

THE WORLDS CHEAPEST
HYDROGEN PRODUCTION

HOW IS CHEAP GREEN ENERGY POSSIBLE

Prepared by



HYDROGEN PROBLEMS

**1. HIGH INVESTMENT COST
(1 MW ELECTROLYZER 1 M USD)**

**2. HIGH OPERATING COST
(1 MW 220 NM3)**

**3. LOW EFFICIENCY
(1 NM3 -> 4,5 KW)**

4. MORE EXPENSIVE THAN FOSSIL FUEL



McPhy

ThyssenKrupp



nel

**\$25
BILLION**



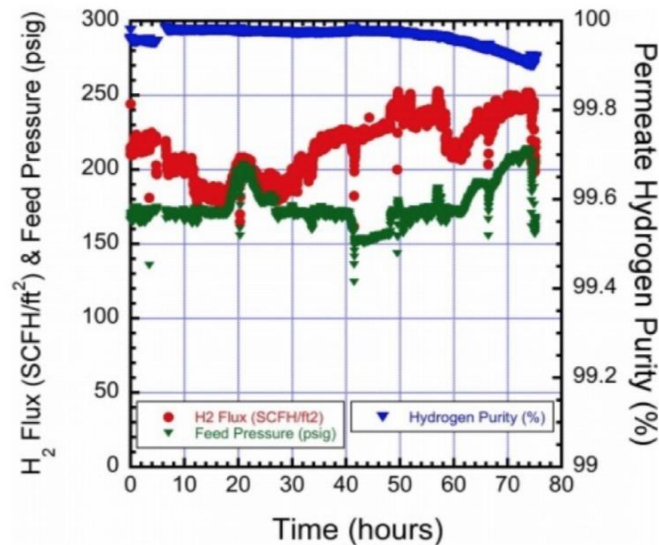
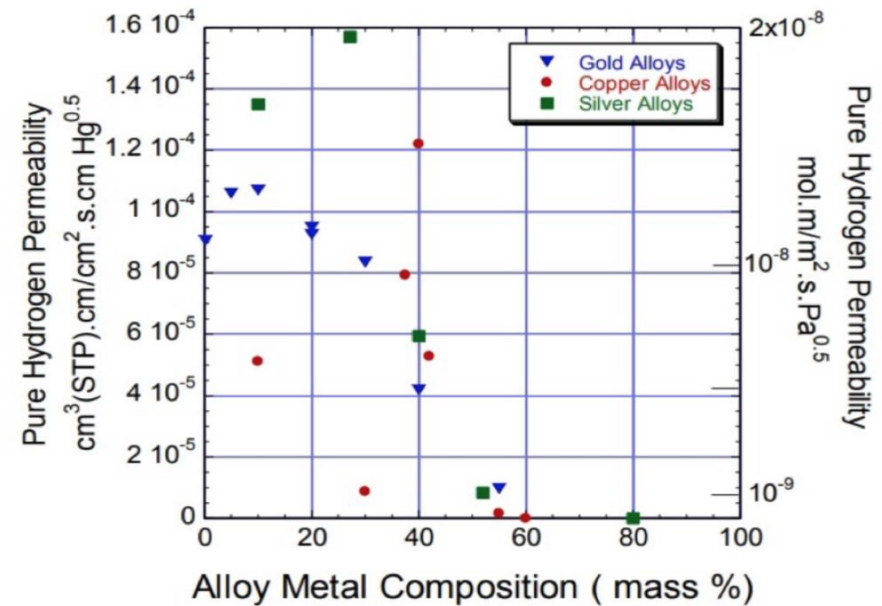
04 WE CAN CHANGE THIS 4 MAIN PROBLEMS

PALLADIUM ALLOY HYDROGEN MEMBRANE

- THERE IS NO NEED A ELECTRICITY
- THERE IS NO NEED A TEMPERATURE
- THERE IS NO NEED A PRESSURE

**THE
WORLD'S
FIRST
HYDROGEN
MEMBRANE
WITHOUT
ELECTRICITY**

WE TRY DIFFERENT ALLOY



TO PROVIDE THE
BEST PURITY
WITHOUT ANY NEED



01
GENERATE FROM CHIMNEY FOR 5 CENTS PER A KG

SEPERATE FROM ANY GASES

AND

JUST SPEND A WATER



OUR SEPERATOR IN CEMENT
FACTORY CHIMNEY



$\text{CO} + \text{H}_2\text{O} \Rightarrow \text{CO}_2 + \text{H}_2$

1. Be GREEN

CONVERT CO TO CO₂ FOR
A LESS DAMAGE FOR
NATURE

2. SPEND NOTHING

WE JUST USING FACTORY
CARBON EMISSIONS AND
WATER. THERE IS NO
EXTRA NEED

3. USE THIS GREEN HYDROGEN

- * YOU CAN CONVERT
- * YOU CAN SELL
- * YOU CAN PRODUCE
ELECTRICITY
- * YOU CAN BURN

RESULTS AT CEMENT FACTORY CHIMNEY

- * 42.5 M KCAL PER A YEAR
- * 282 KG AMMONIA PER A HOUR
- * 238 KG METHANOL PER A HOUR
- * 1 MW ELECTRICITY PER A HOUR IN
JECBACHER HYDROGEN ENGINE



OUR CEMENT FACTORY APPLICATION



02

GENERATE WITH ELECTROLYZER (2,2 KW 1 NM3)

