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Framtíð metans – ekki sem metan?

Möguleg nýting metans með öðrum vetnisberum

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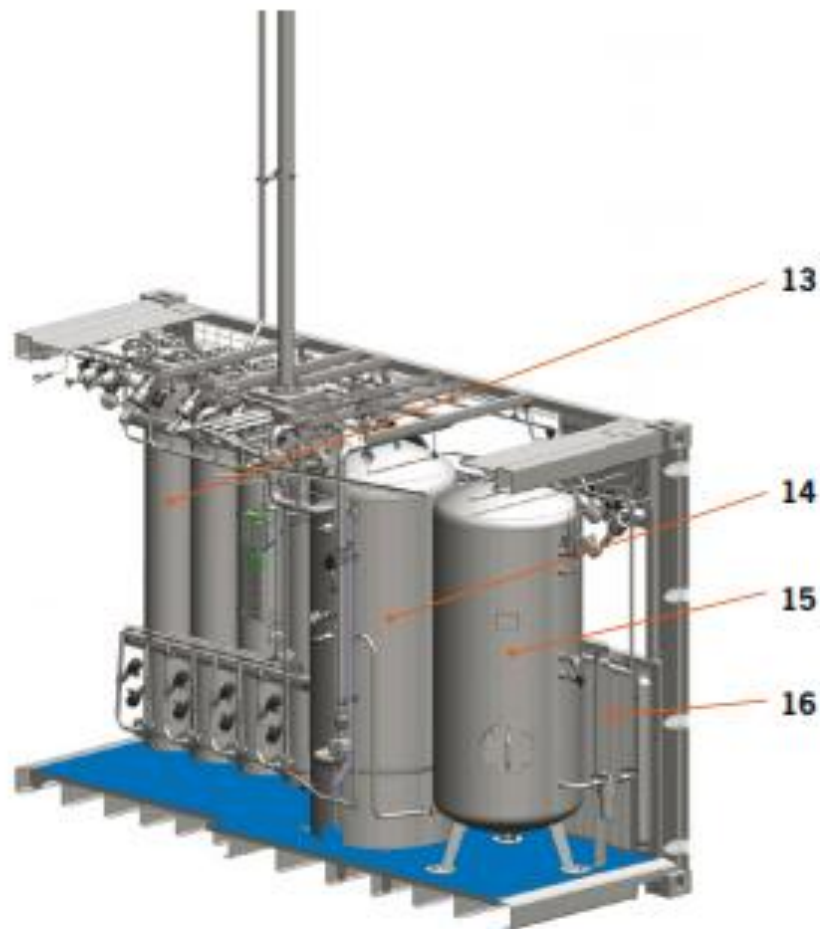
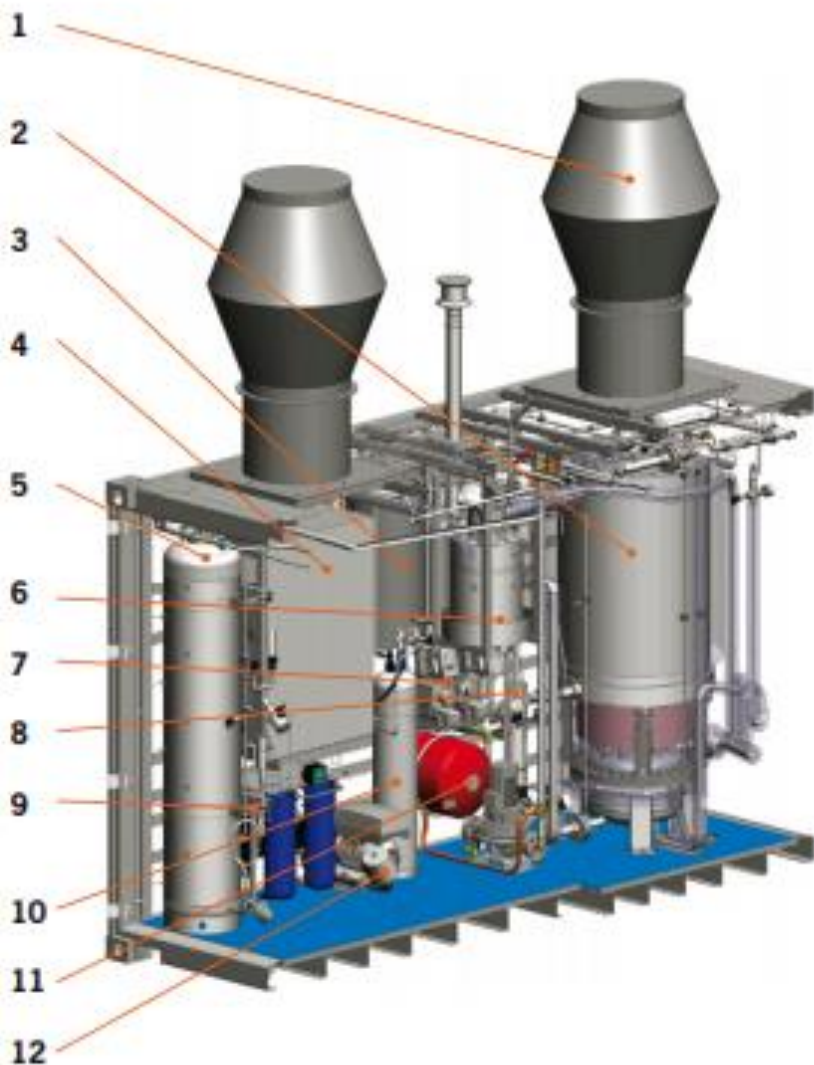
Fjögur skref í nýtingu

