 kW (20")
- Fuel Cell FC 120 – 200 kW (20")  
incl. Power Electronics PE



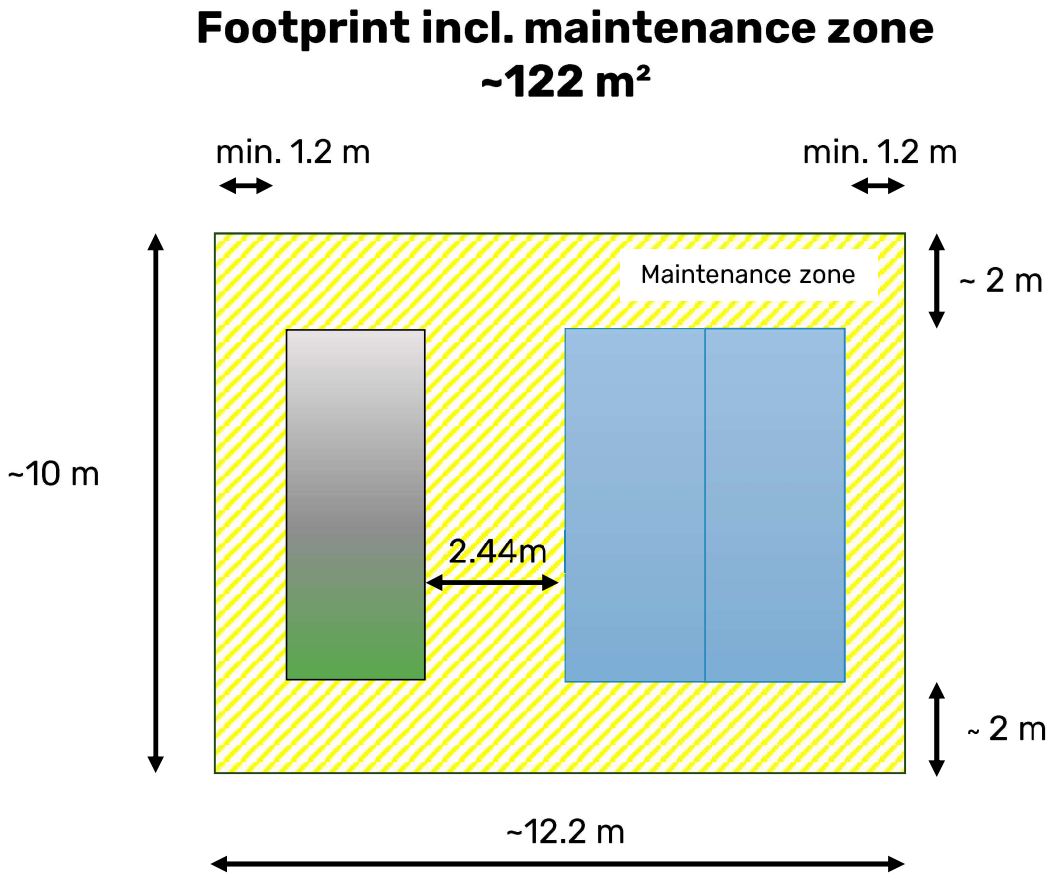
Cut A-A (schematic view)



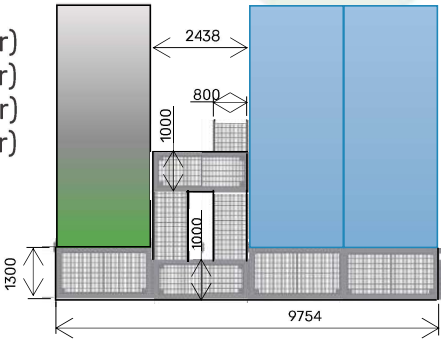


# Potential Footprint for P2P / P2G with 1,600 kg H<sub>2</sub>

Maintenance zones (included)



1x free space (20foot container)  
1x ELY (20foot container)  
1x FC incl. PE (20foot container)  
1x TMS (20foot container)



5 – 8 x HY2MEGA (Terra HS250)  
(20foot containers)

Stairways &  
Floor bridges



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# Project Experience





# Compelling Project Benefits

## Safe Tech & Ease to Permit

- Low pressure (0.5 to 10 bar)
- No thermal runaway risk
- Non-pyrophoric → No reaction to air
- 3x smaller than 300 bar storage
- Ease of permitting
- Global controls interlocking modules

## Project Management

- Simple install (plug & play)
- Short lead time (9-12 months)
- Transports easily
- Small footprint; 5' setbacks
- Configure to site layout
- Scales vertically (up to 5 high)

## Strong Project Financials

- Long lifetime > 25 years
- 97% efficient with heat
- 88% efficient with electricity
- No self-discharge / unlimited cycles
- Minimal maintenance
- No compression required

## Smart Services

- Digital real-time monitoring
- Diagnostics & prognostics
- Performance optimization
- Reactive field service
- Remote maintenance
- Global fleet management





# Robust industrial design

## Metal Hydride Storage | TERRA-HS200J



Hydrogen Storage

## Metal Hydride Terra-P2P System



Plug & Play Power-2-Power System  
with Electrolyzer, Storage & Fuel Cell

# More than 27 Global Installations



Myall Lake / N-S-Wales

P-2-P / Off-Grid

0.42 MWh / 25 kg H<sub>2</sub>



Mt Holly / Arkansas

P-2-P / Micro Grid

0.42 MWh / 25 kg H<sub>2</sub>

Carlsbad / CA

P-2-P / Micro Grid

0.42 MWh / 25 kg H<sub>2</sub>

Phelan Mojave Desert / CA

P-2-P / Micro Grid

0.42 MWh / 25 kg H<sub>2</sub>

Boulder / CO

MH Storage / Micro Grid

16.6 MWh / 500 kg H<sub>2</sub>

Carlsbad / CA

P-2-P / Mobile Demo

0.50 MWh / 30 kg H<sub>2</sub>



Prague, Commercial Hotel

P-2-P / Micro Grid

0.50 MWh / 30 kg H<sub>2</sub>



Bonn, Plug-in E-Charging

P-2-P / Auxiliary

0.33 MWh / 20 kg H<sub>2</sub>

Passau, Commercial Building

P-2-P and CHP

0.81 MWh / 50 kg H<sub>2</sub>

Hanau, R&D Lab

P-2-P and P-2-G

2.0 MWh / 120 kg H<sub>2</sub>

Braunschweig, R&D Lab

MH Storage / H<sub>2</sub> Back up

16.6 MWh / 500 kg H<sub>2</sub>

59.80 MWh

Installed capacity

Customers served



Bruneck, Manufacturing Site

MH Storage

9.5 MWh / 286 kg H<sub>2</sub>

P-2-P / IT Back up

0.42 MWh / 25 kg H<sub>2</sub>

Bruneck, Bio-Farm

P-2-P / Auxiliary Power

2 MWh / 120 kg H<sub>2</sub>

Residential Cottage, Prettau

P-2-P / Off-Grid

0.17 MWh / 10 kg H<sub>2</sub>

Residential Building, Kiens

P-2-P / Rebalancing

0.27 MWh / 16 kg H<sub>2</sub>

Mountain Hut, Sterzing

P-2-P / Off-Grid

0.90 MWh / 60 kg H<sub>2</sub>

Ratsberg, Telecom Tower

P-2-P / Back up 96 hrs

1.5 MWh / 90 kg H<sub>2</sub>

Test Vessel, Naples

P-2-P / Maritime

0.70 MWh / 40 kg H<sub>2</sub>



Brittnau, Resid. Building

P-2-P / Inhouse Solution

0.50 MWh / 30 kg H<sub>2</sub>

Zurich, Apartment Building

P-2-P / Auxiliary Power

2.0 MWh / 120 kg H<sub>2</sub>

Eich, Residential Building

P-2-P / Auxiliary Power

0.42 MWh / 25 kg H<sub>2</sub>



Spital/ Commercial Building

P-2-P + CHP / Micro Grid

2.0 MWh / 120 kg H<sub>2</sub>



Balsicas, Greenhouse

P-2-P / Auxiliary Power

0.20 MWh / 12 kg H<sub>2</sub>

Murcia, University

P-2-P / Rebalancing

0.20 MWh / 12 kg H<sub>2</sub>



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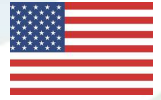


