

THE FUTURE OF OIL IS
CARBON-NEGATIVE

The year is 2050,

And the price of carbon-positive oil is

\$0

2050,

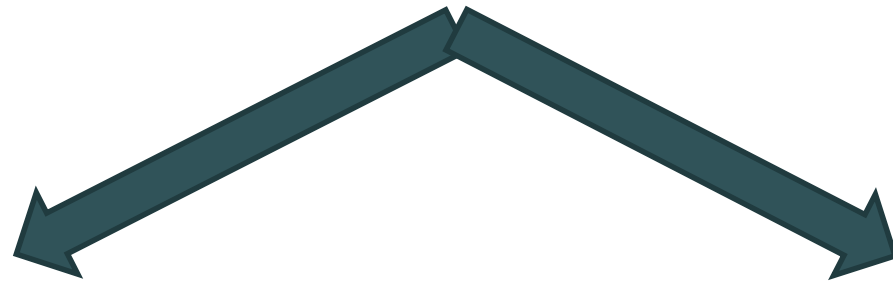
Oil as fuel



Carbon Neutral/Negative Oil as a
Natural Subsurface Feedstock
for production of chemicals



Oil and Gas CEO Choices:



Diversify

Reinvent

Oil → Energy

Carbon-Negative Oil

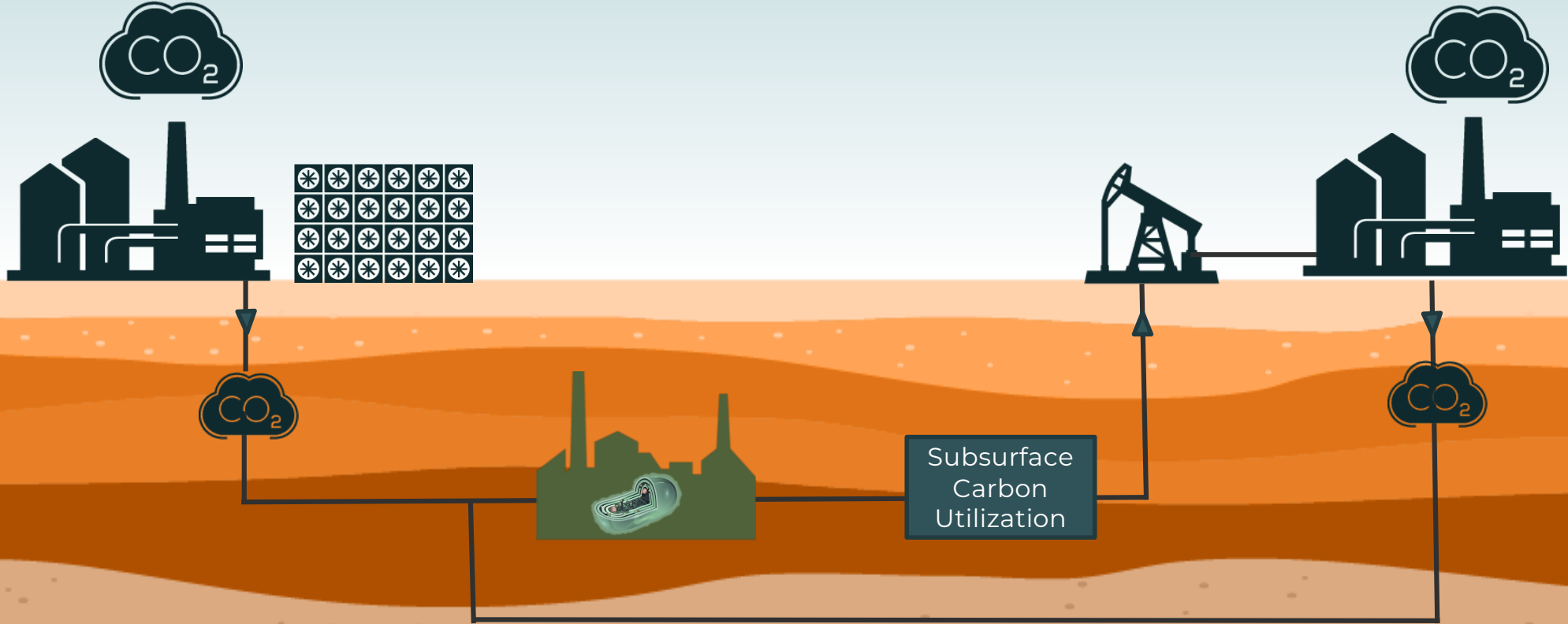


Cemvita Energy

Powered by Cemvita Factory

Subsurface Carbon Utilization

Carbon-Negative Underground Refinery



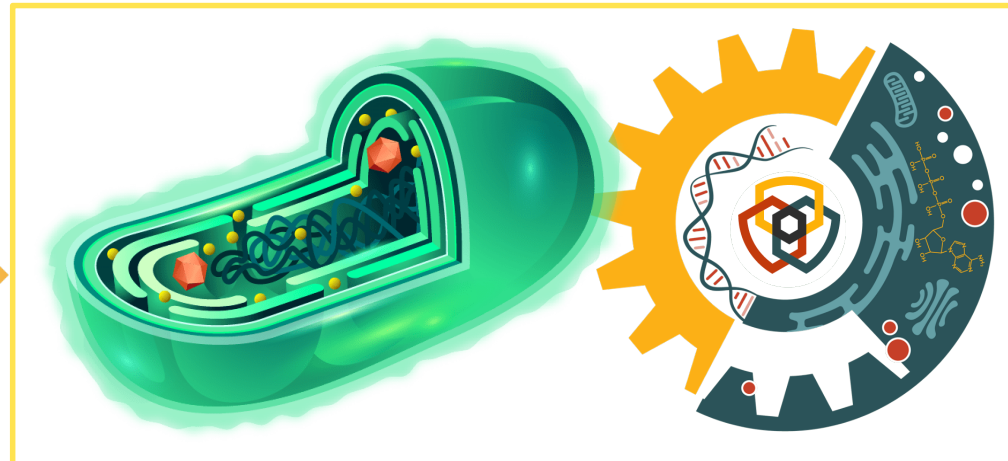
SOLUTION: TURN GHGS INTO A VALUABLE FEEDSTOCK

We are bioengineering microorganisms to be able to use CO₂ efficiently and produce valuable chemicals.

Subsurface Biomanufacturing Platform

Potential to utilize
1 Gigaton of CO₂
per year by 2050

CO₂ and CH₄



Low-Carbon Chemicals

CO₂ is Value



APPLYING SYNTHETIC BIOLOGY IN THE RESERVOIR

Building on EOR

$$\text{CO}_2 \text{ UTILIZATION} + \text{MICROBIAL EOR} + \text{CO}_2 \text{ EOR} = \text{SUBSURFACE CCUS}$$

Increase oil mobility

- Introduction of surfactants
- Degrade the long chain hydrocarbons
- Increase the porosity/permeability

Increase reservoir pressure

- Injection or production of gases

CEMVITA
FACTORY'S



SYNTHETIC BIOLOGY PLATFORM

