Olive Creek I – Hallam, Nebraska

Summary

- Olive Creek I
- Commercial scale
- 2020-present
- H production: ~5 ktpa
- C production: ~15 ktpa

Olive Creek II – Hallam, Nebraska

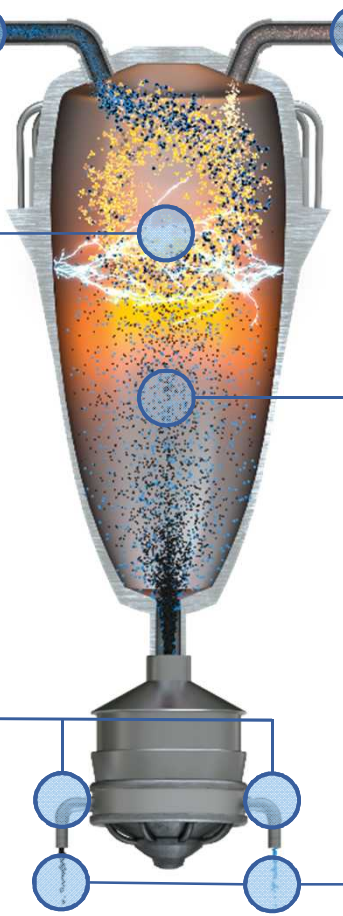
Summary

- Olive Creek II
- Commercial Scale
- 2026 (target)
- H production: ~60 ktpa
- C production: ~180 ktpa

Methane Pyrolysis Process

A natural gas feedstock enters here.

A process gas may be added to help heat the natural gas.



The natural gas is super-heated by electricity. This is combustion-free and does not release CO_2.

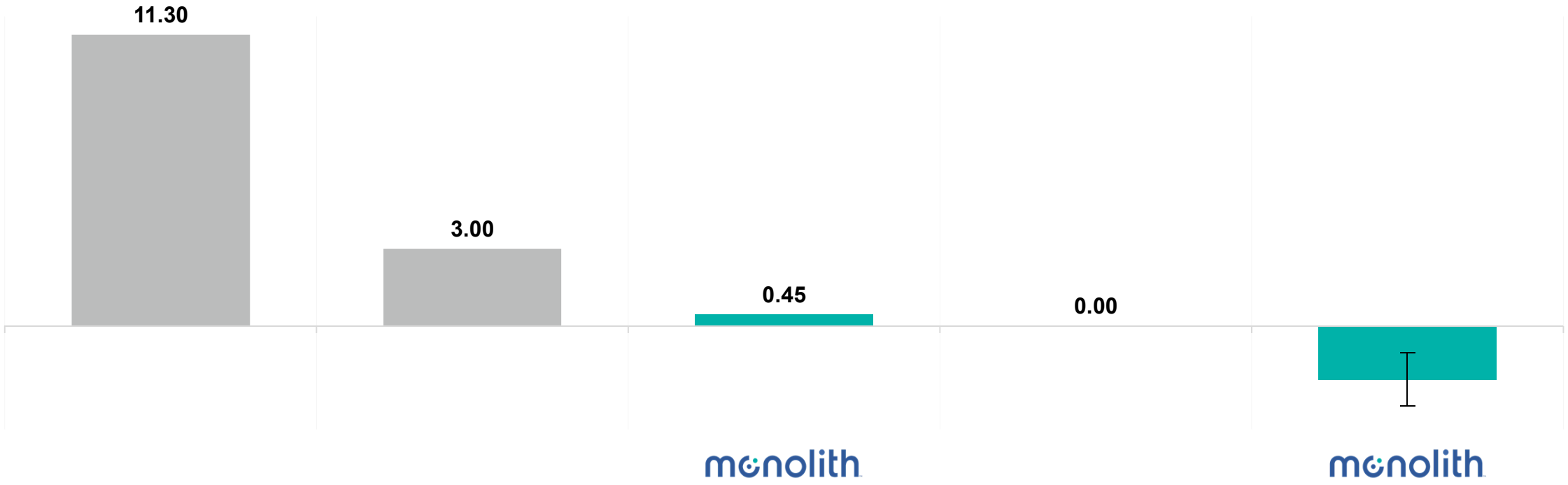
The heat breaks the bonds between the hydrogen and carbon in the natural gas molecule.

The pairs of hydrogen atoms and carbon atoms move through the chamber and exit separately.

The Clean hydrogen is directed to end users, including conversion to carbon-free ammonia. The carbon is further processed into Clean Carbon Black and other uses.

Carbon Intensity of Monolith's Hydrogen Production

Well To Gate (kg CO_2e / kg H_2)



Steam Methane Reforming ("SMR")[1]

SMR with Carbon Capture[2]

Pyrolysis[3]

Electrolysis[4]

Pyrolysis[5] has the capability for negative carbon intensity, with feedstock from biogenic or recycled sources.

Sources: [1]NREL Hydrogen Analysis (H2A) Production Models, Version 3.2108, Central SMR without CCUS; [2]NREL Hydrogen Analysis (H2A) Production Models, Version 3.2108, Central SMR with CCUS; [3]Based on third party study using GREET1_2020 and AR5 GWP (CO2, N2O, CH4); [4]NREL Hydrogen Analysis (H2A) Production Models, Version 3.2108, Central Electrolysis (Process emissions only); [5]Based on third party study using GREET1_2020 and AR5 GWP (CO2, N2O, CH4)

Electrolysis and pyrolysis assume 100% renewable energy. RNG refers to "renewable natural gas".