



Air Products – Hydrogen Overview

September 9, 2023



Air Products Overview

a global leader in the industrial gas industry

\$12.7
billion in FY22 sales

.....

21,000+
employees



.....

 **50+**
countries

.....

 **8+**
decades in business

.....

~\$65 billion
market cap


.....

170,000+
customers



.....

2900 km
of industrial gas pipeline



.....

 **750+**
production facilities

.....

 **30+**
industries served

.....

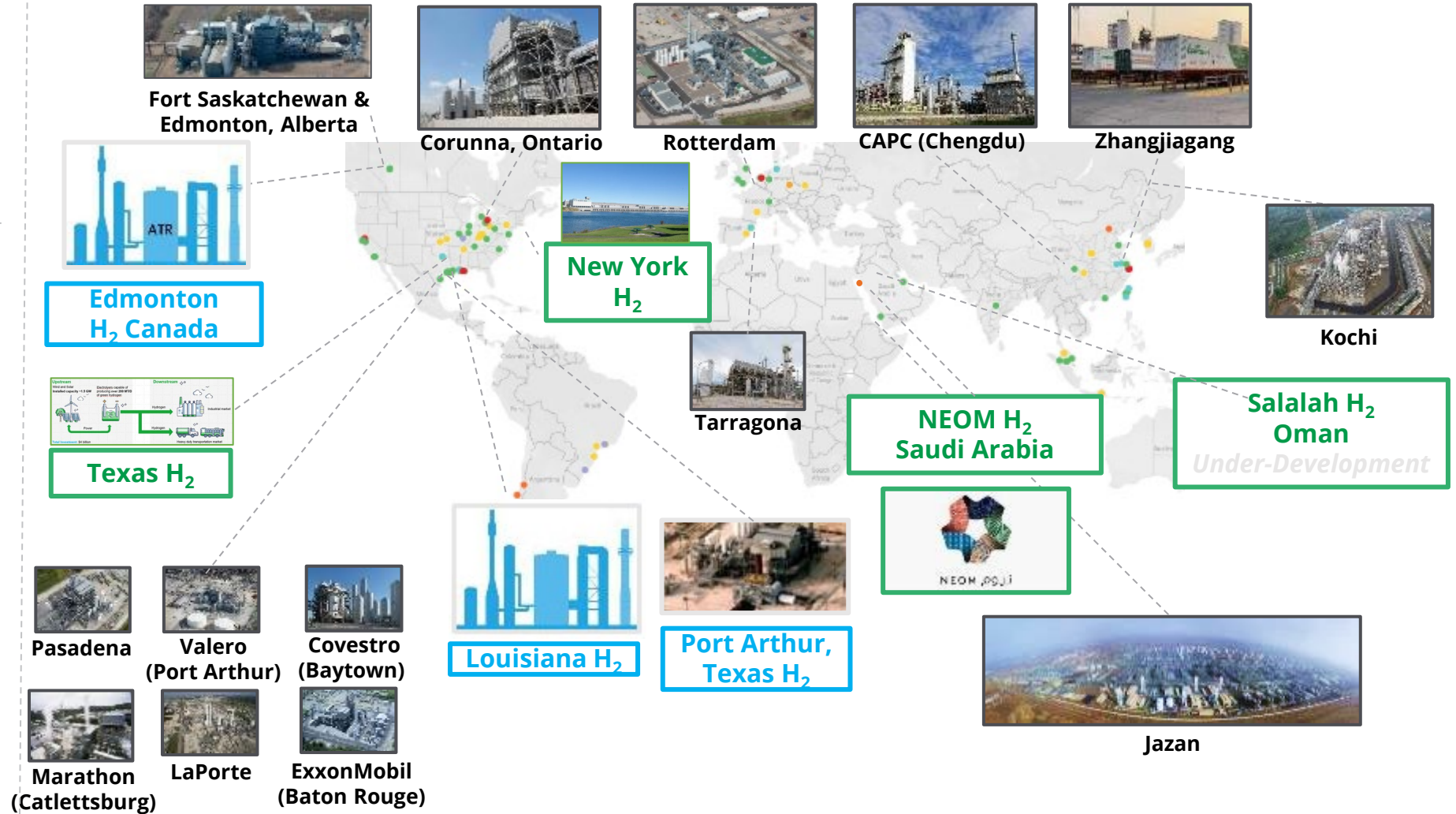
Hydrogen Production

Leading the transition to low carbon hydrogen

>110 Hydrogen Production Facilities
(SMR, Electrolysis, Liquid and Gaseous H₂)

>9,000 MTD Capacity
Incl. ~600 MTD of H₂ at Port Arthur

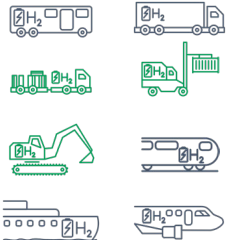
>3,300 MTD in development Incl.
Edmonton H₂
Louisiana H₂
NEOM H₂
Texas H₂
Massena H₂



Air Products is leading in Hydrogen for Mobility solutions

Hydrogen for Mobility (H₂fM)

>250 Projects
in H₂fM Fuelling



20+
Countries

~70 HRS
In-Operation

~5000 fillings
Per day

~50 Patents
Hydrogen Fuelling

30 Years
Safe Fuelling

Hydrogen Refuelling Station In-Operation Today



Mobility Innovations

Hydrogen Fuel Cell Trucks