- Increased anaerobic production of biosurfactants
- Couple recalcitrant oil degradation with down stream pathways
- Production of gas by microbes

Upgrading CH₄

- Methanol
- Longer chain hydrocarbons

Subsurface H₂S abatement

- Using microbes or their byproducts to remove H₂S

MEOR for unconventional

- Utilize endoliths to increase porosity/permeability

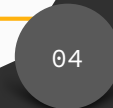
SCALE-UP WORKFLOW FROM TEST-TUBE TO FULL-FIELD COMMERCIALIZATION



FULL FIELD DEPLOYMENT

FIELD TRIAL

FEASIBILITY STUDY



~ 6 MONTHS
Lab

~ 6 MONTHS
Core Samples

~ 12 MONTHS
1 WELL

2-3 years
100 Wells



OIL IS A PRODUCT OF NATURE

Genetic Engineering

1,000,000 years
5-10 years

This is crazy!

But,

Oil and Gas is built on crazy ideas!

Subsurface Carbon Utilization

let's bring it to life!

OUR TEAM OF SCIENTISTS AND ENGINEERS



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CO-FOUNDER & CEO

10 years in multidisciplinary tech commercialization



TARA KARIMI

CO-FOUNDER AND CHIEF SCIENCE OFFICER

20 years of biomimicry research
Springer book author



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15 years in technology and management consulting



COLLABORATORS



BACKED BY STRATEGIC CO₂ UTILIZATION PIONEERS



Thank you!

