Hydrogen supply chains

Enabling Green Hydrogen For Everyone, Everywhere

NGL TECH

Ecosystem

Regulators

Suppliers

Producers

Supply Chains

Consumers

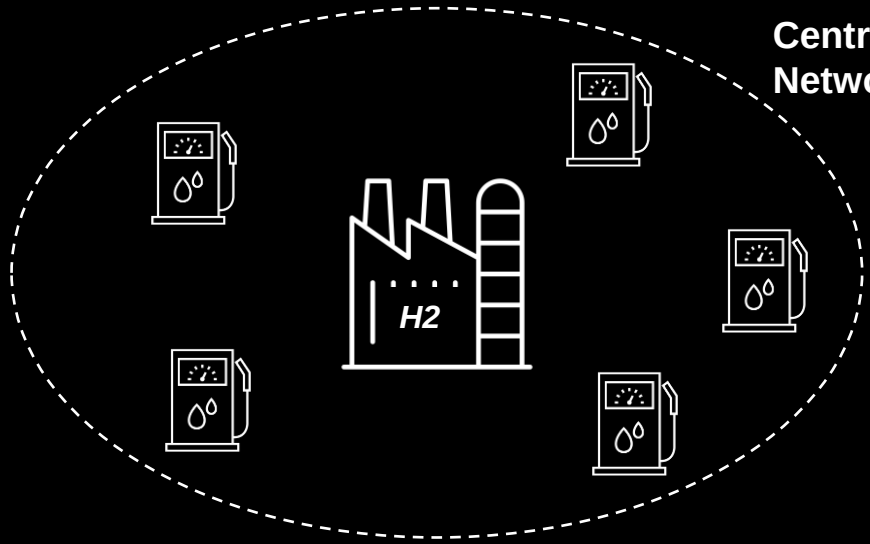
Food industry

Oil & Gas

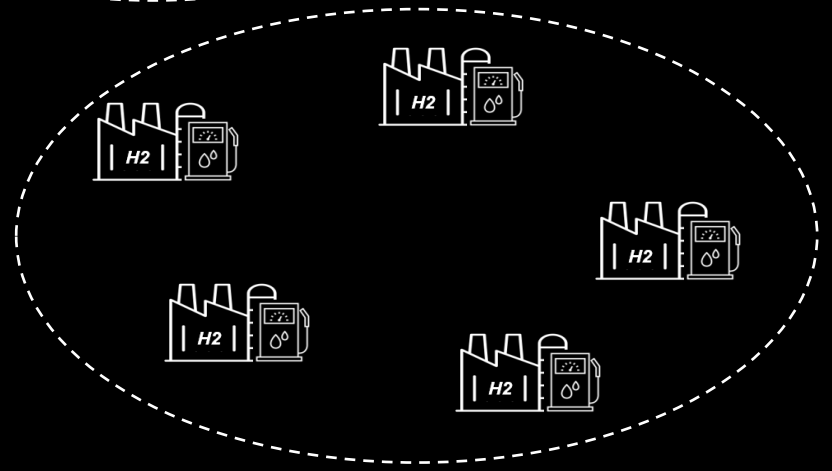
Business models

In the absence of robust H2 supply chains, business models have adapted with the proliferation of small electrolyzes

Centralized H2 Networks/Clusters



Distributed Production



Hydrogeninsight

Production

Malaysia's largest green hydrogen project to begin construction this year after closing $400m in finance

Semarak Renewable Energy has commissioned PowerChina to build a 60MW facility powered by floating solar

H2 SUPPLY CHAIN TRILEMMA

AutoBuzz

NGL TECH

Home › News › Hold off on that EV deposit, hydrogen FCEV incentives might be coming...