# Terra-HS250 Storage

P2P - System, NREL – Colorado/ USA

**Application:** Micro-Grid | Utility scale

**System:** Terra-HS



17MWh

Stored Energy

500kg H<sub>2</sub>

2x Terra-HS Storage  
GKN

1MW

Nominal Power  
Fuel Cell

1.25MW

Electrolyzer

- Development of second generation of Terra-HS
- **2x Terra-HS** added to the mega-watt class hydrogen assets at the facility on NREL's Campus, CO
- Validate and simulate grid scale use-cases
- **Delivered Nov. 2023**
- Installation in Q1/2024





# Terra-HS250 Storage

P2G - System, H2 terminal SIZ\_TU Braunschweig

- **Application:** Fuel Cell test center

**System:** Terra-HS



**17MWh**

Stored Energy

**500kg H<sub>2</sub>**

2x Terra-HS Storage  
**GKN**

**1.0MW**

Electrolyzer  
*Customer*

- Integration of **2x Terra-HS** and **1x TMS** in the local micro grid
- Validate of fuel cells on test rigs with H<sub>2</sub> from Terra-HS
- **Delivered 12-2023**
- Site installation H1-2024



# Terra-HS250 storage - Photo collection





# Energy balancing (P2P)

## Increase energy self-sufficiency

Eich, Switzerland



### Application

CHP and seasonal storage for building,

### In-building integration

### Environment

100% Emission free

### Sustainability

Completely recyclable system

### Use Case

Heat controlled system for buildings

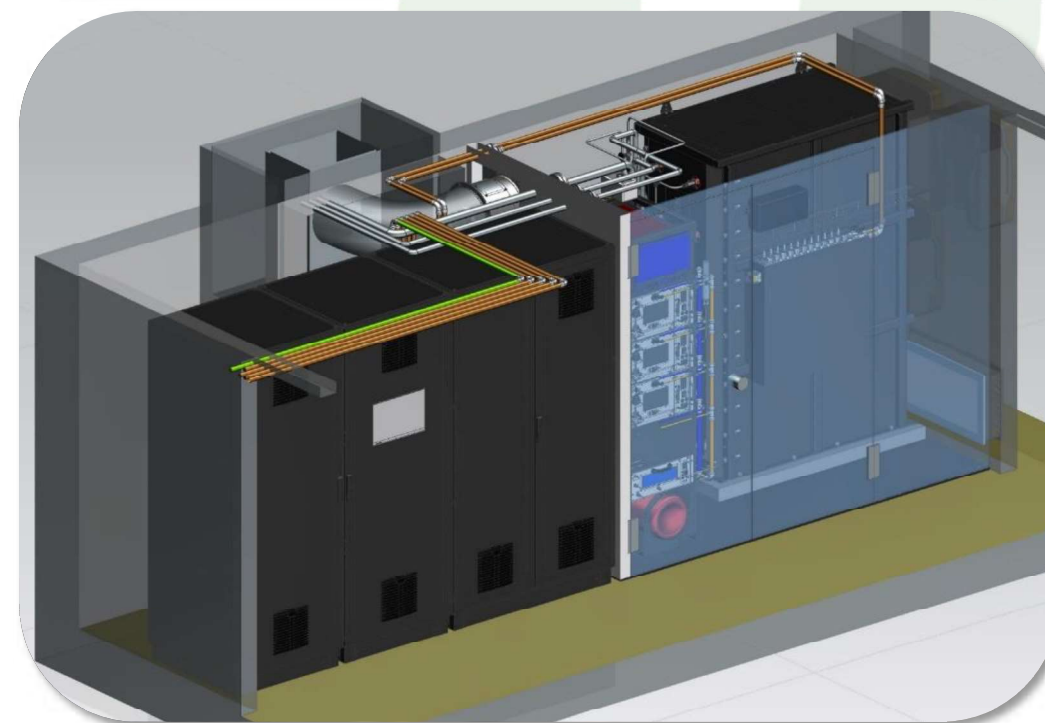
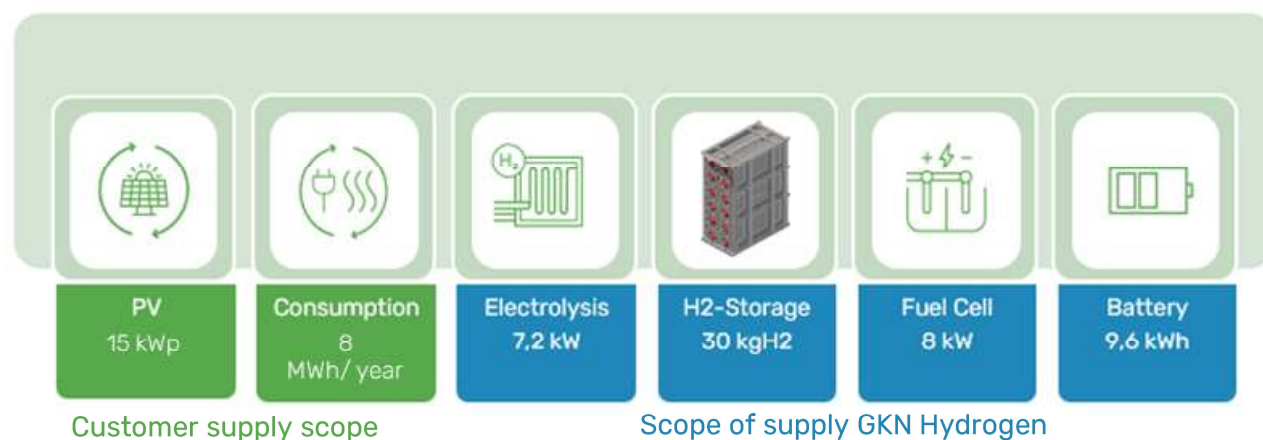
### Position

Residential building, Switzerland

### Opportunity

Replacement of existing oil/ natural gas system

Use waste heat for floor heating etc.



