

## Hydrogen Orientation and Overview Training and Certificate Program

### The Hydrogen Energy Transition is Here in Transportation, Industry, Home, and Grid Power

New technologies are required for lower carbon emissions to meet current and upcoming government mandates. Hydrogen use is emission free and can solve part of the problem in transportation, industry, and grid power. California's goals are 50% Zero Emission electricity by 2030, and 85% by 2045. 100% of new cars and 75% of trucks must be electric by 2035. Hydrogen is already here and growing in 2023. Learn all about it in this course.

### Who is this Training For?

**Tech and Legal People** - Need to be aware of the wide range of tech that will power the hydrogen industry.  
**Businesspeople** - Need to figure out policies and how to put these technologies in to a company and profit.  
**Money People** - Need to understand the landscape, different tech, and its costs so they can fund them.  
**HR and the Workforce** - Need to understand Hydrogen jobs requirements, career paths, and skills needed.  
**Environmentalists** - Need to understand how Hydrogen tech can solve, or not solve, our problems.

### What Can You Get from this Training?

We have a FREE 30-minute overview by Zoom video for you to give you a basic Hydrogen orientation.

**Schedule through; [h2@treasurebeam.com](mailto:h2@treasurebeam.com) - No purchase necessary, no high-pressure sales**

We are an ARCHESH2.org partner, the California Hydrogen Hub. We participate in setting hydrogen policy.

- \*Comprehensive, quality orientation and overview training on current and projected Hydrogen Industry sectors.
- \*A pre-test for you to benchmark your level; free and confidential. Take it again at the end to confirm progress.
- \*A HOOT CP Certificate if you pass the exam.

### Pre-requisites

An open and curious mind. An interest in transportation, tech, or electric power is good, but not required.

**Course Overview** - ZOOM or On-site training, from 1 to 15 people, 6-7 hours for a full day of training.

Module	Overview (Detailed Outline on the Next Page)
1	Hydrogen and Decarbonization, Government Policy, and the Workforce
2	Hydrogen in Transportation; Fuel Cells, Trucks, Trains, Ships, Planes, Cars...
3	Industrial Hydrogen; Steel, Cement, Fertilizer, Chemicals...
4	Hydrogen Generation Detail; How is it Made? What are the Challenges?
5	Hydrogen Storage, Transport, and Distribution; Safety, Standards, Dangers...
6	Hydrogen Projects and Funding; Current and Upcoming Projects
7	Geographic Focus - Where in the World is Hydrogen?
8	Hydrogen Technology Level and Hydrogen Project and Product Directory

# HOOT CP

HOOT CP is for Training Certification, Market Strategy, and Technical Knowledge

HOOT CP organizes training materials into the following Modules (M) and Topics (T)

## M1 Hydrogen and Decarbonization

T1	Decarbonization - Away from Fossil Fuels
T2	Government Policy Driving Change
T3	We Need a New Workforce
T4	Colors of Hydrogen - How is it Made?
T5	Carbon Intensity Scoring
T6	Hydrogen Use Overview
T7	Synfuels
T8	Ammonia

## M5 H2 Storage, Transport, Distribution

T1	Hydrogen Safety
T2	Hydrogen Standards
T3	Hydrogen Storage - Gas and Liquid
T4	Hydrogen Pipelines
T5	Hydrogen Dispensing and Fuel Stations
T6	Hydrogen Embrittlement
T7	Solid State Hydrogen Storage
T8	Batteries in Hydrogen Systems

## M2 Hydrogen in Transportation

T1	Transportation Corridors
T2	Fuel Cells and Hydrogen Motors
T3	H2 Trucks and Trains - Moving Goods
T4	Hydrogen Buses - Moving People
T5	Hydrogen in Marine Transportation
T6	Hydrogen in Aviation and Drones
T7	Hydrogen Passenger Vehicles - Synfuels
T8	Small / Urban Hydrogen Transport

## M6 Hydrogen Projects and Funding

T1	Early Efforts
T2	Hydrogen in the 1990s
T3	Hydrogen in the 2000s
T4	Hydrogen in the 2010s
T5	Major Hydrogen Projects Today
T6	Major Announced Projects
T7	Funding Mechanisms
T8	Hydrogen Offtake, Markets, and ROI

## M3 Industrial Hydrogen

T1	Industrial Hydrogen Power and Heat
T2	Hydrogen in Cement and Steel
T3	Hydrogen Feedstock for Other Products
T4	Hydrogen in Fertilizer
T5	Hydrogen in Foods
T6	Hydrogen Chemicals and Alcohols
T7	Residential Hydrogen Power and Heat
T8	Hydrogen Mixed with Natural Gas

## M7 Geographic Focus

EU	Europe
APAC	Asia Pacific
AM2	The Americas
ME	The Middle East
AFR	Africa
SEA	The Oceans and Islands
ARC	The Arctic and Antarctica
SPACE	Outside Earth, the Moon, and Planets

## M4 Hydrogen Generation Detail

T1	Hydrogen From Fossil Fuels
T2	Hydrogen From Coal
T3	Hydrogen From Natural Gas
T4	Hydrogen and Methane
T5	Hydrogen From Waste
T6	Green H2 Electrolysis from Renewables
T7	Solar for Green Hydrogen
T8	Wind for Green Hydrogen

## M8 Tech Level

THEO	Theoretical, Possible, In the Lab
DEMO	A Working Prototype
EARLY	Launched but Not Scaled Up
SCALE	Has Achieved Scale
ORG	Organizations
PROJ	Projects
PROD	Products

Certification is available on successful completion of the HOOT CP Exam

The HOOT CP Exam is \$49 per person, but complimentary for those who take a full day of HOOT CP Training.