



REFYHNE Wesseling - Grüner Wasserstoff in Raffinerien

*Deutsche Wasserstoff
Vollversammlung*

H2 Congress



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REFHYNE / Shell Rheinland Raffinerie

27. Januar 2021

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REFHYNE – Bau von Europas größter PEM-Elektrolyse (10 MW / 4.000 kg/Tag)

Investition in die Zukunft

- Bau von Europas größter PEM Elektrolyse mit ITM Power Ltd.
- Inbetriebnahme in 2021
- 10 Megawatt maximale Leistungsaufnahme
- Produktion von ca. 1.300 Tonnen grünem Wasserstoff pro Jahr
- Anbindung an das bestehende Strom- und Wassernetz

Warum ist dies ein Leuchtturm Projekt?

- Erste großskalige Wasser-Elektrolyse integriert in eine Raffinerie
- Grüne Wasserstoff Produktion zur Nutzung in der Raffinerie
- Reduktion des CO₂ Fußabdrucks der Raffinerie
- Sammlung von Erfahrungen zu Leistungen im Netzausgleich
- Entwicklungsschritt und Referenz als Einstieg in die 100 MW Klasse



REFHYNE Baubeginn: 25. Juni 2019



Wesseling, 25. Juni 2019

Shell Rheinland Raffinerie: Baubeginn der weltweit größten Wasserstoff-Elektrolyse

Im Werk Wesseling der Shell Rheinland Raffinerie wurde der erste Spatenstich zum Bau einer Wasserstoff-Elektrolyse-Anlage gesetzt. Mit Unterstützung durch die Europäische Union (EU) will das REFHYNE Konsortium damit einen Beitrag zur Energiewende leisten.

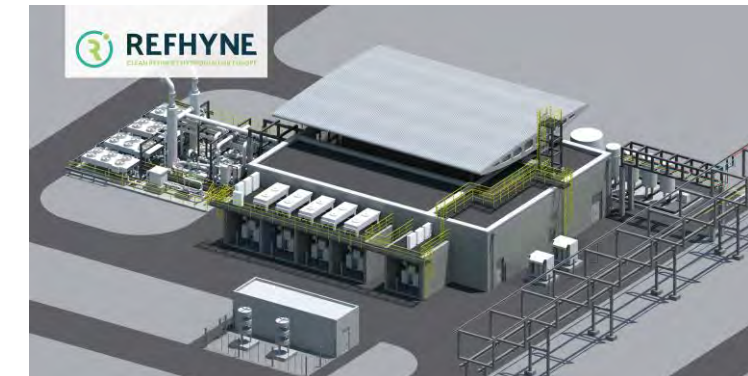
Die Investitionssumme beträgt 16 Millionen Euro, hiervon trägt das Europäische Fuel Cell Hydrogen Joint Undertaking 10 Millionen Euro bei, 6 Millionen Euro werden vom Konsortium mit Shell, ITM Power, SINTEF, thinkstep und Element Energy getragen.

Der Bau der neuen Anlage, die mit einer Polymer-Elektrolyt-Membran-Technologie (PEM) ausgestattet ist, soll in der zweiten Jahreshälfte 2020 abgeschlossen sein. Die Kapazität beträgt 1.300 Tonnen Wasserstoff pro Jahr.

Die PEM-Anlage von ITM Power ermöglicht es, Wasserstoff aus Strom statt aus Erdgas zu gewinnen. Wenn er als grüner Wasserstoff mit erneuerbarer Elektrizität gewonnen wird, trägt er dazu bei, die CO₂-Intensität des Raffinerie-Standortes von Shell zu reduzieren.



