

Monolith Update

Amy Ostermeyer, *Monolith*

Moderator: David Rich, *Nebraska Public Power District*





Company Overview

October 2022

Our vision

**Build the
world's leading
clean hydrogen
and materials
company**

Clean hydrogen is a critical pillar of the energy transition

Renewable energy



Key markets served:

- Electricity generation

Battery storage



Key markets served:

- Medium / light duty transportation
- Short-term electrical storage

Clean hydrogen



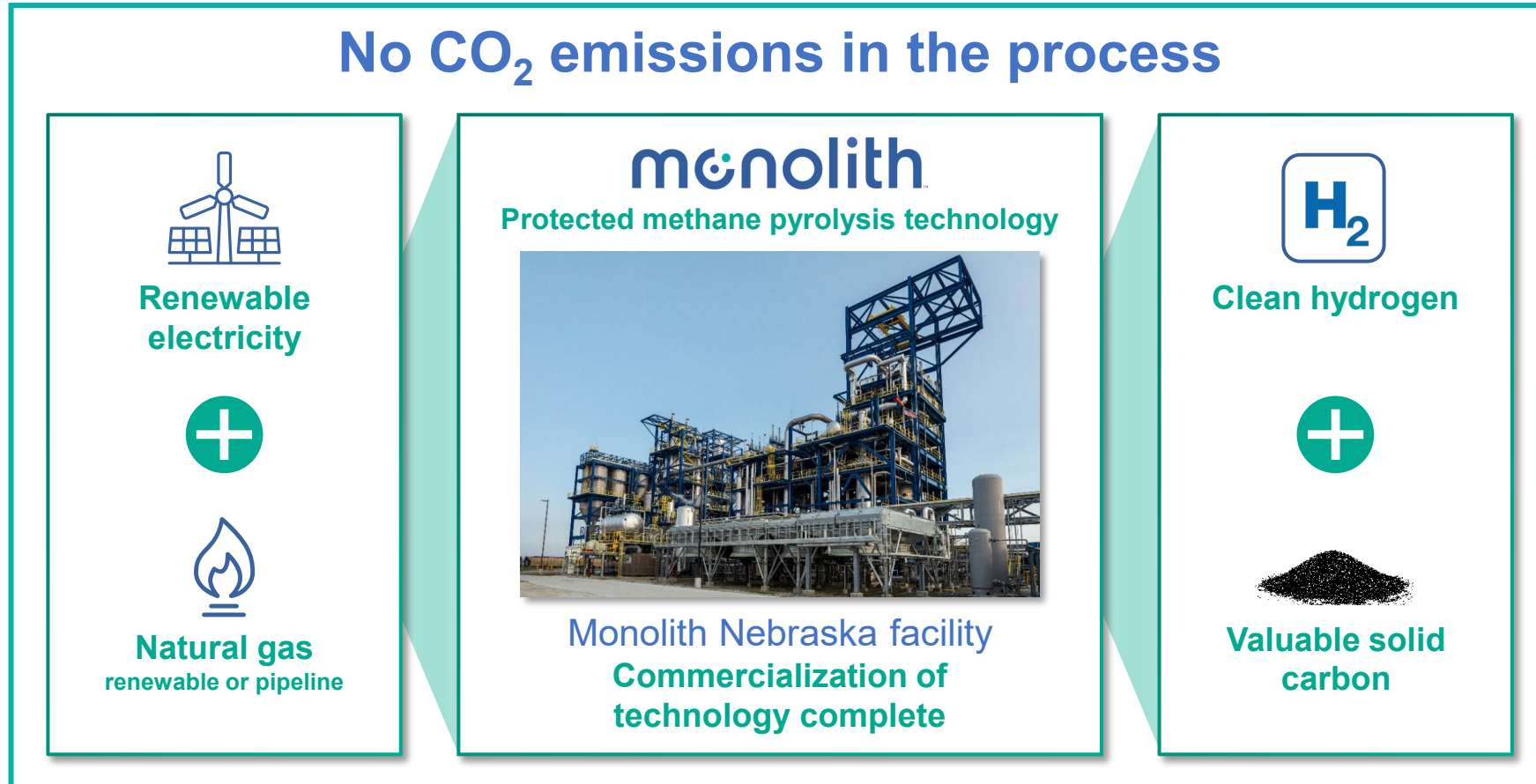
Key markets served:

- Agriculture
- Refining
- Chemical industries
- Steel industries
- Heavy duty transportation
- Marine and air transportation
- Long-term electrical storage

Clean hydrogen is essential to reach “net-zero” given its unique ability to eliminate hard-to-abate CO₂ emissions – Monolith is the low-cost, CO₂-free producer of clean hydrogen today