News

Hold off on that EV deposit, hydrogen FCEV incentives might be coming to Malaysia

By YS Chung - May 27, 2024 3:44 pm

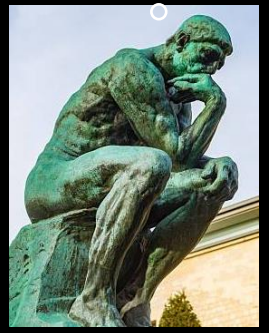
GREEN HYDROGEN PRODUCTION

"I don't want to produce more green hydrogen because there is a low demand"

MIDA OFFICIAL WEBSITE MALAYSIAN INVESTMENT DEVELOPMENT AUTHORITY INVEST IN MALAYSIA › YOUR PROFIT CENTRE IN ASIA

Forms an

SEDC Energy to mass produce electrolysers



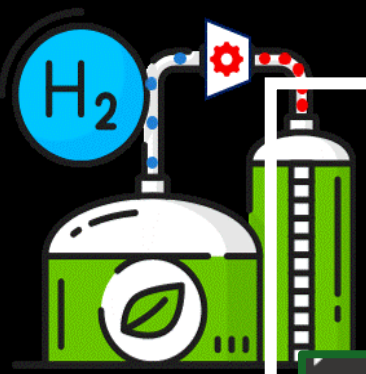
- Safe
- Energy Efficient
- Low Cost

GREEN HYDROGEN CONSUMER (FCEV)

"I want to buy more green hydrogen but there is a low supply & costs are high"

malaymail

Mosti: Hydrogen-powered car technology ready in Malaysia

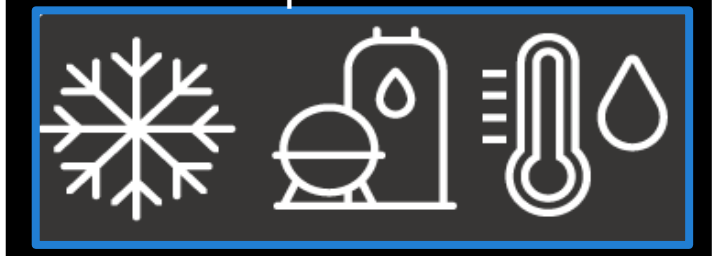


Hydrogen Production (30 barg)

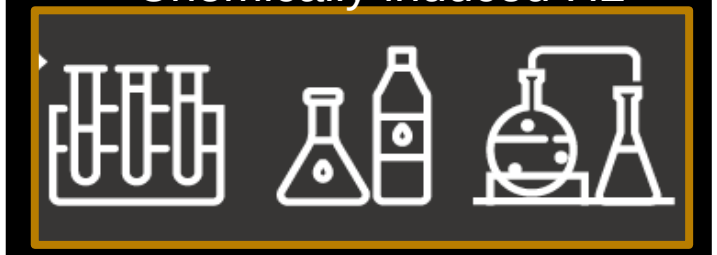
PRODUCTION

Compressed H2

Liquified H2



Chemically induced H2

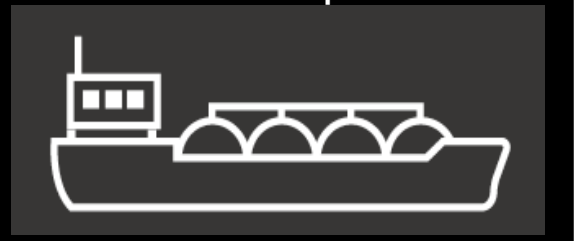


DISTRIBUTION METHOD

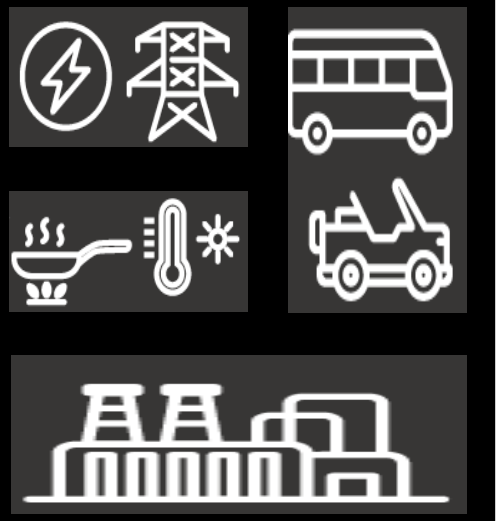
Pipeline

Trailer/Truck

Ship



END USERS



Hydrogen Utilization (700 barg)