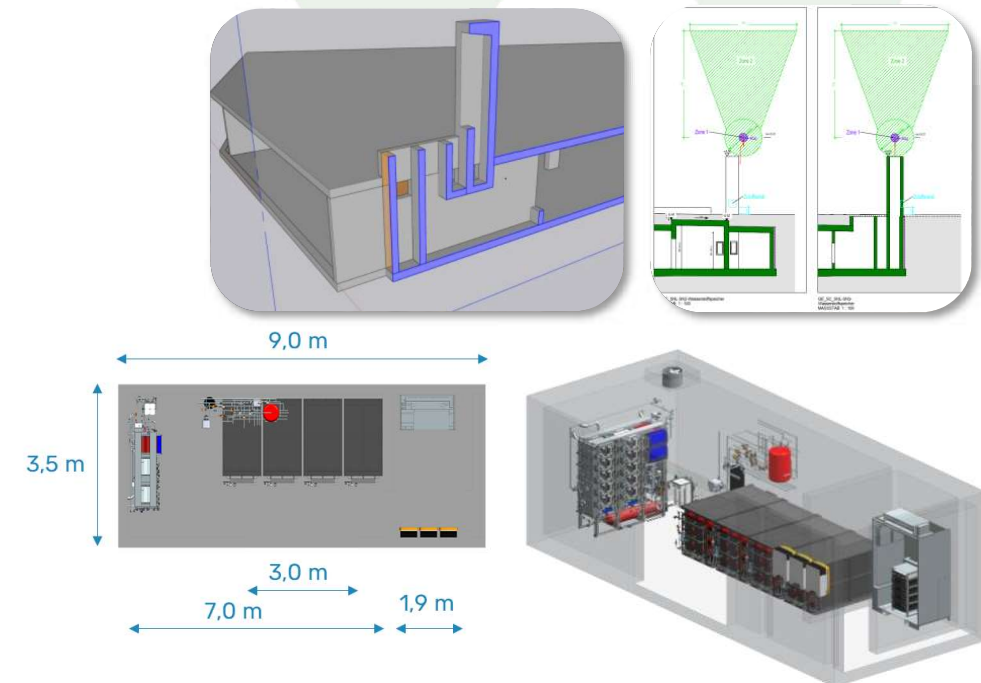
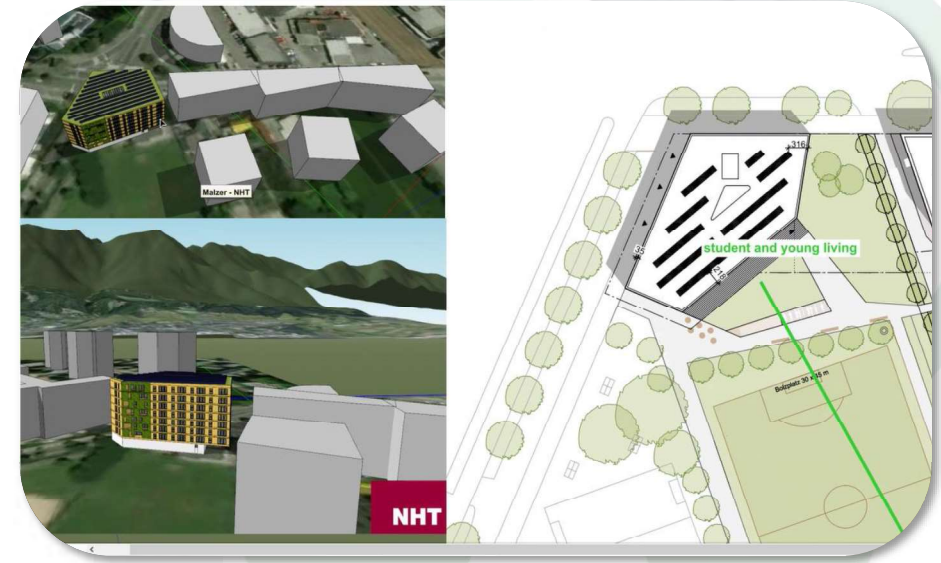
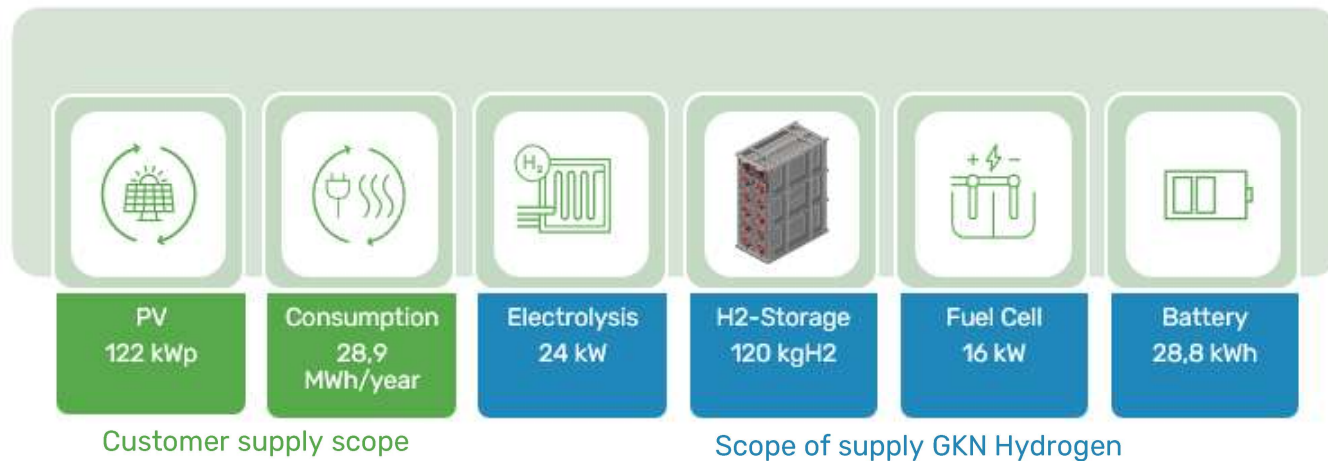


# RENplusHOMES

## Heat controlled system, close to zero-energy building

Neue Heimat, Austria 

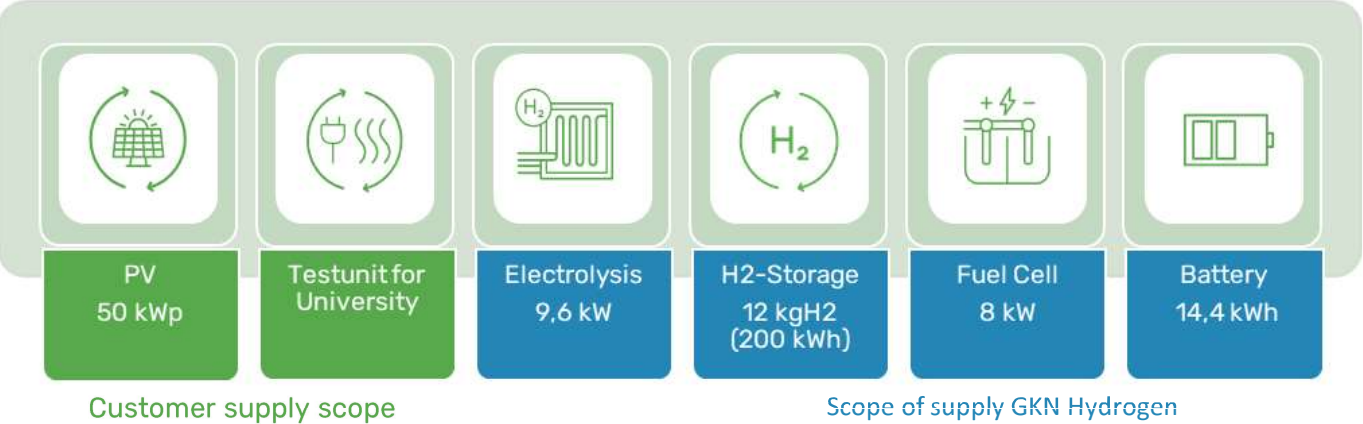
Application	Residential, In-building installation
Environment	100% Emission free
Sustainability	Completely recyclable system
Use Case	Heat controlled system for nearly zero-energy building
Position	Innsbruck, Austria – city center
Opportunity	Replacement of existing heating unit sustainable solution



# Sustainable energy unit (P2P)

University of Murcia, Murcia, Spain 

Application	Agriculture - Research Institutes
Environment	100% Emission free energy solution
Sustainability	Completely recyclable storage system
Use Case	Greenhouse automation/ R&D test lab system
Position	University of Murcia, Murcia, Spain
Opportunity	Demonstrate hydrogen-based energy storage technology to academia and agriculture area