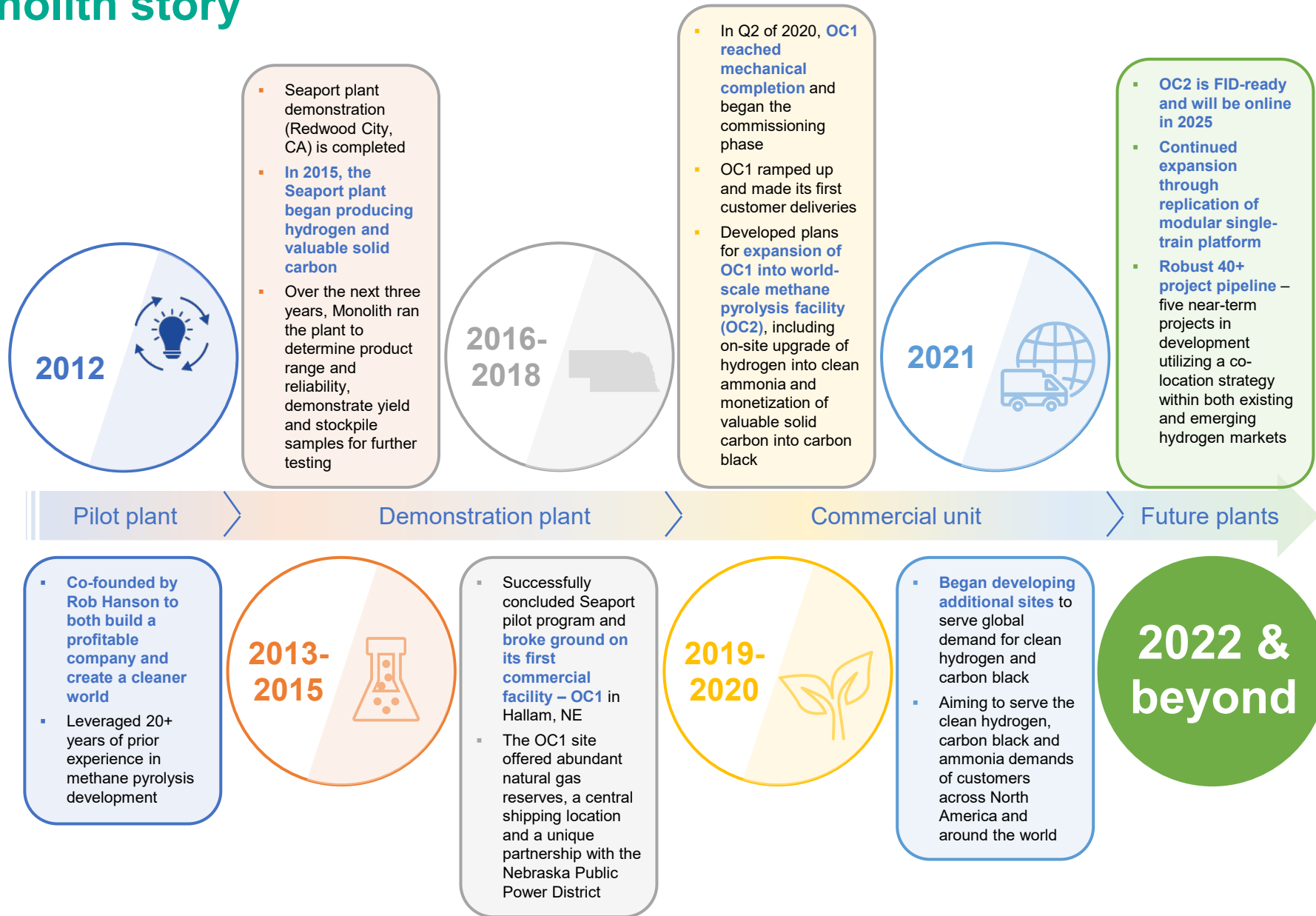
Source: IRENA World Energy Transitions Outlook and Goldman Sachs Carbonomics equity research
Note: Other sources of CO₂ abatement include carbon capture and additional technological advancements

Monolith produces clean hydrogen from electricity and natural gas



Monolith's proprietary methane pyrolysis technology uses renewable electricity to split natural gas into hydrogen and highly valuable solid carbon materials without emitting CO₂

The Monolith story



Olive Creek I is the first commercial scale methane pyrolysis facility built in the US and Monolith is FID-ready on its next facility

Olive Creek I (OC1)

