



North American Hydrogen Energy Projects

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Air Liquide: A World Leader in Gases, Technologies, and Services for...

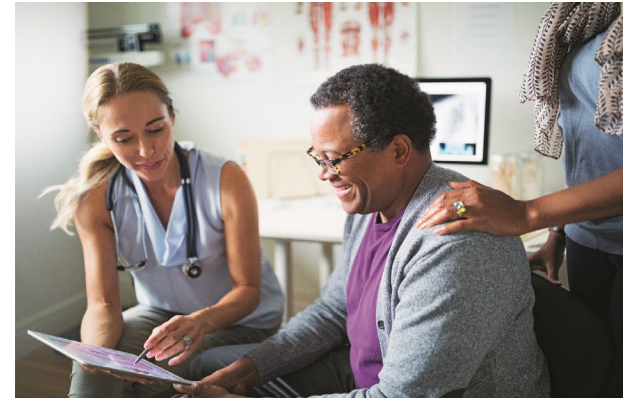
INDUSTRY

- A wide range of industrial processes for our customers: energy, metals, food, chemicals, automotive, pharmaceuticals, etc.



HEALTH

- Patients at home
- Hospitals
- Hygiene and specialty ingredients





Air Liquide: Global Footprint in H2E



**Mobility
for Professionals**
US+EUROPE
9 HRS



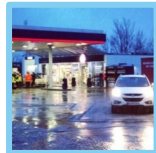
**Mobility
for Consumers**
US North-East
12 HRS
+ Supply chain



**Mobility
for Consumers**
California
4 HRS



Power to Gas
Denmark
4 HRS
1 Electrolyzer



**Mobility
for Consumers**
Germany
30 HRS



**Mobility
for Consumers**
Paris, Brussels
and Rotterdam
6 HRS



**Mobility
for Consumers**
Japan
10 HRS



**Mobility
for Consumers**
China
3 HRS



**Mobility
for Consumers**
Dubai
1 HRS



**Mobility
for Consumers**
South Korea
3 HRS





Investments in North America



Signed long-term agreement with **FirstElement Fuel Inc.**, to supply hydrogen to FEF's retail liquid stations



Air Liquide **acquires an 18.6% stake** in the capital of **Hydrogenics Corporation (Cummins)**



150 million USD investment in building a hydrogen liquifier in the U.S.



Installed a **20 MW electrolyzer** that increases by 50% the current capacity of its hydrogen facility located in **Becancour, Quebec**





Bécancour, CAN Liquid Hydrogen Production Plant





Bécancour: Scaling Up Green Hydrogen



- **Existing capacity: 25tpd** supplied to industrial customers
 - Includes up to 5 tpd from chlorine alkali production waste stream
- Additional **Can\$40M Investment** to the existing site
 - World's largest PEM electrolyzer (**20 MW**) (commissioning by 20Q4)
 - Additional 8 tons/day of **100% renewable hydrogen**
- Existing H₂ Liquefier on site (up to 10 tpd)
- Electrolysis technology supplied by our partner **Cummins/Hydrogenics**

Proximity to major H₂E networks

- QC-ON transportation corridor
- Supply to Northeast US cluster

Quebec low cost, 99% renewable hydro-electricity

- Lowest in North America
- Avg Price: \$0.05 / KWh (large power customers)