H2 SUPPLY CHAIN TRILEMMA

GH2 Production

GREEN HYDROGEN PRODUCTION

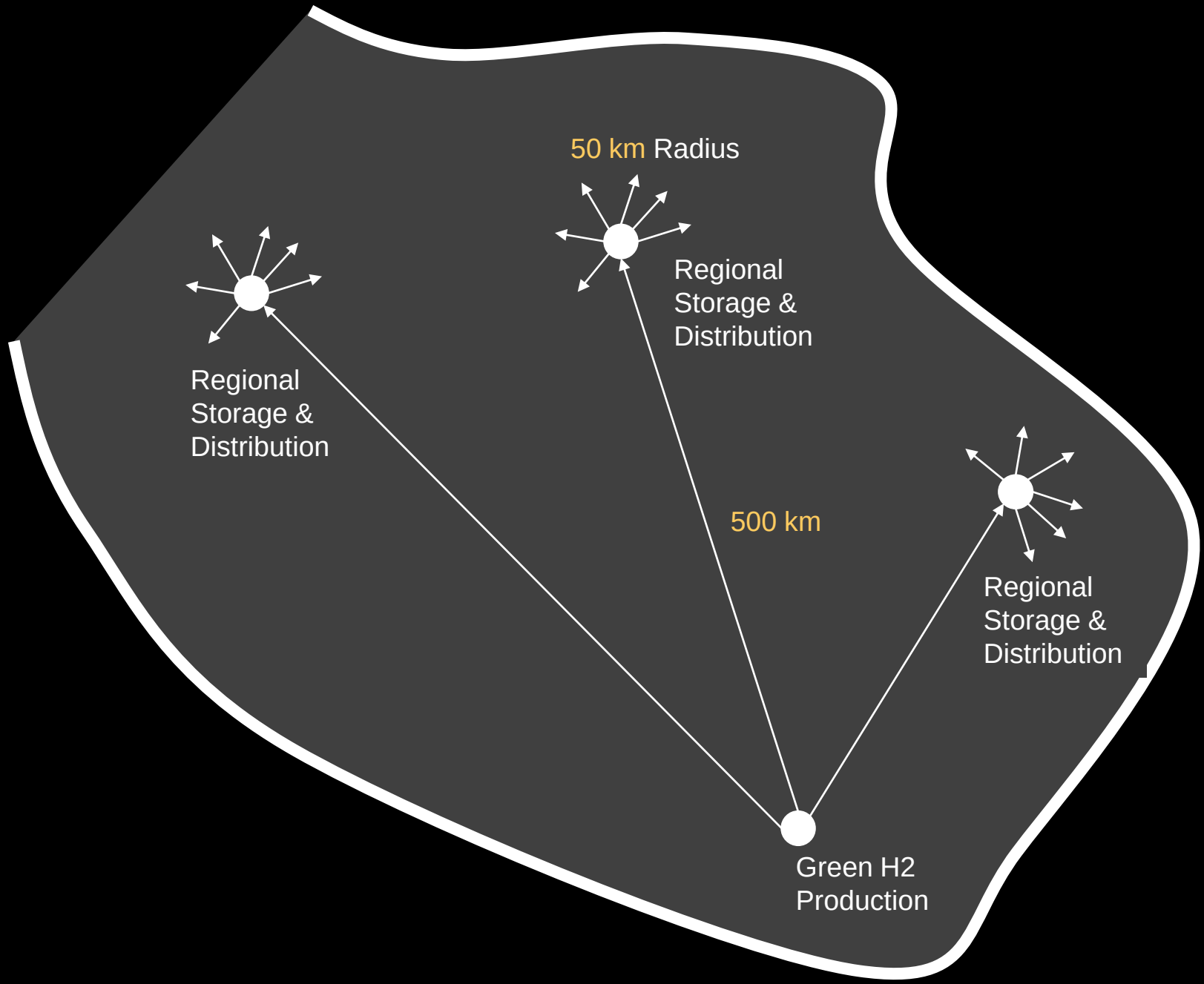
"I don't want to produce more green hydrogen because there is a low demand"