# Communication Tower Ratsberg

## - Emergency power supply -

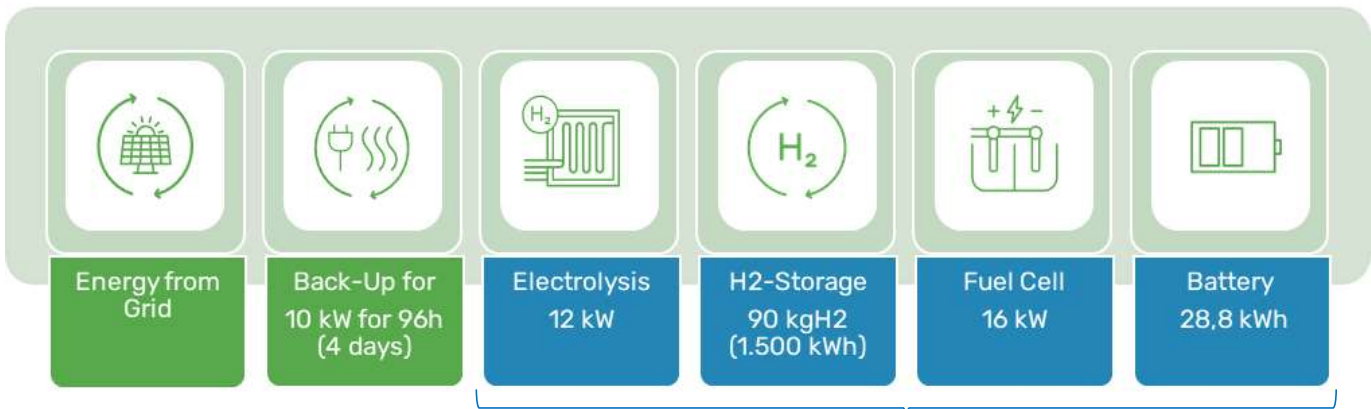
Toblach, South Tyrol , Italy

**Application** Emergency power supply with metal hydride storage

**Objective** Replacement of current diesel gen-sets

**Sustainability** Fully recyclable storage system

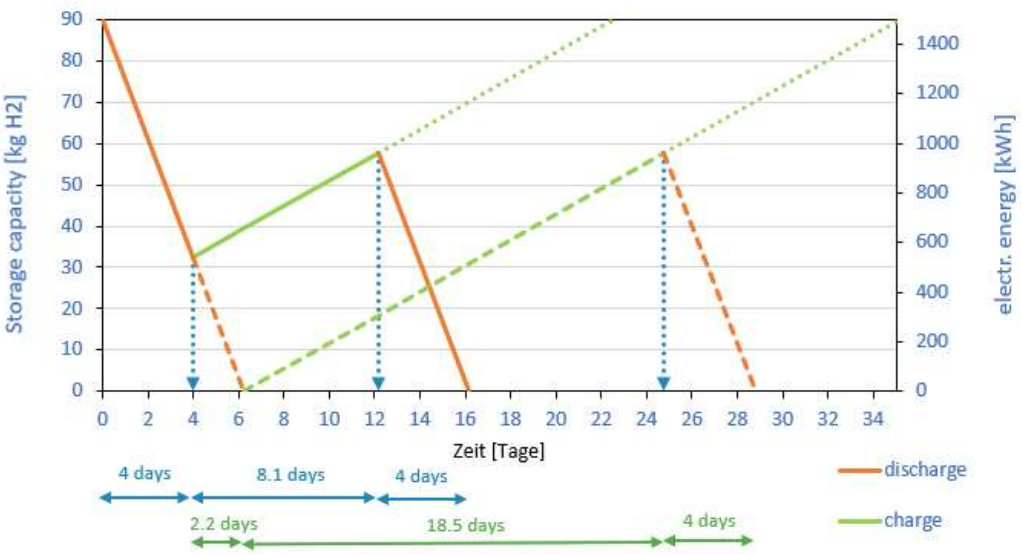
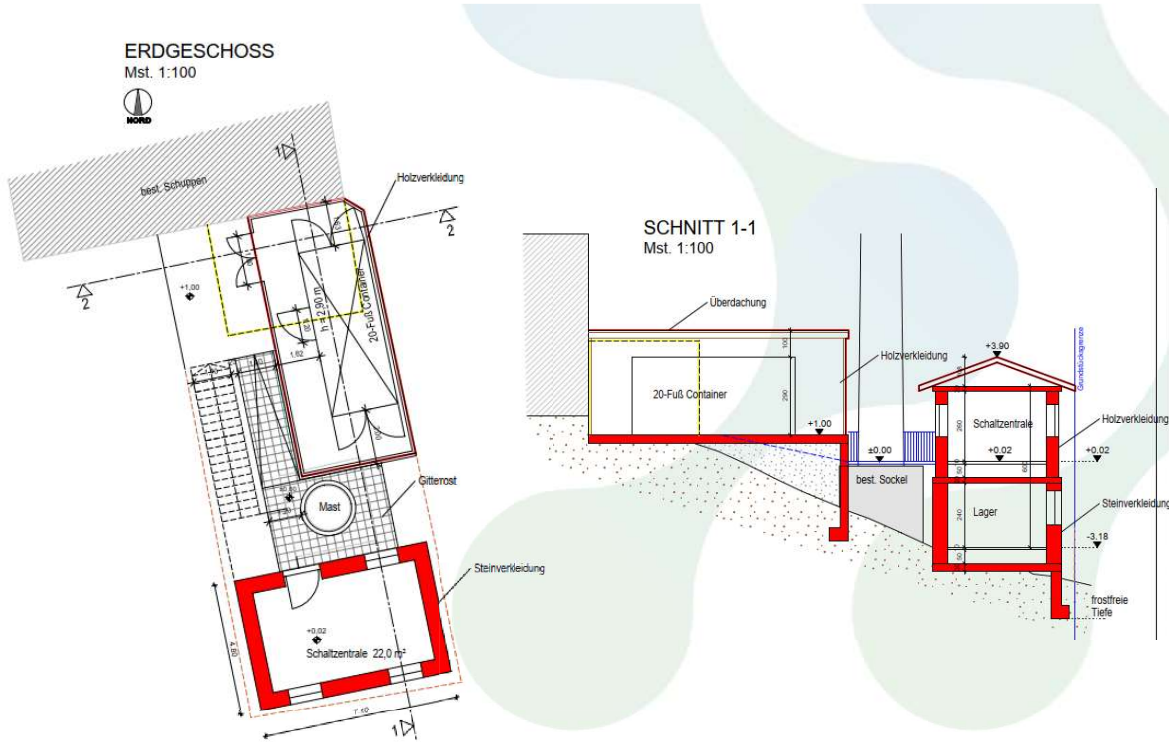
**Use case** Back-up Energy with 10 kW power for 96h  
**Position** Toblach, Ratsberg - Italy



Scope of supply GKN Hydrogen



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GREEN. SAFE. COMPACT.