**NO ENERGY FOR SEPERATION JUST
CRACK WATER PHOENIX CAN SEPERATE**

AND



OUR SEPERATOR ELECTROLYZER

SPEND LESS ENERGY



**DON'T SPEND 4,5 KW FOR 1 NM3
JUST SPEND 2,2 KW FOR 1 NM3₁₁**



1. GREEN IS CHEAPER

ELECTRICITY
CONSUMPTION LESS THAN
HALF OF NORMAL
ELECTROLYZERS

2. WORK WITH ANY KIND OF WATER

WITH PATENTED PHOENIX
MEMBRANE THERE IS NO
NEED FOR PURE WATER

3. USE LESS AREA FOR SAME HYDROGEN

YOU NEED 3 TIMES LESS
AREA FOR SAME
HYDROGEN PRODUCTION

RESULTS AT OUR ELECTROLYZERS

PRODUCE 26 M³ GASES WITH
44,54 KW
THIS IS THE BEST RESULT OF
HYDROGEN PRODUCTION
EFFICIENCY IN WORLD



Elektrik tüketimi
44.51 Kw



OUR PATENTED
ELECTROLYZER

Phoenix Expenditures 6 Months of Saving

background

**MARKET STRATEGY IS TAKE 2 or 3
YEARS OF SAVING WITH SYSTEM**

The Market In Turkey

Heavy Endustries
Hydrogen From
Chimney Market

52 Cement Plants
-140 Million Dollars
51 Thermal Power Plant
-418 Million Dollars
197 Natural Gas Cycle Power Plant
-918 Million Dollars
35 Iron and Steel Factory
-98 Million Dollars

Textile Factories
-180 Million Dollars
Plastic Factories
-118 Million Dollars
Glass Factories
-18 Million Dollars
Chemical Production Factories
-98 Million Dollars

Electrolyzer Market
In Industry

REVOLUTION OF PHOENIX

LABROTARY TESTS

Started in the laboratories of Istanbul Technical University as a start-up

ENDUSTRIAL SCALE UP APPLICATION

Production and seperation hydrogen from cement factory chimney.
November 2021

FIRST 2 SALES

As a result of the completion of the tests of two industrial applications, 2 invoices were issued. The total bill amount is about three hundred thousand dollars.
October 2022

POC

We started working on a laboratory scale to convert biogas to hydrogen at the İstaç waste incineration facility.
October 2022

POC

Proof of concept and tests about chimney producy at Çimsa 1/100 scale at Eskişehir

ENDUSTRIAL SCALE UP APPLICATION

Creation and production of a new patented electrolysis product. (200 kW)
April 2022

SABANCI ARF PROGRAM

We became one of the startups selected for the Sabancı Arf Program. For the first time, we gave out shares, 3% of our company.
October 2022

POC

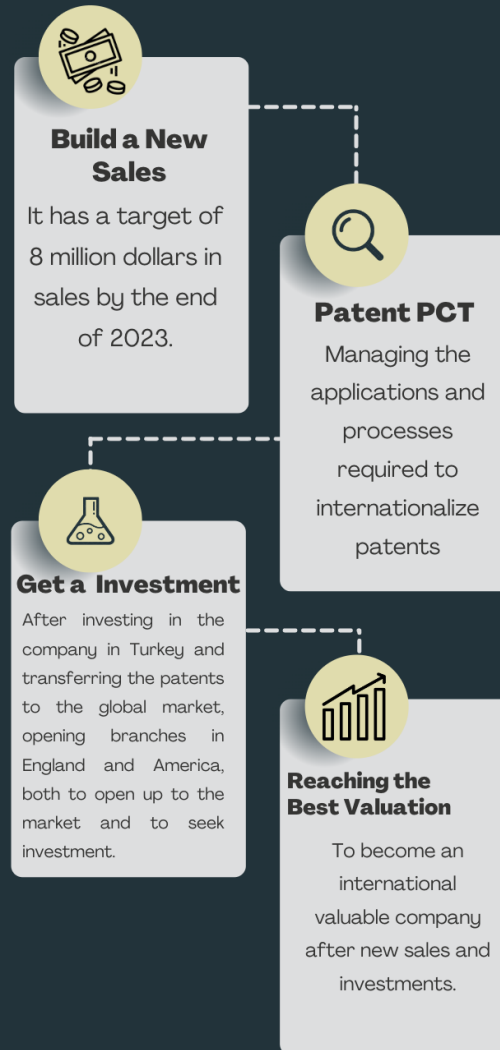
We started hydrogen sulfide separation studies with our patented membrane in Marmara University Laboratories.
October 2022

Phoenix Timeline

AWARDS FROM PAST



2023 Project Objectives



Phoenix Timeline

About US

THE BEST TECHNOLOGY TEAM IN TURKEY AROUND STARTUPS



DR. YUSUF
FURKAN
ERGÜR



KADIR
CERAN
PHD (STUDENT)



EZGI
TUNALI



PROF. DR.
MUHAMMET
UZUN



PROF. DR.
NURI
AZBAR

TEAM Skills

HYDROGEN EXPERIENCE



OPERATION MANAGEMENT SKILLS



RESEARCH AND DEVELOPMENT SKILLS



SALES AND MARKETING SKILLS



Edward De Bono's Thinking Hats

THE
CHEAPEST
GREEN
HYDROGEN
OPTION IN
WORLD

CHEAP

OUR
PATENTS
PUBLISH IN
TURKEY
WE GONNA
START PCT

PATENTED

PHOENIX
FINISHED
THE POC
WITH FIRST
NON PROFIT
2 SALES

START

THIS IS A
BEST
OPTION FOR
GREEN
FUTURE

GREEN



Thank You For Listening!

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