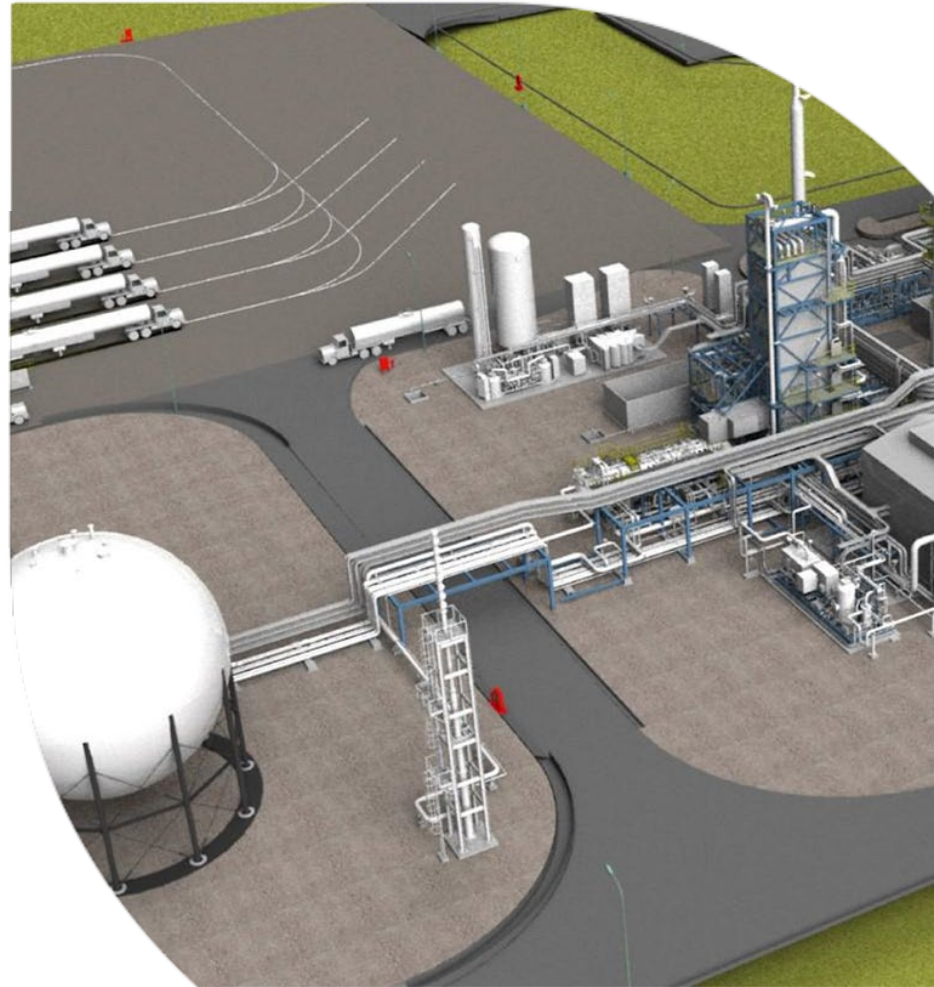


Site Aerial View





North Las Vegas, NV Liquid Hydrogen Production Plant





Liquid Hydrogen Plant - Production

Air Liquide's Hydrogen Production Plant Investment

1ST @Scale **RENEWABLE** liquid hydrogen
dedicated to the H₂E markets

\$150_M Anticipated investment

30 tons of RLH₂
per day → **>30,000**
kg of RLH₂
per day

Project Details – Production and Liquefaction



First large scale H2 plant dedicated to supply for mobility : paves the way to large-scale deployment

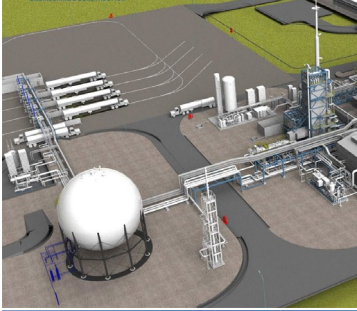
Committed investment from Air Liquide : we are convinced of the role of hydrogen in the energy transition

Key figures

- Location – North Las Vegas, NV
- Construction began earlier this year
- Planned to start operations & delivery by end of 2021
- 150+ million USD investment
- Production Capacity : 30 tpd (in support of 40,000+ Fuel Cell Electric Vehicles)
- Production Method: steam methane reforming of renewable natural gas
- Liquefaction Capacity: 30 tpd

Renewables

- Air Liquide is seeking to source renewable electricity for this facility
- Renewable natural gas (RNG) feedstock to produce some or all of the H2 produced