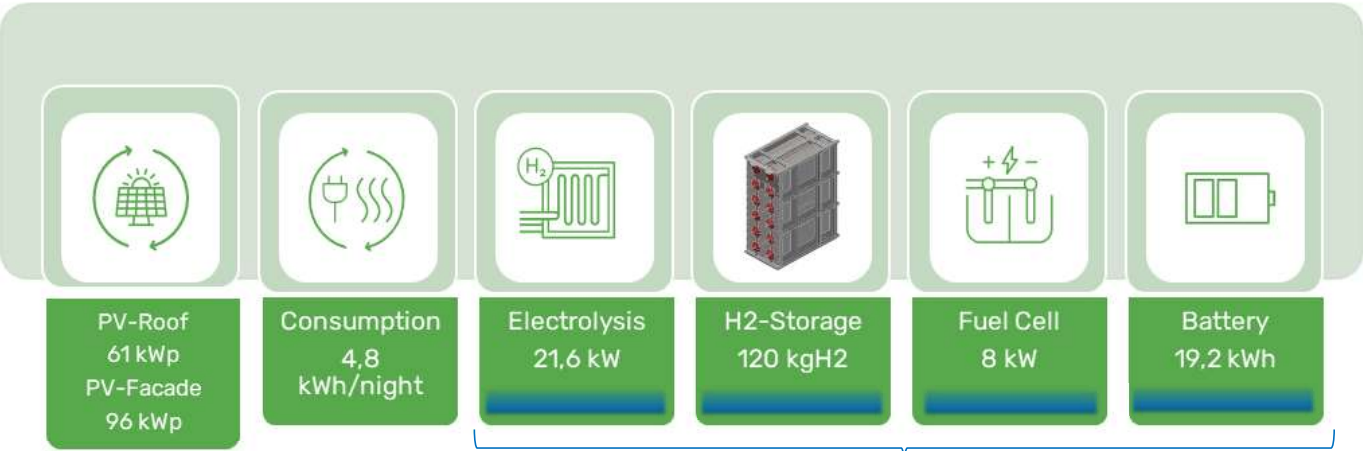


# Energy balancing (P2P)

## CO2-Free Seasonal Energy Storage

BG Zurlinden, Zurich , Switzerland 

Application	CHP and seasonal energy storage for residential
Environment	100% Emission free solution
Sustainability	Completely recyclable storage system
Use Case	Energy storage of 2,000 kWh for PV excess energy
Position	Zurich, Switzerland – inner city center
Opportunity	Decentralized stationary H2 energy storage



Scope of supply GKN Hydrogen





A Langley Holdings Company

# Use Cases





# Use Case: ECO Buildings / Seasonal H2 energy storage

## EQUIPMENT

**Electrolyzer  
(8-10 bar(g))**

**Metal Hydride Storage  
(0 to 9.99 bar(g))**

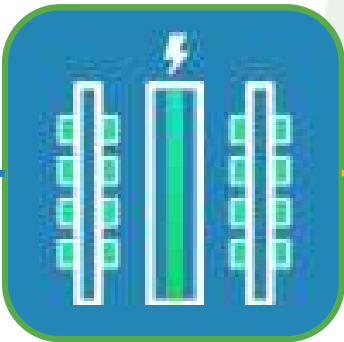
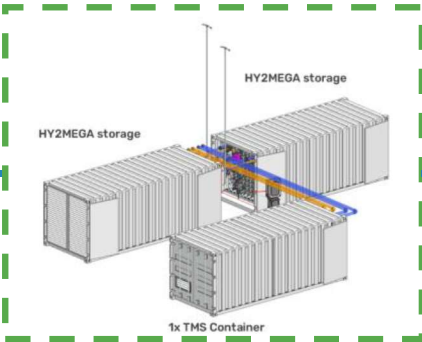
**Fuel Cell (operating  
down to 0.5 bar(g))**