Supplying hydrogen for HD trucks since 2018

- Supplying hydrogen to Drayage Projects in the Port of Los Angeles and Paccar's R&D truck facility (Washington state)
- Working with Cummins and other OEMs to convert our own global fleet of ~2000 trucks to hydrogen fuel cell zero emission vehicles by 2030, in line with our company's sustainability goals



Leading Fueling Station Innovation

Technical advancements using experience from >11 million fills

- Reduced vent loss
- Improved fill time
- Money savings
- Lower carbon intensity



Supplying the Hydrogen Mobility Market

Key green hydrogen projects

Texas Green Hydrogen Production Facility

The largest green hydrogen project in the United States

Upstream

Wind and Solar
Installed capacity ~1.5 GW



Power

Electrolyzers capable of producing over 200 MT/D of green hydrogen



Downstream

Hydrogen



Hydrogen



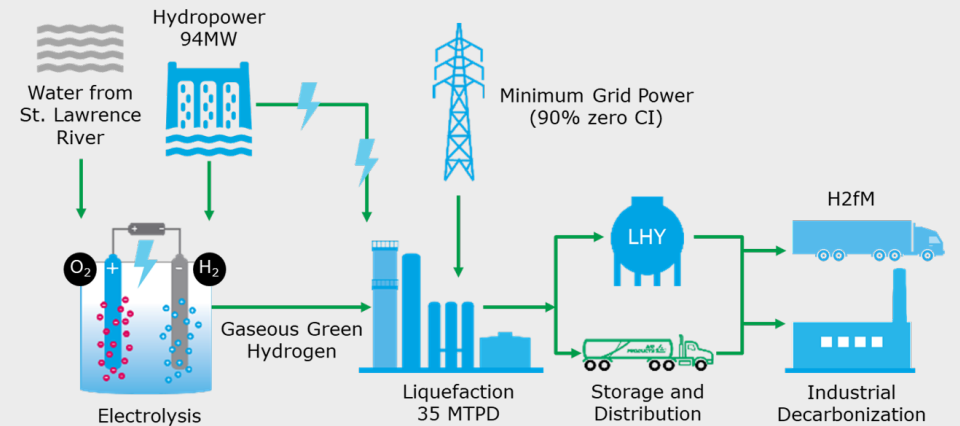
Heavy duty transportation market

Total Investment: \$4 billion
Commercial Operation: 2027
Location: Wilbarger County, Texas
Hydrogen Production JV: Air Products and AES
Hydrogen Offtake and Marketing: Air Products