Production capacity	<ul style="list-style-type: none">Hydrogen: ~4 ktpaValuable carbon: ~13 ktpa
Electricity	<ul style="list-style-type: none">Avg. Load ~18 MW
Completion	<ul style="list-style-type: none">June 2020
Location	<ul style="list-style-type: none">Nebraska, United States
Technology	<ul style="list-style-type: none">Full commercial scale reactor



Olive Creek II (OC2)

Production capacity	<ul style="list-style-type: none">Hydrogen: ~60 ktpaValuable carbon: ~180 ktpa
Electricity	<ul style="list-style-type: none">Avg. Load ~275 MW
Completion	<ul style="list-style-type: none">2025 (expected)
Location	<ul style="list-style-type: none">Nebraska, United States
Technology	<ul style="list-style-type: none">Two 6-reactor trains (same scale as OC1)



Management team with combination of technology development and execution capability...

Rob Hanson

Co-Founder, Chief Executive Officer, Director

- Co-founded Monolith in 2012
- Former global director of product management at AREVA Solar
- M.S. Mechanical Engineering, Stanford



James (Tim) Rens

Chief Financial Officer

- 30+ years of accounting / finance experience
- Former CFO at Philadelphia Energy Solutions, Executive AirShare, and CVR Energy
- B.S. Accounting, Central Missouri State



Matt Harper

Chief Information Security Officer

- Former Chief Information Security Officer for Devon Energy, and Cyber Special Agent with the Federal Bureau of Investigation
- B.A. Political Science and M.S. Public Administration, University of Missouri-Columbia



Dr. Tom Maier

Chief Technology Officer

- 35+ years of rubber / plastics experience
- Former R&D experience at Goodyear, Novagard, Americhem, and Tarkett North America
- Ph.D. Macromolecular Science and J.D., Case Western Reserve University; MBA, Wharton



Emily Olinger

Chief People Officer

- Former Chief People Officer at Spreetail, VP of Client Experience at mySidewalk, and Director of Client Support at NRC Health
- B.A. Psychology, University of Nebraska, Lincoln



Amy Ostermeyer

EVP of Development

- Former Director of Human Resources at Bryan Health and COO at Tabitha Healthcare
- J.D., University of Nebraska, Lincoln



Phil Joyner

VP of Manufacturing


- 25+ years of industrial manufacturing and operational leadership experience
- Has held several manufacturing leadership roles at various Koch assets including Georgia Pacific
- B.S. Chemical Engineering, USC





...is further supported by experienced directors and financial sponsors

Directors



The Honorable Bob Kerrey
Chairman



Rob Hanson
CEO, Co-Founder, Director



Bill Brady
Co-Founder, Director




Jonathan Garfinkel
Director



Independent / Non-independent

Pieter Houleberghs
Director



Wonsang Cho
Director



Supported by directors from existing shareholders

Financial and strategic sponsors



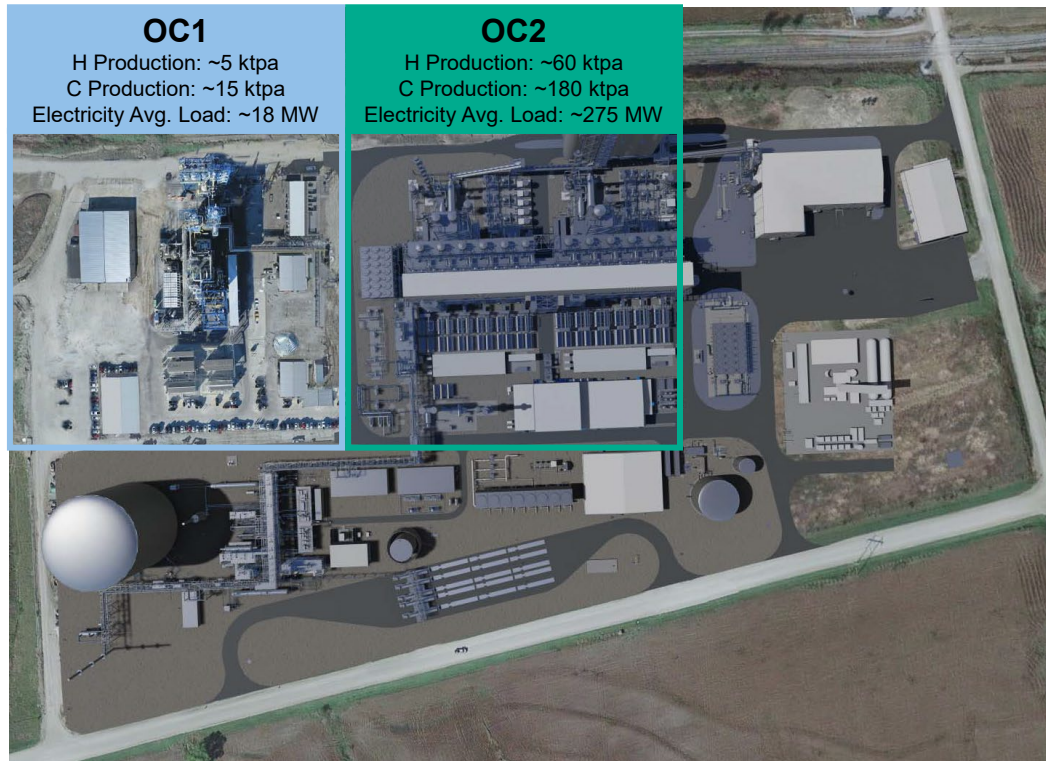
Note: Non-independent directors also include John Rowan, Stephen Trevor and Jeff van Steenberg