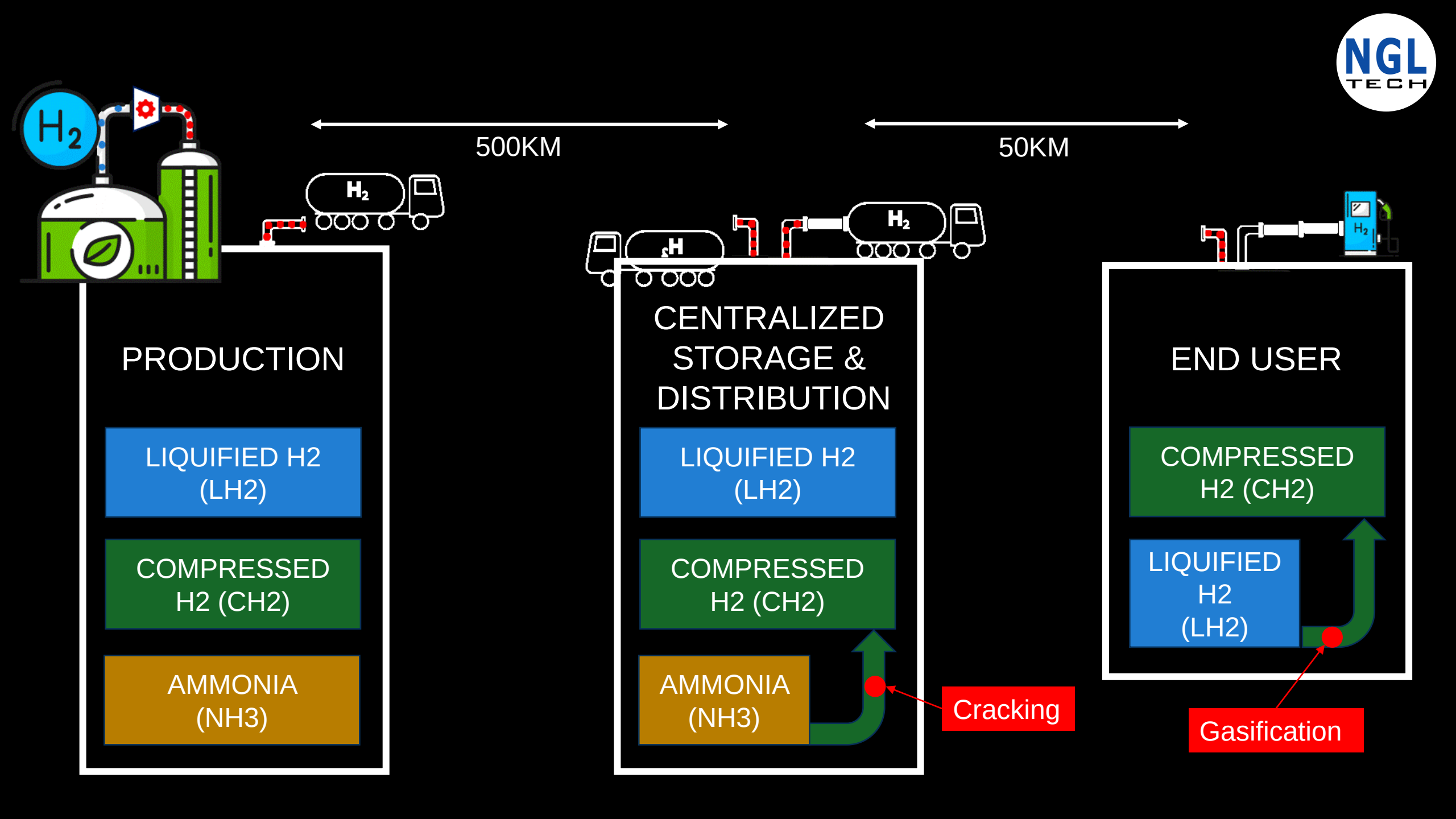
Compressed H2	Safe	✗
	Energy Efficient	✗
	Low Cost	✗
Liquefied H2	Safe	
	Energy Efficient	✗
	Low Cost	✗
Ammonia H2	Safe	
	Energy Efficient	✗
	Low Cost	✗

GH2 Utilization

GREEN HYDROGEN CONSUMER (FCEV)

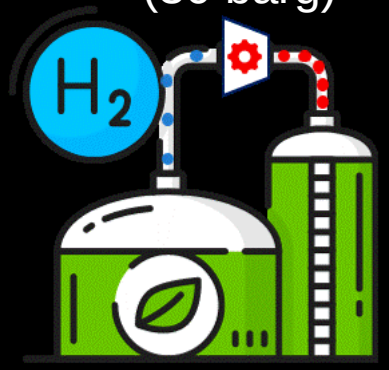
"I want to buy more green hydrogen but there is a low supply & costs are high"