Avoids more than 50 million metric tons of CO2 over the project's lifetime, the equivalent of avoiding emissions from nearly 5 billion gallons of diesel fuel

Massena green hydrogen project

Hydrogen for mobility and industry



- Capital: ~\$0.5 billion
- Ownership: 100% Air Products
- Producing 35,000 kg/day of carbon-free Hydrogen
- Start of production in 2026/27

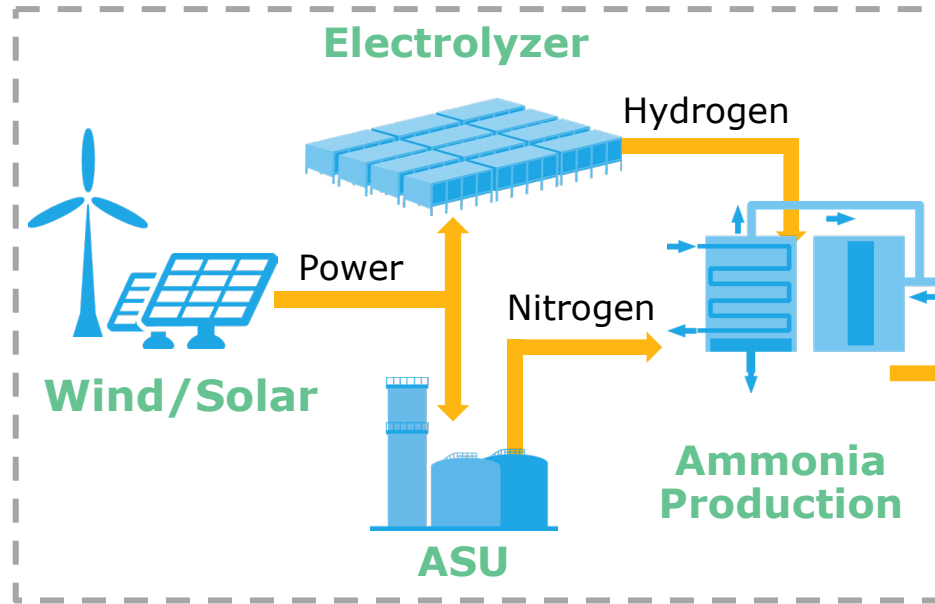
Supply Options for Anchorage

- NEOM Source
- Onsite Production
 - Note: Need to evaluate backup system/source

NEOM Carbon-Free Hydrogen

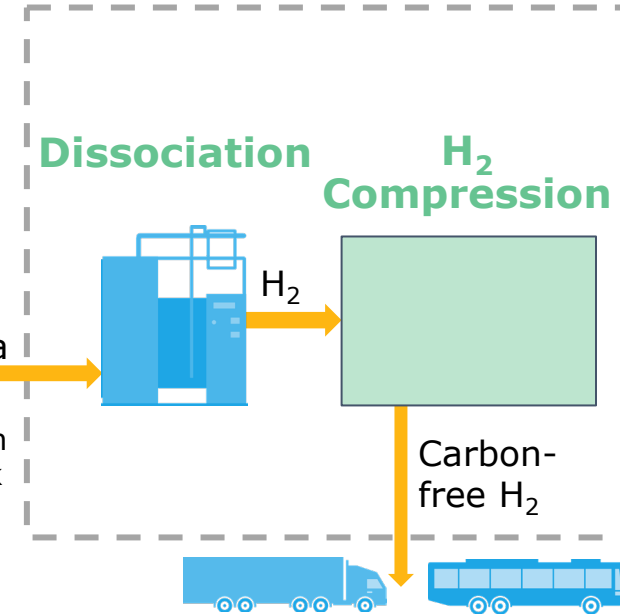
Produced and delivered with world-class technology

