



EINLADUNG zum virtuellen Vortrag von **Dr. Aline LEON**

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Hydrogen as an energy carrier within the transition from fossil to renewable fuels

am

Dienstag, 25. Jänner 2022, um 17:30 Uhr

Prof. Hinrich Grothe lädt zu einem geplanten Zoom-Meeting ein:

Zoom-Meeting beitreten:

<https://tuwien.zoom.us/j/95027569780?pwd=aVl3VWFkbnUvR1VHQ3JYNzcxUH5dz09>

Meeting-ID: 950 2756 9780

Passwort: 16LR1SyS

Abstract

The climate target settled worldwide for 2050 requires that our current energy system based on fossil fuels is gradually replaced by renewable energy. At present, hydrogen is foreseen as the fuel of the future and is highly advertised as the molecule that can enable the neutral climate target to be reached.

In this frame, the annual hydrogen demand is estimated to increase from 8 EJ to approximately 80 EJ by 2050. Such a widespread implementation requires to consider the specific properties of hydrogen and the deployment of related technologies in larger scale that implies technological breakthrough, novel concept, large investments, research and development. Actions are taken worldwide in this direction but can clean hydrogen alone fulfill our demand? What are the compromises to be envisaged? In view of the technological hurdles, may saving energy and increasing its efficiency can be considered in the transition time as an equivalent of clean energy source to our current electric system?

In this presentation, these questions will be discussed given the properties of hydrogen. At first, the cycle of hydrogen will be presented from its production to its utilization. Then, the creation and the development of a hydrogen market with certifications, regulations, standards will be discussed to reduce the actual price of hydrogen down to 1.09 €/kg by 2050. Further, the need of industrializing the production of electrolyzers and fuel cell will be highlighted as well as the scaling-up in the MW, GW range to ensure the demand of clean hydrogen; this will request not only an increase production of renewable energy but also importation of clean electricity for some countries. Finally, the current hydrogen infrastructure will be displayed with the development needed to convey hydrogen from centralized or decentralized production area.

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