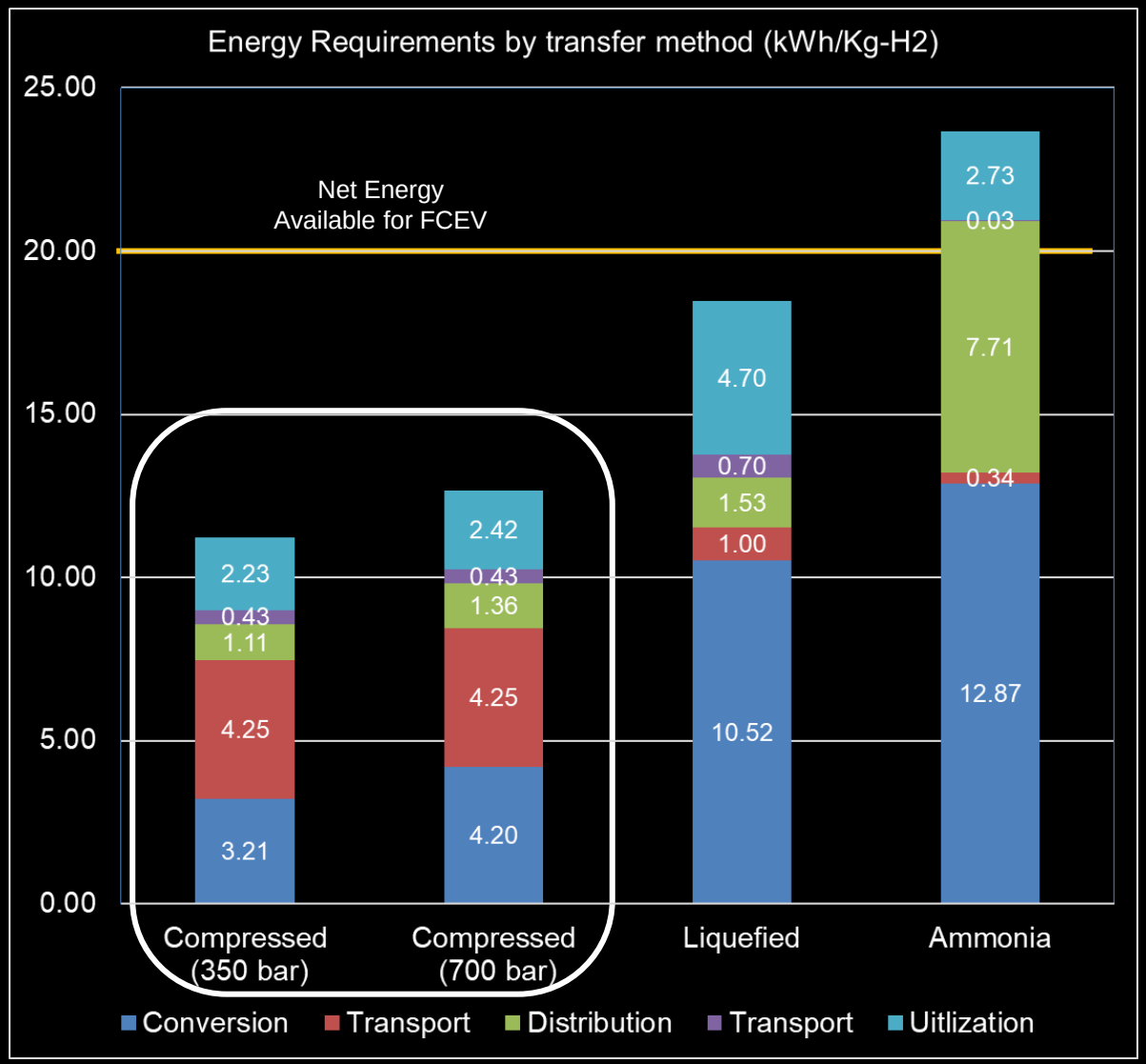

50 km Radius
Regional
Storage &
Distribution
Regional
Storage &
Distribution
500 km
Regional
Storage &
Distribution
Green H2
Production