NEOM Upstream



- **Capital:** multi-billion
- **Ownership:** 1/3 equal
Air Products/NEOM/ACWA Power

Hydrogen Downstream



- **Capital:** ~\$2 billion
- **Ownership:** 100%
Air Products

Multi-billion Air Products total investment

Financial return: Consistent with previous capex commitments

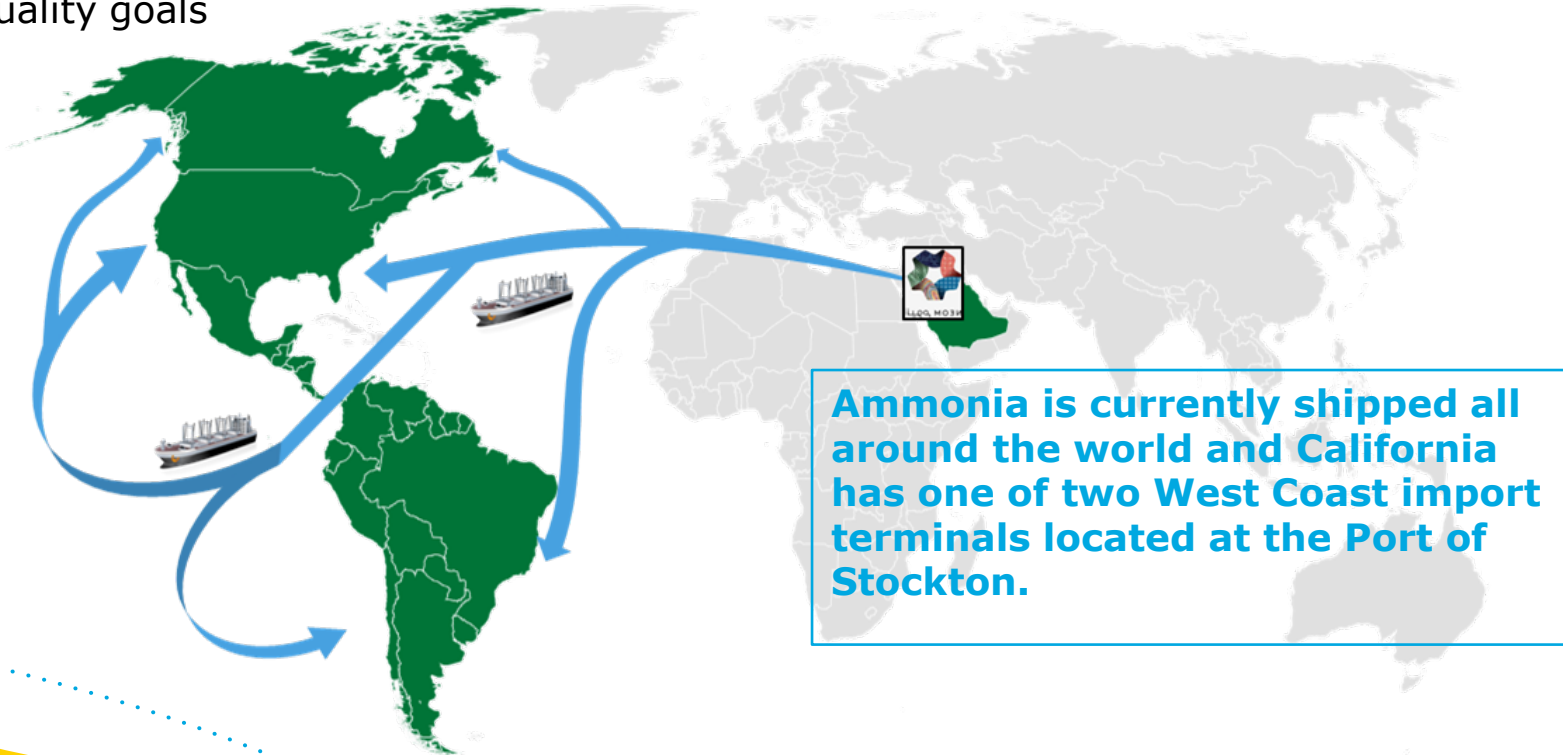


نيوم NEOM

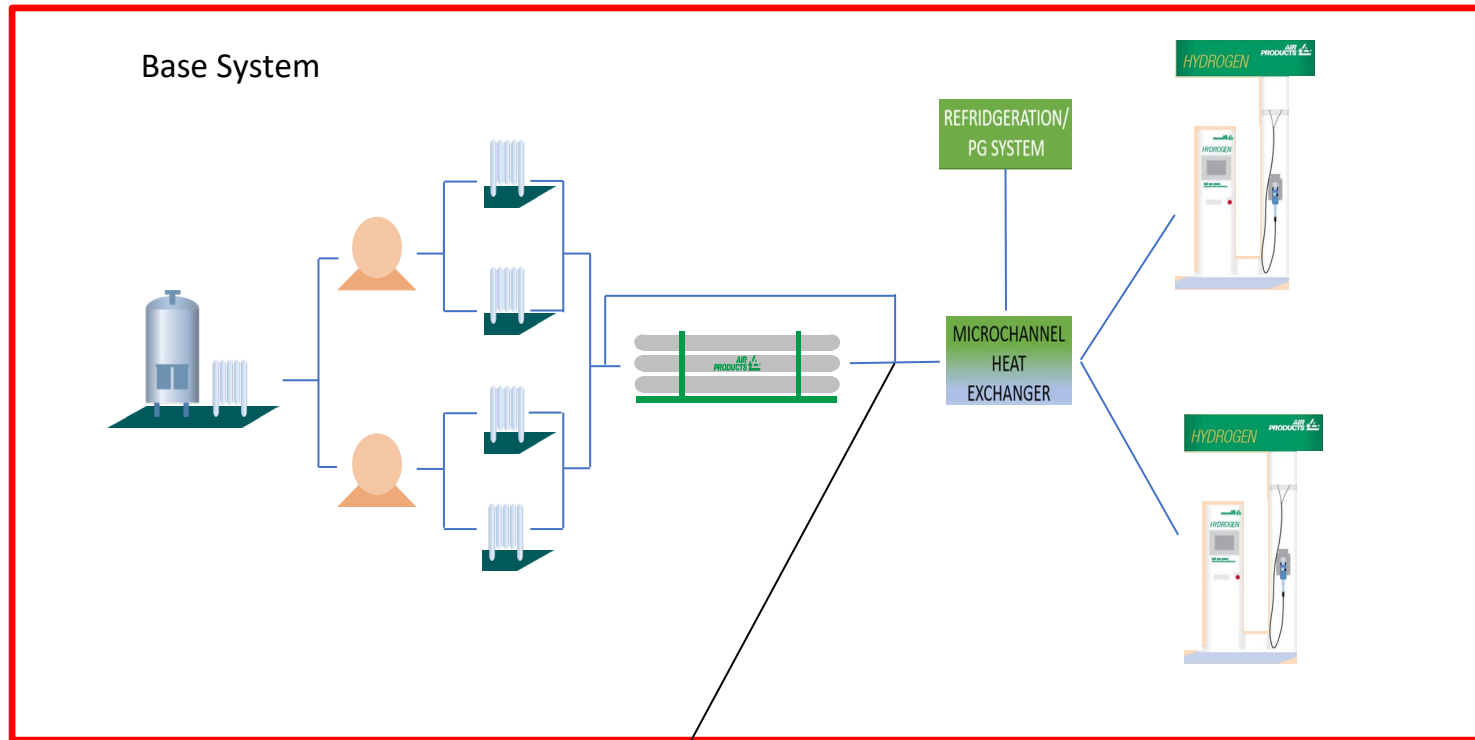


The day after tomorrow is here today

- Renewably produced, globally distributed, green ammonia to hydrogen supporting the **world's vision** for decarbonized transportation fuels
- Reinforces Air Products **leadership in hydrogen production** and hydrogen for mobility applications
- Driven by the vision of decarbonization underpinned by policy, California is **well positioned** to utilize NEOM ammonia / hydrogen
- Air Products is committed to helping California achieve its climate change and air quality goals