1. Nýting varma og mögulega raforku
2. Nýting koltvísýrings
3. Nýting vetnis
4. Nýting syngass til framleiðslu þyngri eldsneyta

Aðferðir

Framleiðsla syngass eða vetnis

- Metan er gott hráefni
- Stýrður bruni – gösun
- Smáskala umbótun (reformer)
- Þarfnast varma
- Verður til koltvísýringur (CO₂)



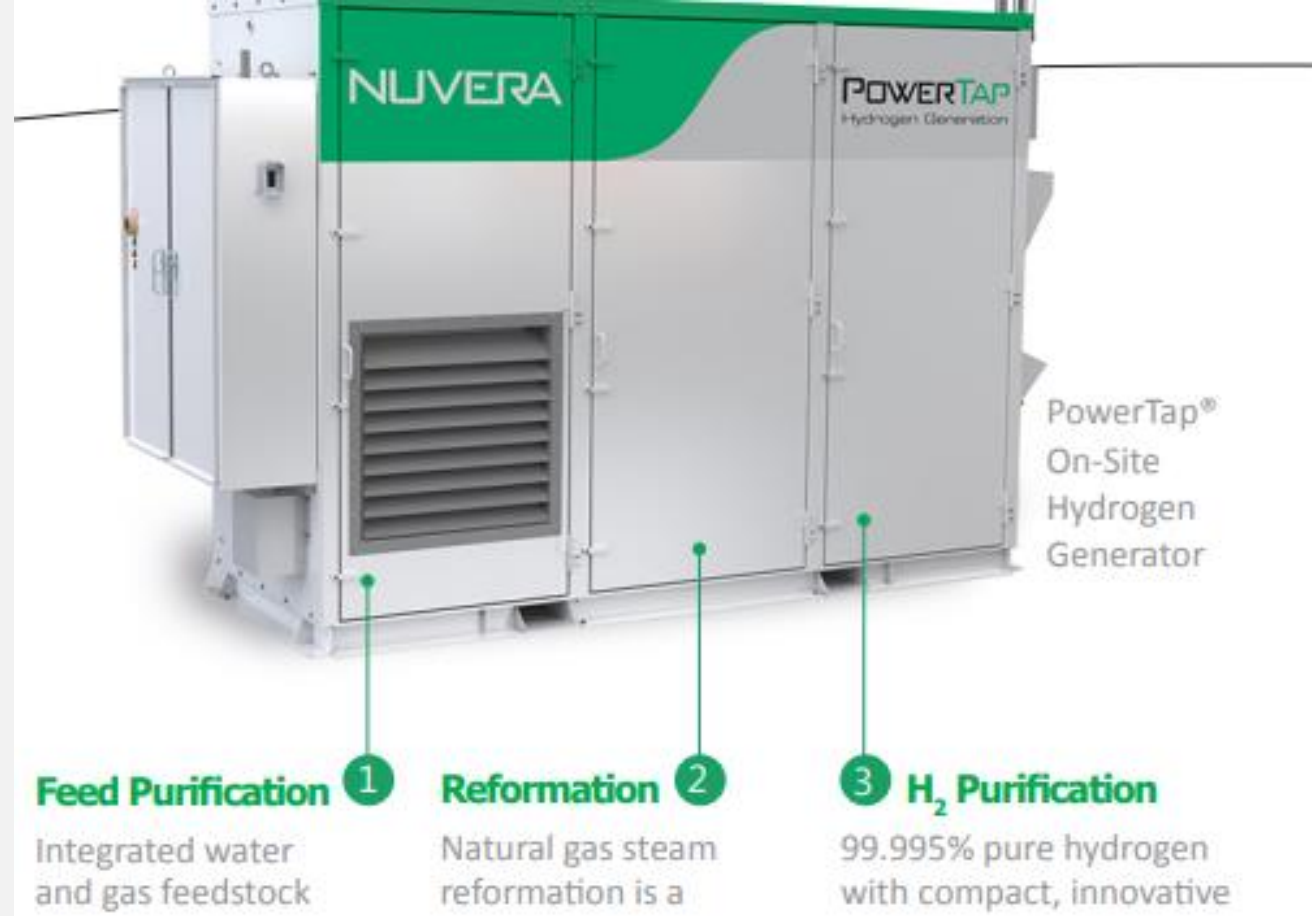
1. Ventilation Fans
2. Reformer Unit
3. DI Water Storage
4. Electronics Cabinet