REFHYNE 10 MW Elektrolyse – Design



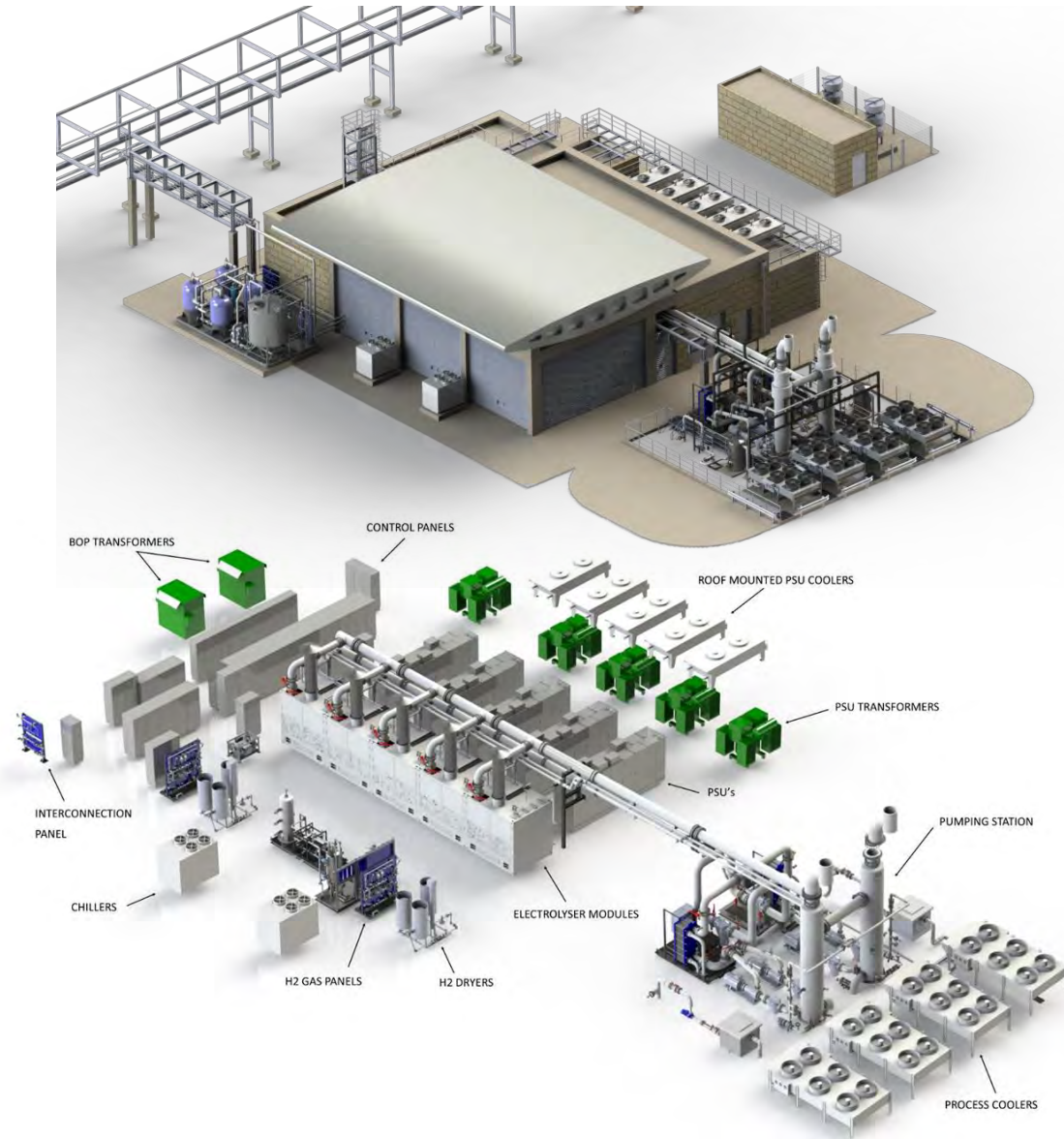
Hoher Besuch am 6. Juli 2020 von

**EU Kommissarin Kadri Simson
NRW Wirtschaftsminister Prof. Andreas Pinkwart
FCHJU Executive Direktor Bart Biebuyck**

**Willkommen in der Shell Raffinerie in Zeiten von Corona beim Besuch der REFHYNE Baustelle
in Verbindung mit der Einweihung des ersten Wasserstoff Pkw für die Raffinerie Rheinland.**



Vom Design zur Implementierung heute



REFHYNE – Plattform for Neue Wasserstoff Anwendungen

Shell Rheinland Raffinerie
-> Industrielle H₂ Verwendung
-> EU RED II Möglichkeiten



Wasserstoff für Mobilität
-> Pkw, Busse, Lkw, Züge, Schiffe
-> H₂ Modellregion Rheinland H2R



REFHYNE – 10 MW Elektrolyse



Verbindung zur RVK Köln
-> 50 und mehr H₂ FC Busse



Strommarkt
-> Primär/Sekundär Netzausgleich



Leuchtturm Projekt für die EU FCHJU



Plattform für
synthetische
e-Kraftstoffe
für die Luftfahrt