Hydrogen Bus Fueling Infrastructure Expandable for Automotive

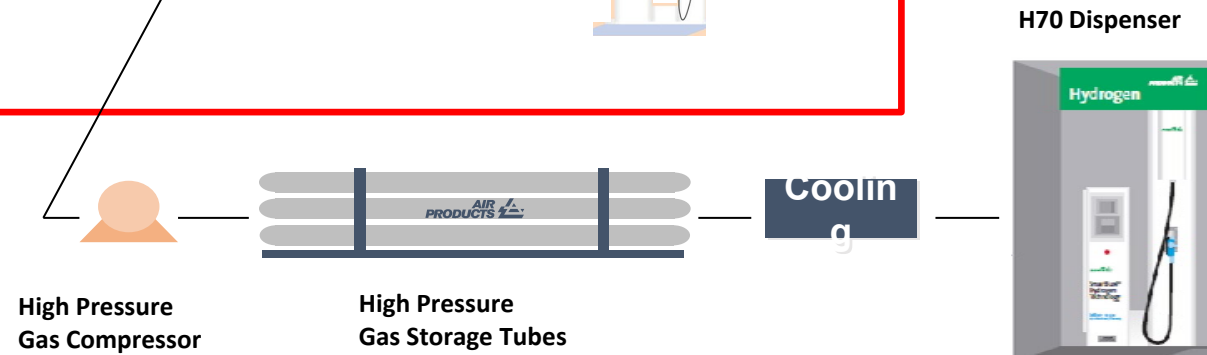
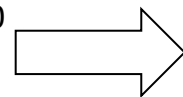


Base System

- Readily expandable from 50 to 200 buses
- Ability to introduce renewables by changing supply

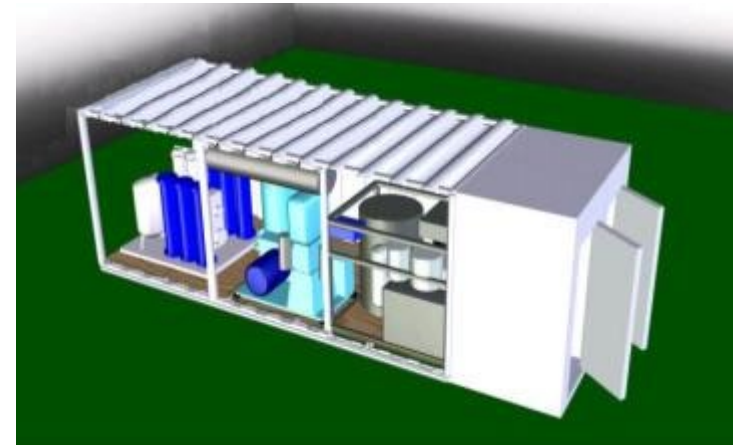
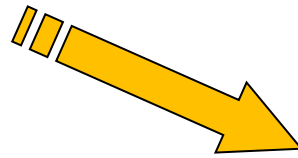
Base System is required to enable H70 capability

Note: The H70 is typically a retail sales component to create a revenue generation opportunity.