5. Desulfurization Vessel
6. Steam Generator
7. Water Pumps
8. Water Gas Separator

9. Water Purification System
10. Ion Exchanger
11. Coolant Expansion Vessel
12. Burner Air Blower

13. PSA Vessels
14. Off-gas Storage
15. H₂ Storage
16. Reformate Cooler

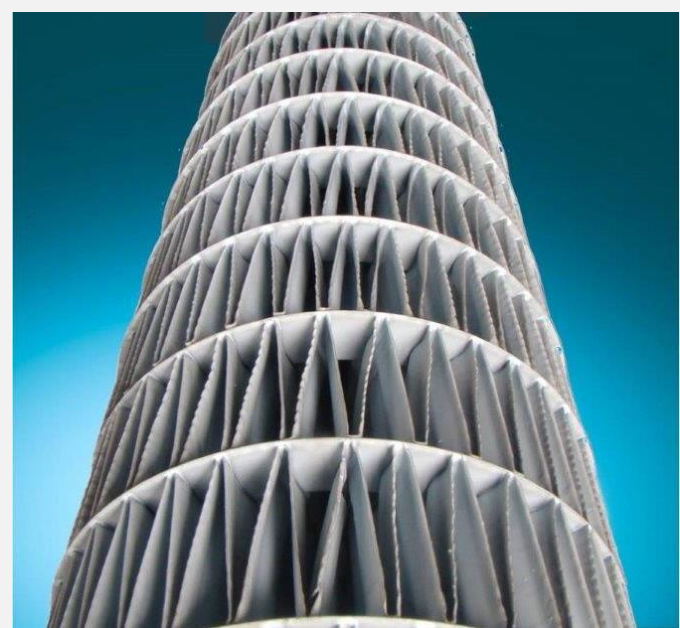
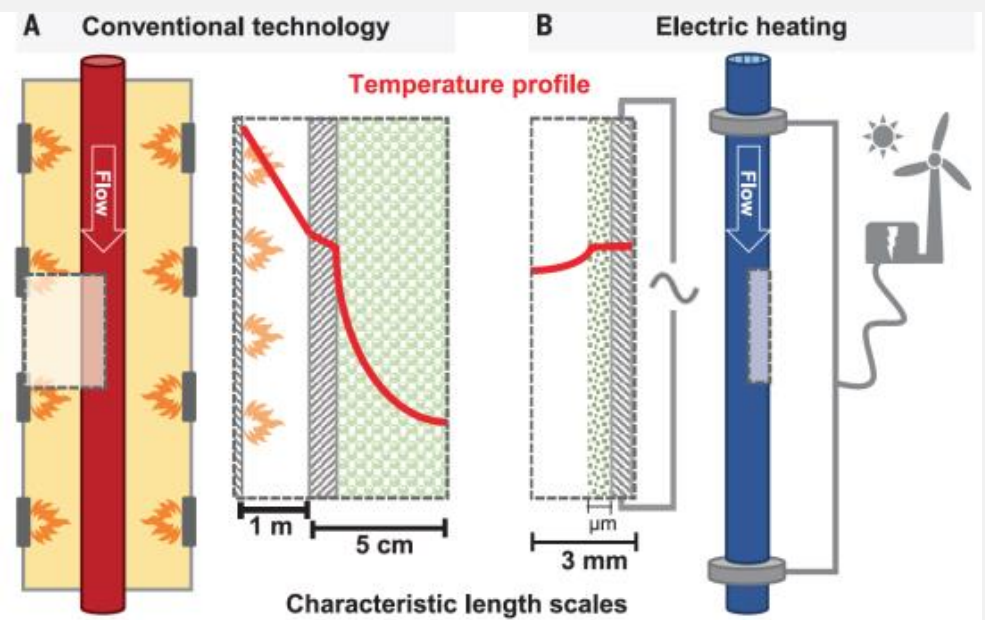
HYSERVE-30	HYSERVE-100	HYSERVE-300
30Nm ³ /h	100Nm ³ /h	300Nm ³ /h
City gas (13A), LPG	City gas (13A), LPG	City gas (13A)
99.999 vol% or higher	99.999 vol% or higher	99.999 vol% or higher
0.70 MPaG or less	0.70 MPaG or less	0.70 MPaG or less
2.5mW×2.0mD×2.5mH	3.8mW×2.6mD×2.8mH	7.5mW×3.0mD×3.3mH





Framþróun reformera

- Vinnsla með lífgas sem hráefni
- Halldor Topsøe – rafmagsferli
 - CO₂-hlutlaust metanól frá lífgasi
 - Auðveldar skölun niður á við



Af hverju CO₂?

Horfa til framtíðar

- Horfa þarf á CO₂ sem auðlindastraum
- Verðlítið land – hentugt undir gróðurhúsabyggð
 - Bætir virðis_keðju ræktunar
- Stutt í núverandi ræktendur
 - Lambhagi – lögn/landflutningar
- Hentugt berg til bindingar undir Álfsnesi sbr. Carbfix



100



hydrogen stations by 2020.
Funded by Assembly Bill 8
(2013).

200



hydrogen stations by 2025,
pursuant to the Governor's 2018
ZEV infrastructure Proposal.

1000



hydrogen stations by 2030 with favorable market
conditions and state policies pursuant to the CAFCP 2030
vision. Will support 1,000,000 fuel cell electric vehicles.