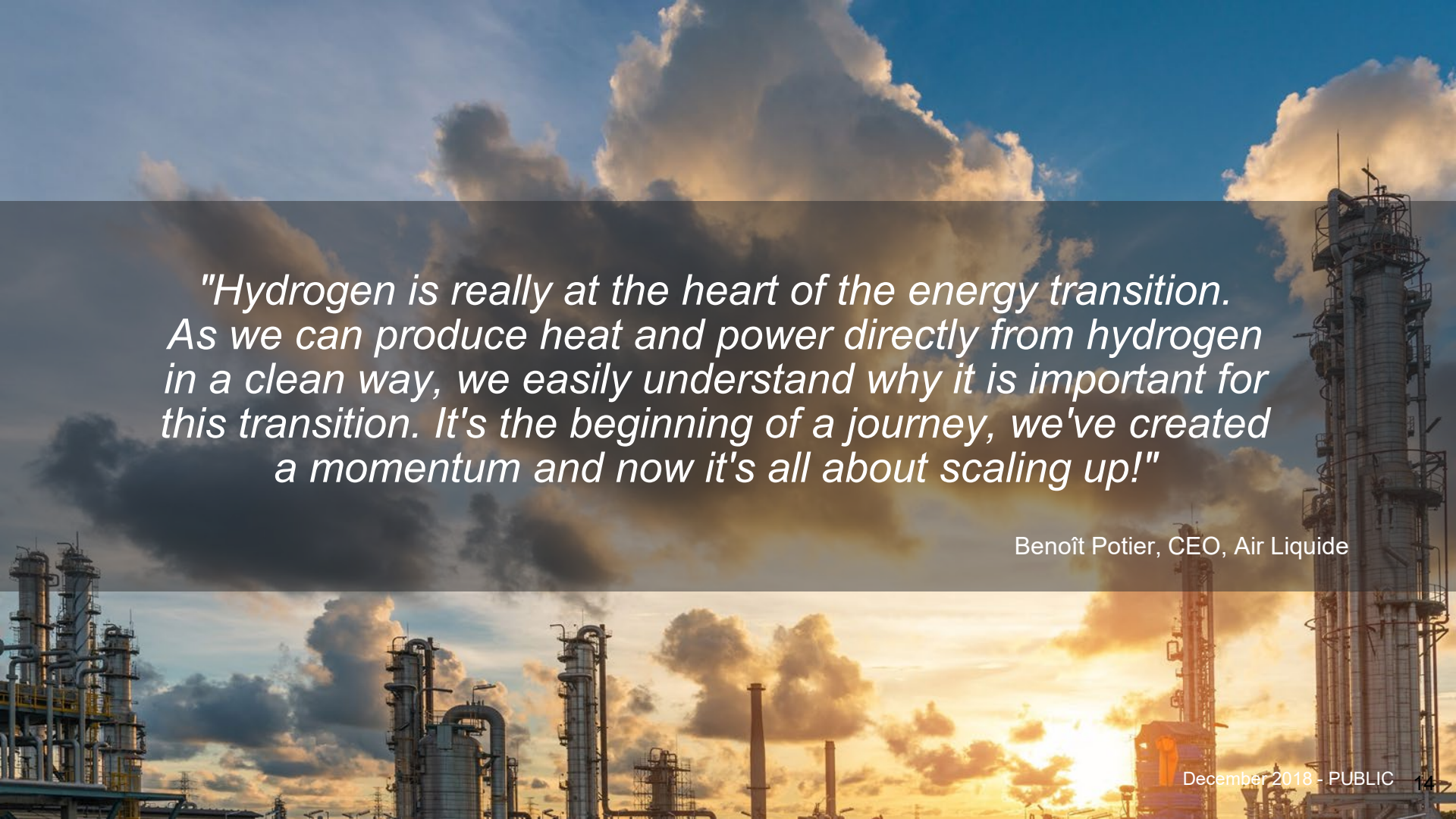
Beaumont, TX Hydrogen Cavern



Largest Hydrogen Storage Facility in the World



- Located in an underground cavern in Beaumont, TX
- Complements Air Liquide's robust Gulf Coast supply
- Nearly one mile deep and 230 feet wide, the cavern is capable of holding enough hydrogen to back up a large-scale steam methane reformer unit for 30 days.



"Hydrogen is really at the heart of the energy transition. As we can produce heat and power directly from hydrogen in a clean way, we easily understand why it is important for this transition. It's the beginning of a journey, we've created a momentum and now it's all about scaling up!"

Benoît Potier, CEO, Air Liquide



 AirLiquide

Thank You

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