NGL TECH
500KM
50KM
PRODUCTION
LIQUIFIED H2 (LH2)
COMPRESSED H2 (CH2)
AMMONIA (NH3)
CENTRALIZED STORAGE & DISTRIBUTION
LIQUIFIED H2 (LH2)
COMPRESSED H2 (CH2)
AMMONIA (NH3)
Cracking
END USER
COMPRESSED H2 (CH2)
LIQUIFIED H2 (LH2)
Gasification

Comparison of Current Storage, Transfer & Transport Modes

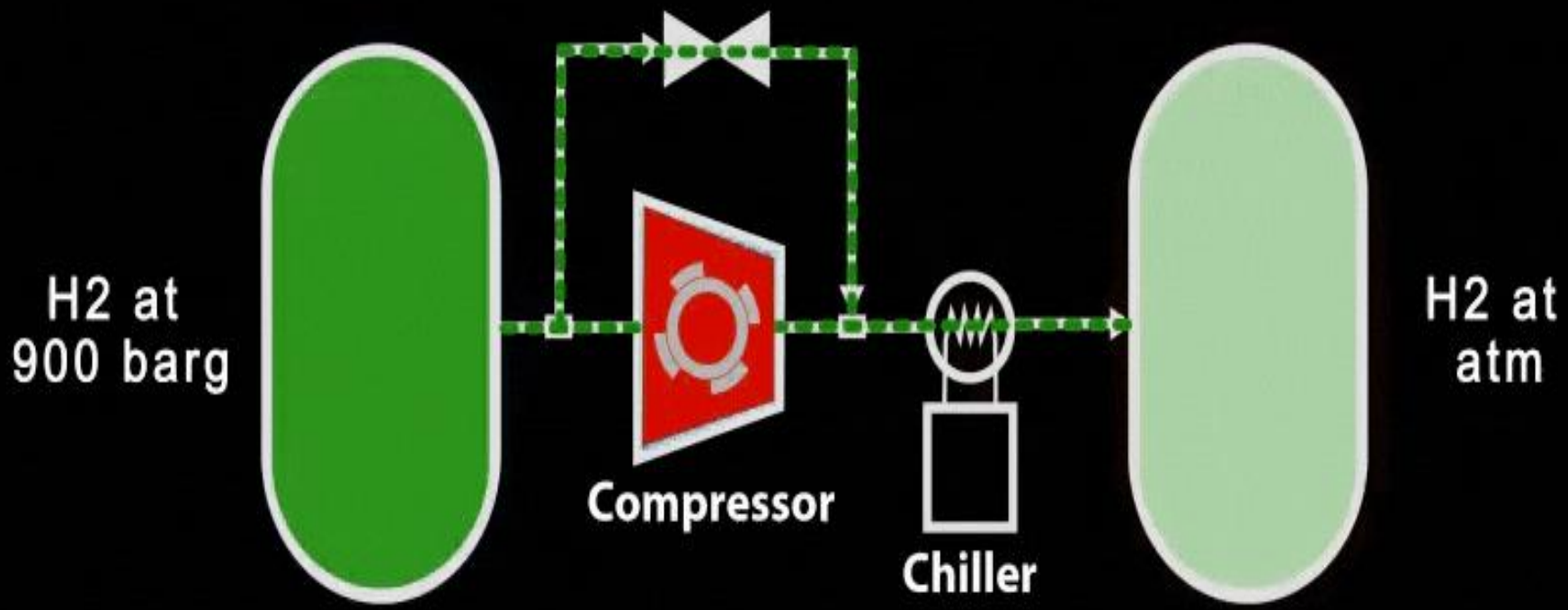
Hydrogen Production (30 barg)





Hydrogen Utilization (700 barg)