H2 Station Goals in California



Af hverju vetni?

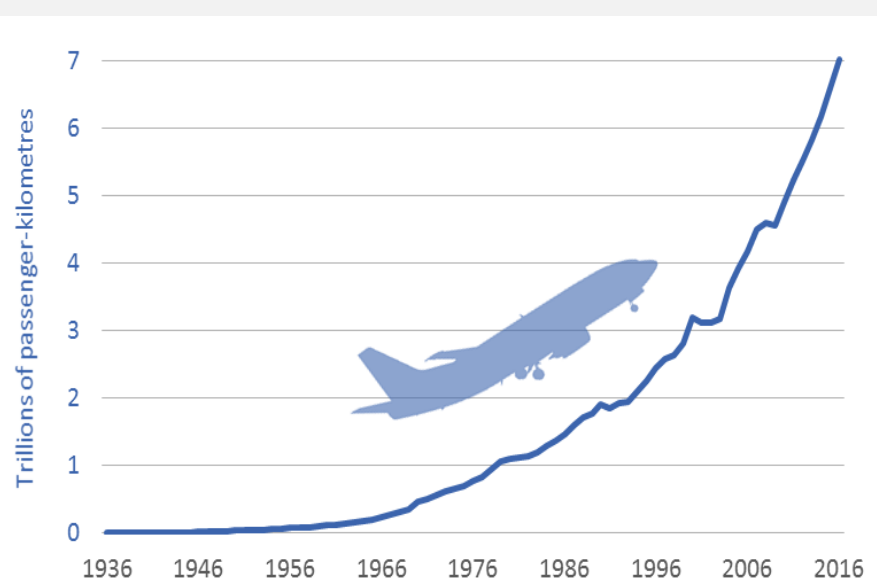
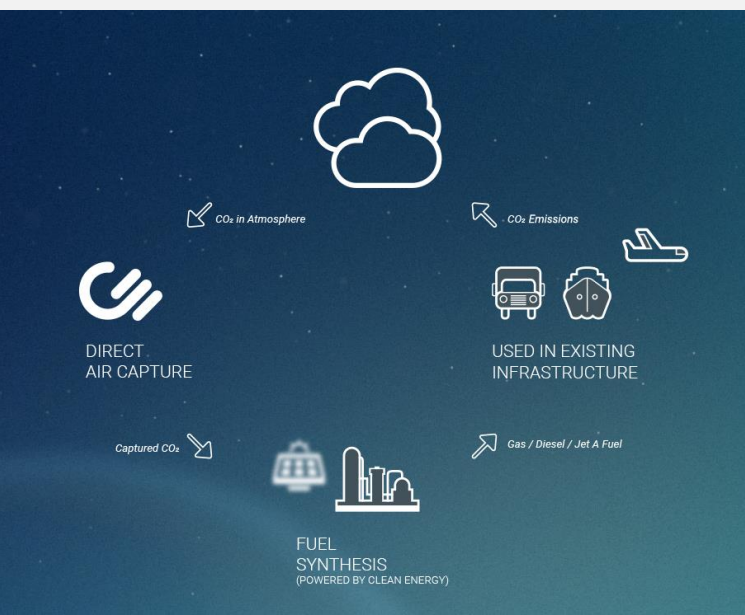
- IEA – „Áður óséður meðbyr“
- Fljótt stækkandi markaðir í A-Asíu, V-BNA og mið-Evrópu
- RED II og ESB tilskipun vegna flutninga ýtir af stað samstarfi
 - Weichai + Ballard
 - Cummins + Hydrogenics
 - Bosch + PowerCell





Hvaða þyngri berar?

- Metanól, DME og Fischer-Tropsch eldsneyti
- Gerlegt að framleiða eldsneyti í vökvaformi
- Carbon Engineering auglýsa *Air-to-Fuel* tækni til framleiðslu á flugvélaeldsneyti



Takk fyrir