Delivery scope  
Customer

Delivery scope  
GKN Hydrogen

Delivery scope  
Customer

**ECO Buildings**

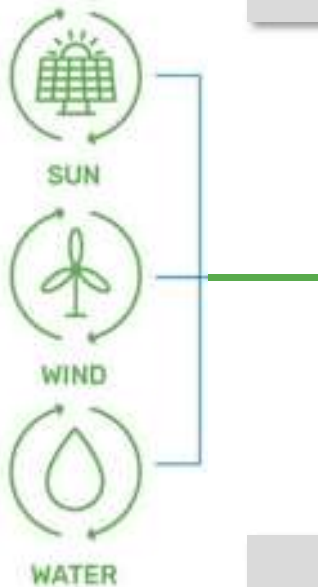


**Sized for hydrogen  
storage recharge**

**Sized for length of time  
for backup power**

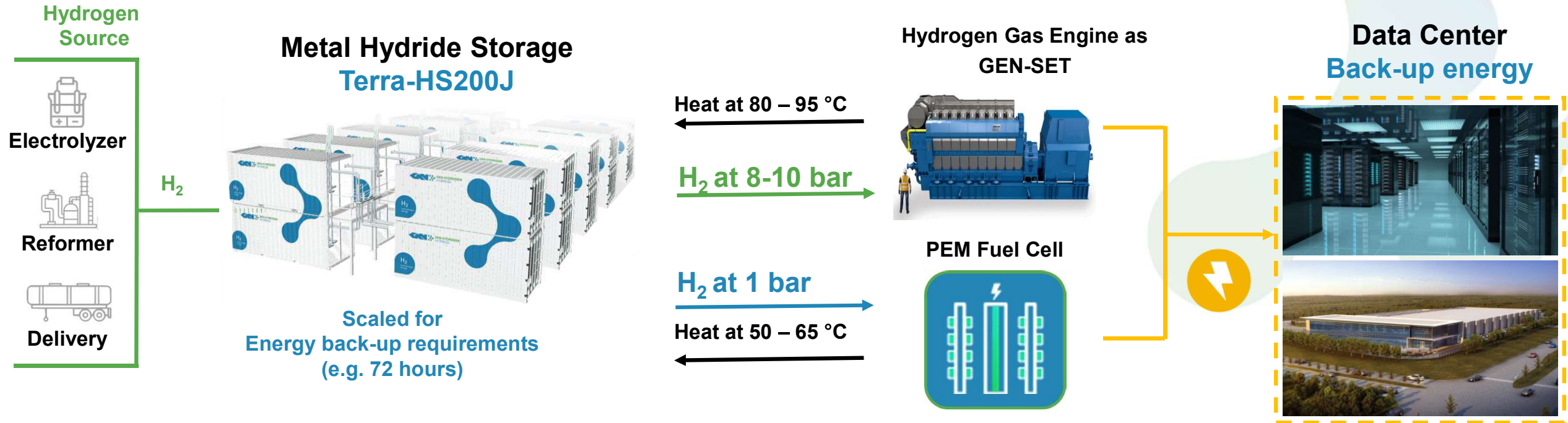
**Sized for power  
requirements**

## SCALABILITY





# Use Case: Data Center back-up energy



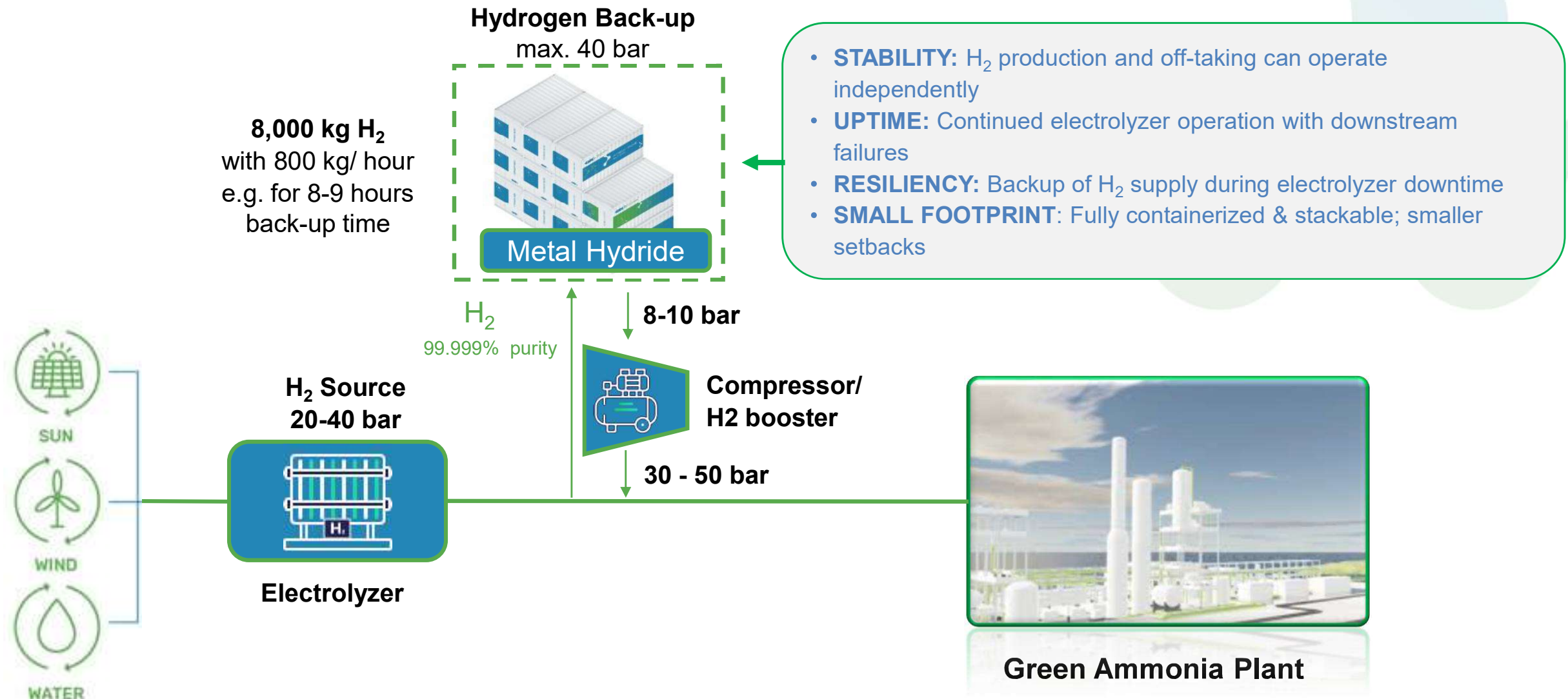
- **Uniquely fit for hydrogen-ready GEN-Sets** . The ferrous-titanium metal hydride stores 96% of hydrogen as a metal, the safest form of hydrogen storage. The remaining 4% gas is sent to the engine instantly for power needs.
- **Safety, simplicity and efficiency.** Storage sends 8 – 10 bar hydrogen to the engine. This eliminates high CapEx, energy, and maintenance associated with compressors and pumps used in other hydrogen storage solutions.
- Best match for hydrogen **Fuel Cells** – alternative technology to generate CO2 free back-up energy

# Use Case: H<sub>2</sub> Engines | CHP



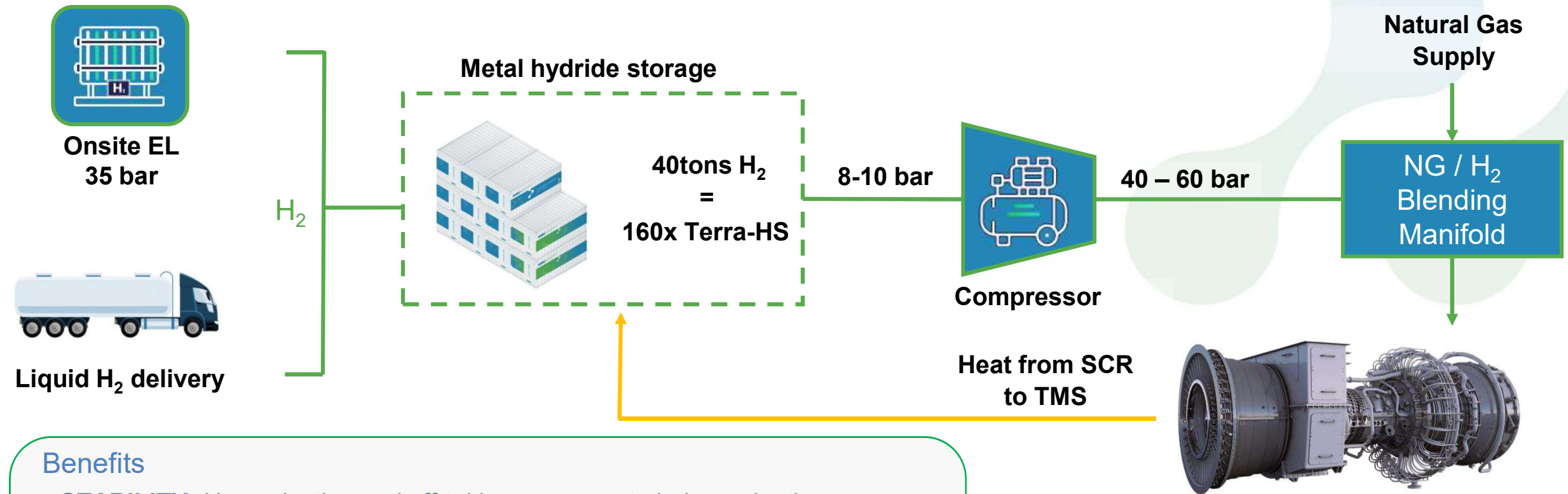
- **Uniquely fit for hydrogen-ready internal combustion engines.** The ferrous-titanium metal hydride stores 96% of hydrogen as a metal, the safest form of hydrogen storage. The remaining 4% gas is sent to the engine instantly for power needs.
- The **75-95°C bi-product heat** from the engine breaks the hydride bonds to sustain hydrogen flow.
- **Safety, simplicity and efficiency.** Storage sends 8 – 10 bar hydrogen to the engine. This eliminates high CapEx, energy, and maintenance associated with compressors and pumps used in other hydrogen storage solutions.

# Use Case: Green Ammonia Back-up





# Use Case: Gas Peaker Plant



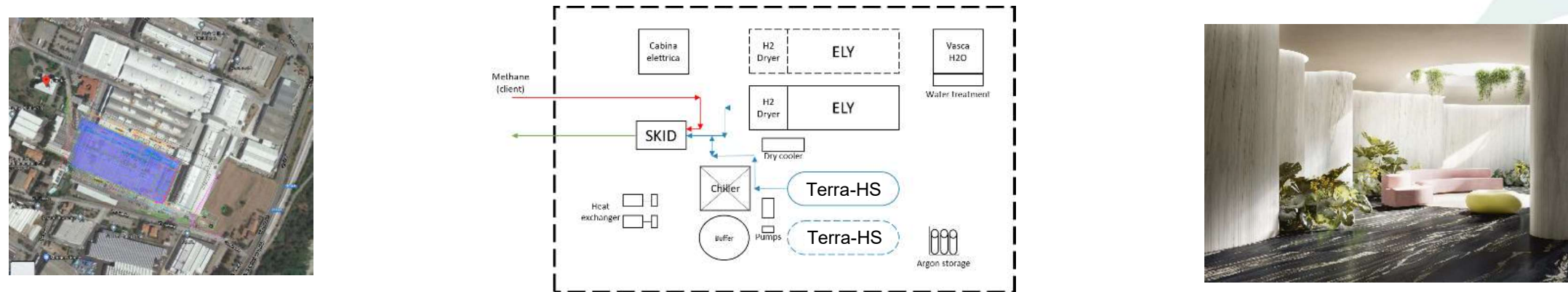
## Benefits

- **STABILITY:** H<sub>2</sub> production and off-taking can operate independently
- **UPTIME:** Continued electrolyzer operation with downstream failures
- **SMALL FOOTPRINT:** Fully containerized & stackable; smaller setbacks
- **SCALE:** Increased storage capacity without compressor
- **OPEX:** Low costs due to operation without compressor