PRISM[®] Hydrogen Generation Technology

77MMscf/day (181,603
kgs/day)



212 kgs/day

Three Models to Meet a Range of Flow Requirements

PHG100

- 1 container
- PHG equipment + all utility equipment inside container
- 212 kgs/day



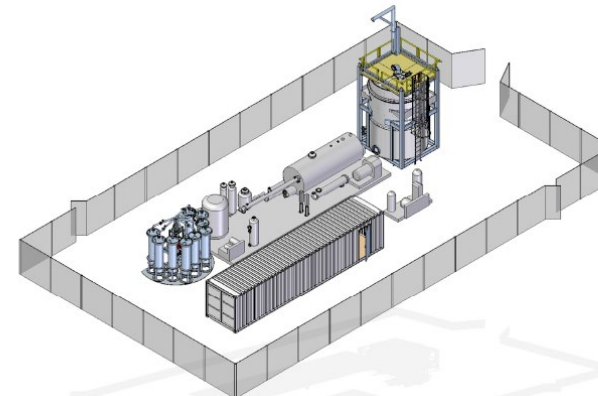
PHG250

- 1 container + 1 reformer
- PHG equipment + all utility equipment inside container
- 525 kgs/day

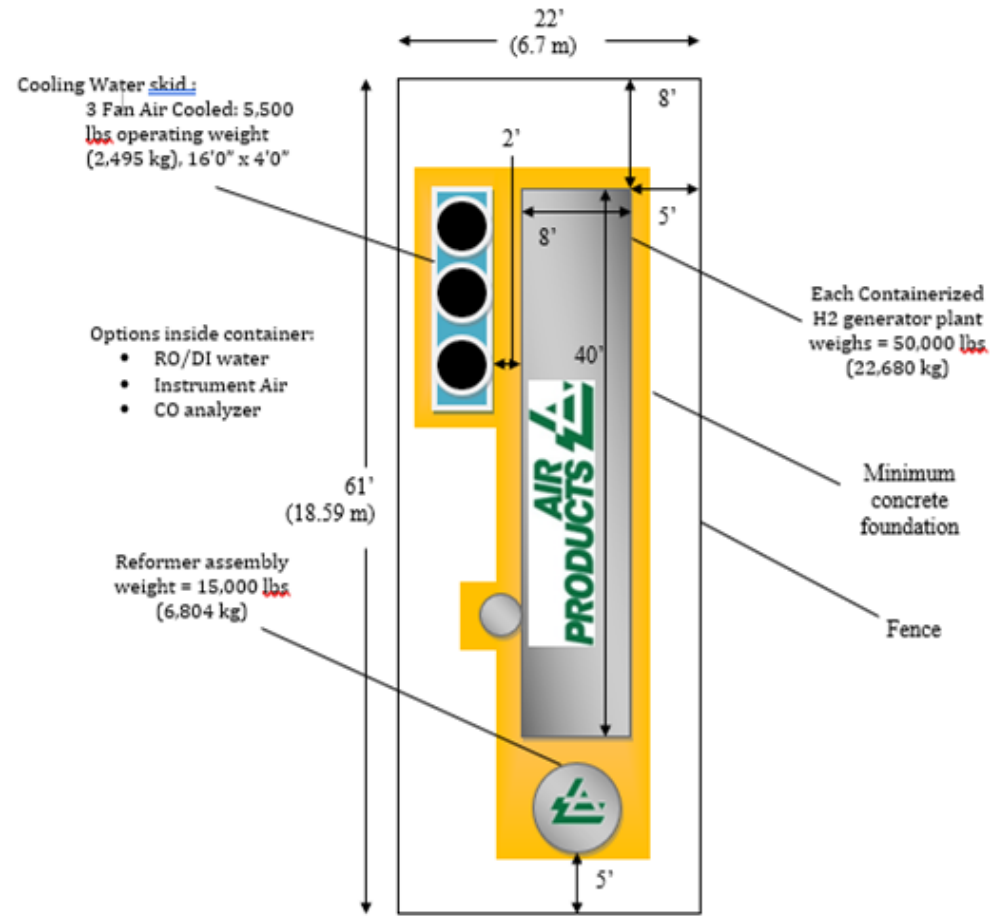


PHG830 (latest model)