Zoom in on Conventional Compressed Hydrogen



Issues with conventional hydrogen compression transfer

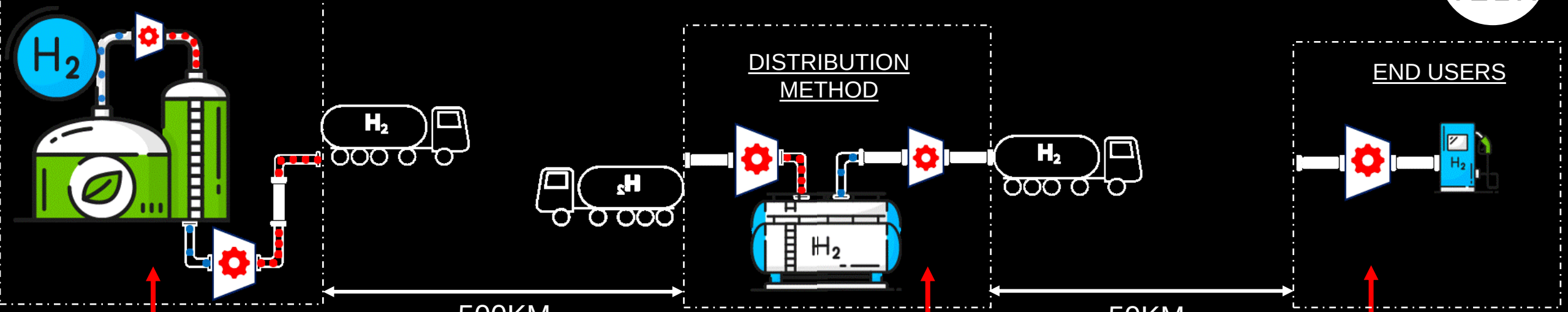
- 30 to 40% dead volume
- High power consumption
- Low speed gas transfer
- Temp. & Press fluctuations
- Thermal & press fatigue
- Complex system
- **Hazardous operation**