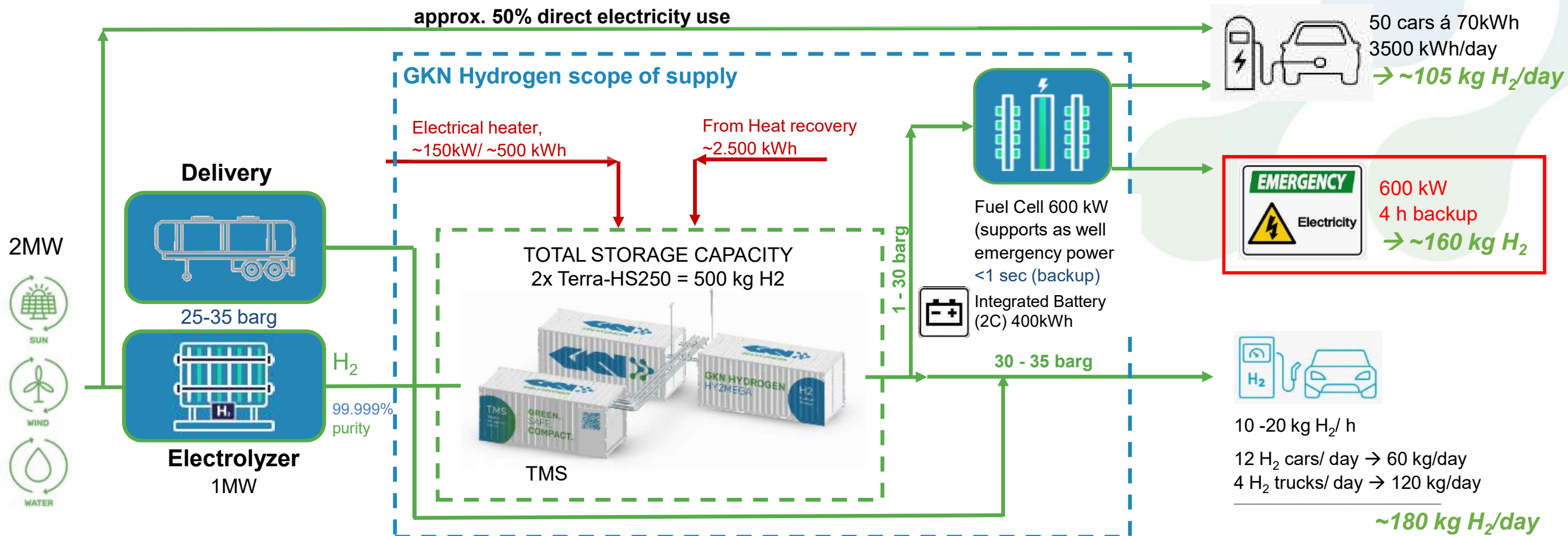
# Use Case: Tile Manufacturer

## Power-2-Gas-System

**Market:** Industrial      **Application:** H<sub>2</sub> Blending      **Function:** H<sub>2</sub> Direct Use      **System:** Terra-HS Storage