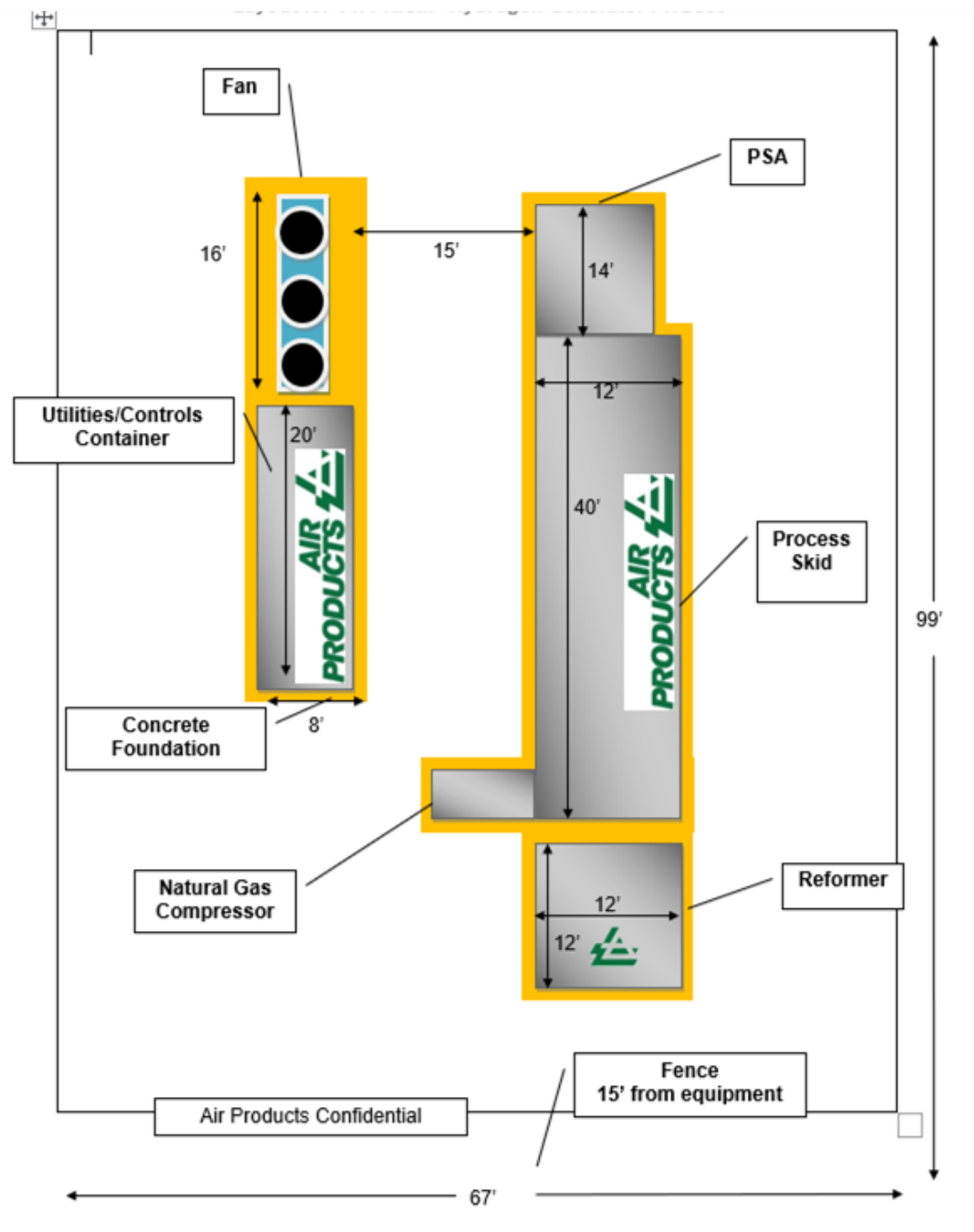
- 2 skids + 1 reformer + compressor
- Utility equipment in skid
- 1,800 kgs/day



**Layout for 1 x PRISM® Hydrogen Generator PHG250
(Air Cooled, 3 Fan)**



PHG 830



9/12/2023

Thank you