Zoom in on Conventional Compressed Hydrogen

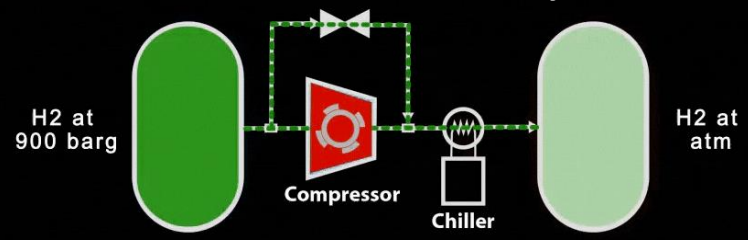
PRODUCTION

DISTRIBUTION METHOD

END USERS

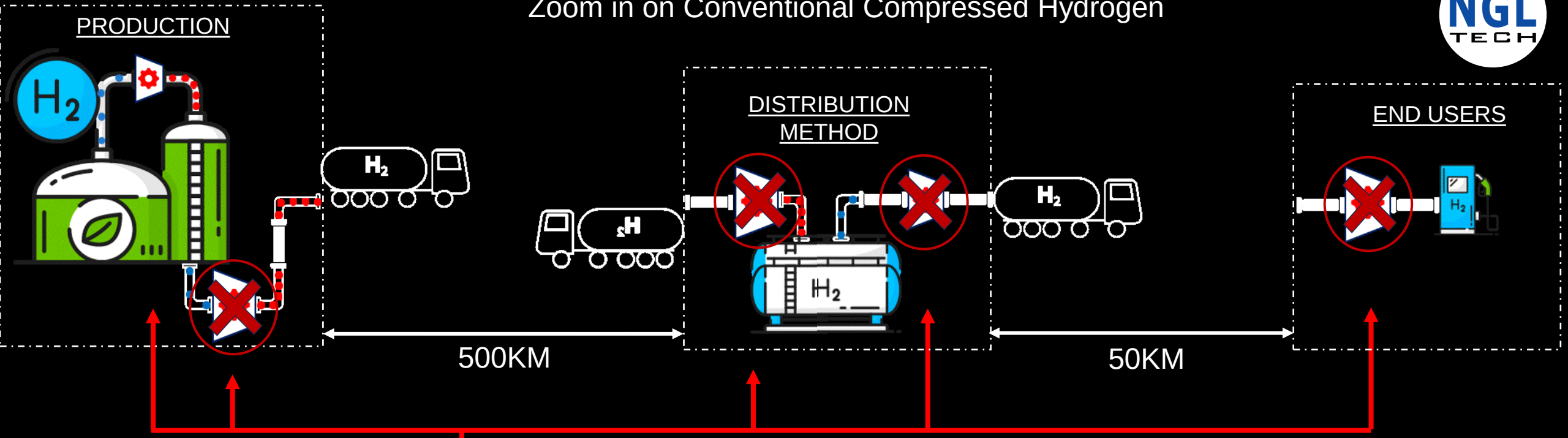


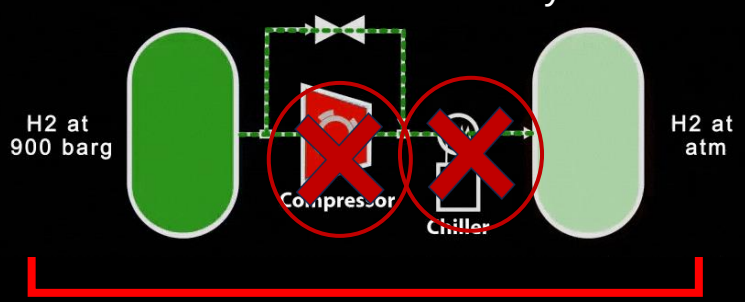
Conventional H2 Transfer System



Compression Energy Consumption
~ 1.3 kWh/kg

Zoom in on Conventional Compressed Hydrogen





Compression Energy Consumption
~ 1.3 kWh/kg

Conventional H_2 transfer typical supply chain energy utilization

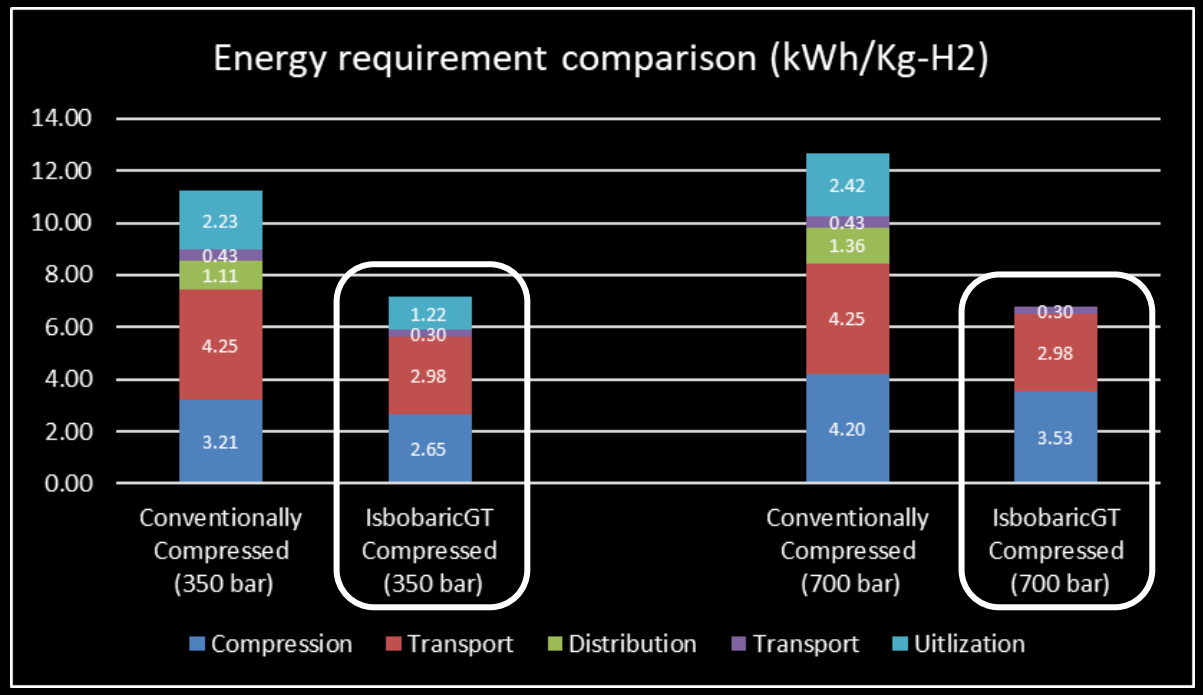
~ 13 kWh/kgH_2

But what if ...

~ 5 kWh/kgH_2

IsobaricGT teaser

Reduced Energy Consumption by 62% with IsobaricGT™ System



- Simple Fast Operation
- Eliminate Compression

Safe

- Eliminate Chiller
- No Thermal/Pressure Fatigue

Energy Efficient

- 63% reduction in energy consumption

Low Cost

- ~50% reduction in cost

Scan to get in touch!

NGL TECH

Thank you!

Arul Jothy
+6012 2707 569
arul@ngltech.com
NGLtech.com