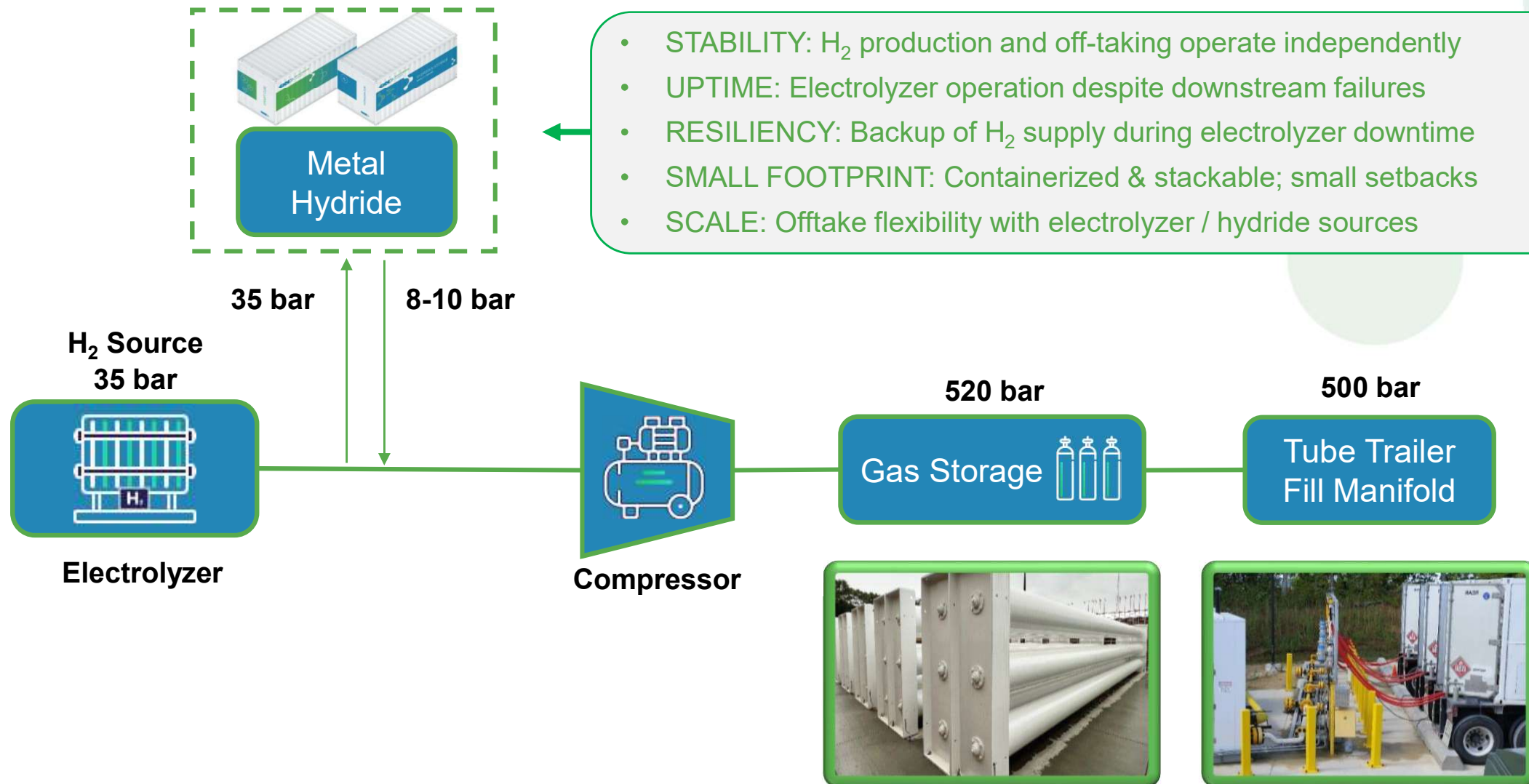


# Use Case: Green Mobility H<sub>2</sub> Hub | Hybrid Solution





# Use Case: H<sub>2</sub> Tube Trailer Filling





A Langley Holdings Company

# Digital Access





# Digital & AI driven robust System

Design | Optimise

Simulation for „Instant Quote“



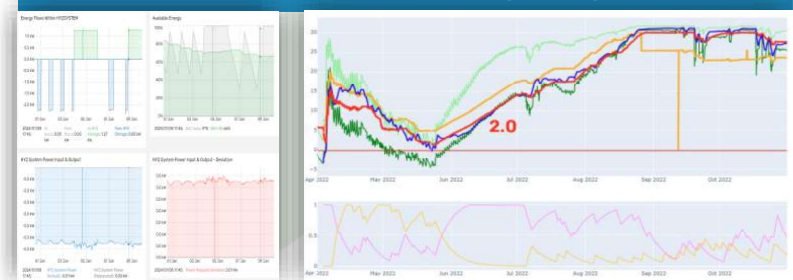
Store | Perform

Realtime State-of-Health Fleet

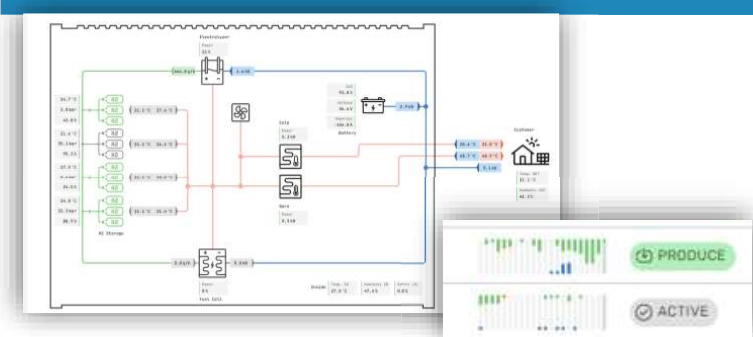
Unit	Status	Outside	Storage	H2 Quality	H2 Pressure	H2 Temp.	H2 SoC & Readiness
Activation Plant Bruneck	ACTIVE	0 °C	0 Cycles	—	31.1 Bar	7.2 °C	—
Arieshof	ACTIVE	9 °C	2 Cycles	Medium	1.6 - 10.4 Bar	17.2 - 22.4 °C	35 %
Beckhoff Test Unit	NO DATA	10 °C	63 Cycles	Good	25.8 Bar	11.2 °C	99 %
BTU	ACTIVE	18 °C	0 Cycles	Medium	1.9 Bar	12.6 °C	48 %
CSC Phelan	ACTIVE	1 °C	2 Cycles	Good	1.0 Bar	15.3 °C	46 %
Converso	PRODUCE	14 °C	1 Cycle	Good	1.7 - 14.6 Bar	21.1 - 36.2 °C	31 %
Cutlers Cottage	ACTIVE	21 °C	7 Cycles	Good	32.2 Bar	26.4 °C	97 %
Duke Energy	ACTIVE	9 °C	0 Cycles	Good	3.1 Bar	15.3 °C	68 %
Elektro Bauer	PRODUCE	23 °C	5 Cycles	Good	3.5 - 6.8 Bar	20.2 - 30.6 °C	49 %

Operate | Manage

Enhanced State-of-Charge Algorithms



Realtime Dashboards & historical data



Semi-Automated Ticketing System

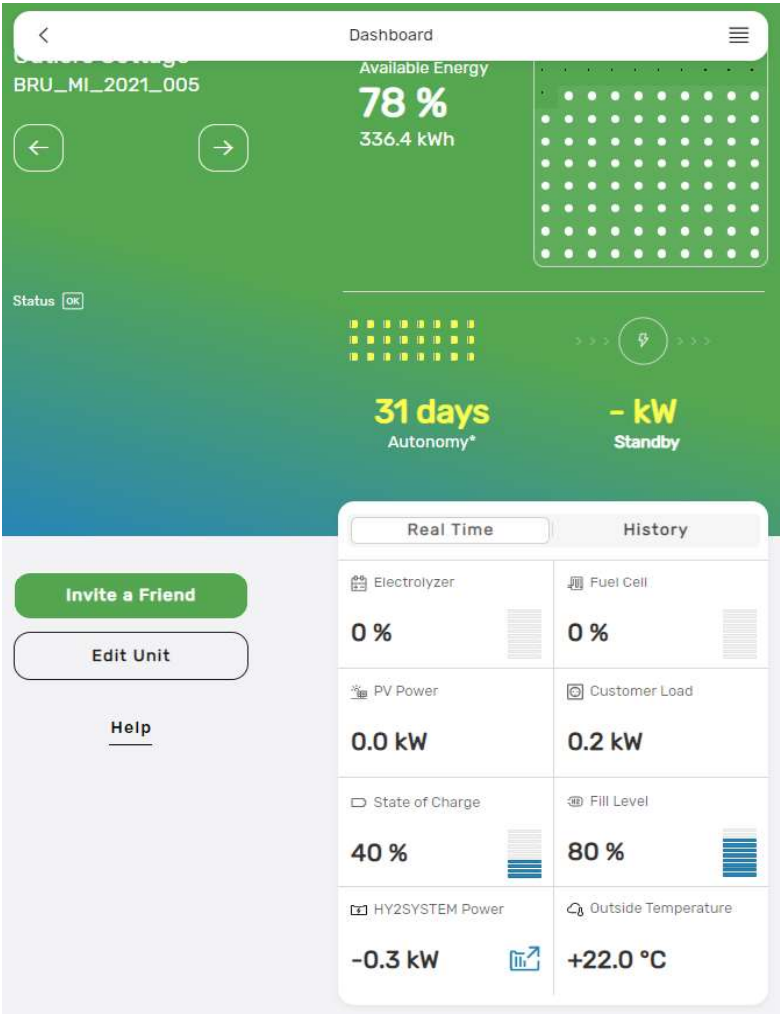
Ticket Creation	Ticket Number	Closed	Ticket Name	Staff	Function Modules	Priority	Status
Mar-19 2024	417	Mar-19 2024	Software update	Fabian Senoner	CS	MEDIUM	CLOSED
Feb-23 2024	393	Mar-18 2024	EL1200E / SN: BF23030207SP / Fe 01 PSU bad current	Valentin Hofer	EL	MEDIUM	CLOSED
Feb-13 2024	371	Feb-13 2024	Update Enapter Firmware Ely4.1 - 3.4.2	Valentin Hofer	EL	LOW	CLOSED
Feb-01 2024	356	Feb-15 2024	B2 halten nicht durch. Regeneration nötig	Manuel Mainhofer	FE	MEDIUM	CLOSED
Jan-30 2024	350	Feb-23 2024	EL1200A / Serial Number: BE23052901SP / Error Code: High O2 content suspected	Manuel Mainhofer	EL	MEDIUM	CLOSED
Jan-29 2024	348	Mar-18 2024	D1300B / SN: A022053021SP / F102 Fan on drying block 1 does not work with required RPM (1)	Valentin Hofer	EL	MEDIUM	CLOSED

Improved Simulations by AI Usage

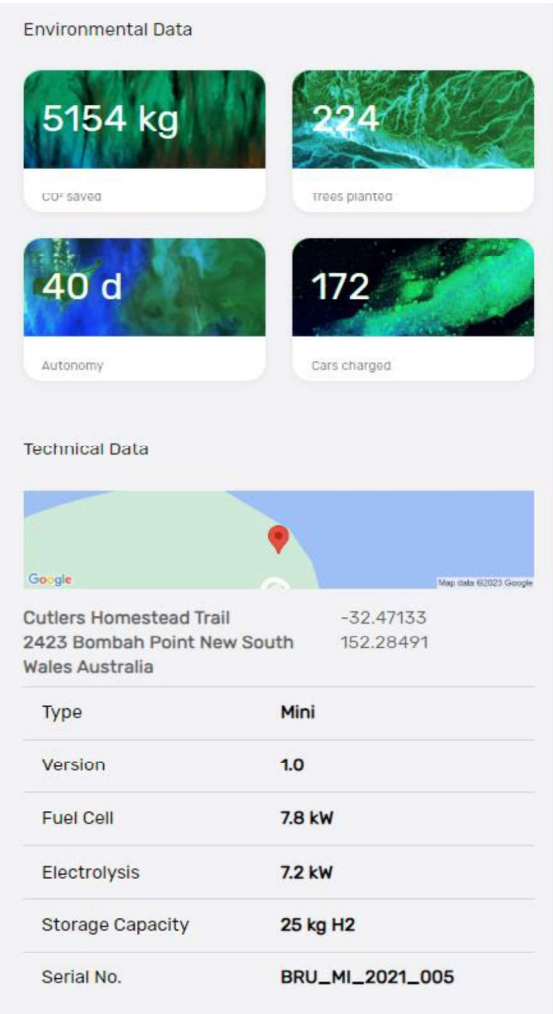


# HY2CONNECT Web App - Visualization

## Real-time Metrics



## General Metrics



## Historical Metrics

