TETRA TECH RPS ENERGY | TRAINING

N667: An Introduction to Natural Hydrogen Exploration

Instructor(s): Dr. Jürgen Grötsch

Format and Duration

Classroom - 1 Day
Virtual - 2 Sessions

Summary

The objective of this course is to introduce natural hydrogen as a potential future clean energy resource and how to explore for it as it may become the next game-changer in the energy industry providing a clean and sustainable solution for part of the global energy demand. One of the recent new findings in the Geo-Energy sector is that hydrogen can be found in many places around the globe as natural seeps, similar to what has been observed for oil and gas since many centuries. Many indications point towards a major clean energy resource of the future considering that in the last few years some 300 natural H2 seeps have been reported and are exponentially rising. The first H2 exploration companies have formed and the first wells targeting H2 have been drilled.

Learning Outcomes

Participants will learn to

1. Recognize the role of different 'colours' of hydrogen.
2. Recognize a basic understanding of the global landscape of current hydrogen production and consumption.
3. Acquire awareness of hydrogen development projects.
4. Gain awareness of the global distribution of natural hydrogen seeps.
5. Develop familiarity with the concept of hydrogen exploration.
6. Identify the primary subsurface uncertainties in hydrogen exploration and development challenges.
7. Address the economic value proposition behind natural hydrogen.

Training Method

This is an instructor-led course comprising a mixture of lectures, exercises, case studies, discussions and feedback sessions. The course follows the discover, ask and learn approach.

Who Should Attend

This 1-day course has been designed for a non-technical audience from industry, the public sector and regulators. It is of particular interest for investors and decision makers who need to set directions and priorities in the energy transition.

Course Content

This course provides an overview on hydrogen as an energy resource and the various 'colours' of hydrogen. However, natural (white) hydrogen was until now not considered in the developments around the future energy system. This course highlights the current status of knowledge and latest developments around such a potential new energy opportunity, i.e. natural H2 exploration and production as part of the future energy mix. If further developments turn out to be successful, this could result in another

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unexpected game changer in the energy sector. similar to the unconventional revolution a few decades back. However, further research and investments in exploration are required to conclusively provide answer on size of the prize and feasibility of development of such a new energy resource.

Topics:

Part 1 – Overview of hydrogen in the global energy system

Part 2 – Introduction to the multiple 'colours' of hydrogen

Part 3 – Examples of natural hydrogen seeps

Part 4 – The hydrogen system from source to reservoir

Part 5 – Play-based Exploration and Field Development of natural hydrogen

Part 6 – The value proposition behind natural hydrogen

Part 7 – Outlook on opportunities and risks in natural hydrogen projects