Olive Creek 2 Update

OC1 to OC2 scale-up

Olive Creek II (OC2) Facility	
Capacity	Hydrogen Production: ~60 ktpa; upgraded to ~275 ktpa of Ammonia Carbon Black: ~180 ktpa
Completion	2025 (expected)
Location	Nebraska, United States
Configuration	Two single trains (6 reactors and 1 back-end per train)



No technology scale-up is required

Front-end (core technology)

- Equipment supporting Monolith reactor all standard processing equipment with vendor guarantees
- OC2 scale-up multiplies OC1 process loops in parallel, no increased size in unit operations

Back-end

- Standardized carbon black process flow with the gold standard in equipment suppliers
- Monolith has successfully demonstrated quality carbon black pellets to the storage silos.

Ammonia

- Monolith has partnered with KBR, a global leader in ammonia synthesis
- Working in tandem with gas suppliers to ensure high purity hydrogen gas feed to a 300 ktpa synthesis loop

Monolith: IRA Bill Impact

H2 PTC Breakdown

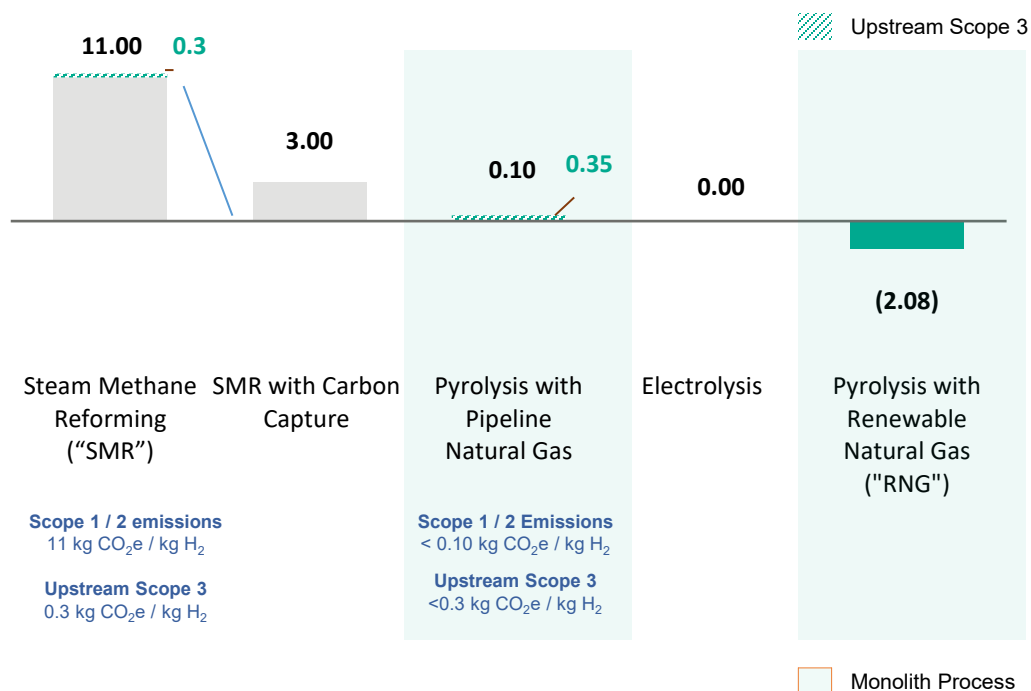
- Section 45V of the IRA creates a new 10-year incentive for clean hydrogen production for use or sale
- PTC applies to clean hydrogen production after 2022 at a qualifying facility on which construction starts before 2023
- Allows for 5-years of direct pay of tax credits; introduces a new concept of directly selling tax credits to unrelated parties
- Credit measures emissions up to the point of production (**well-to-gate**) using the GREET model
- Credit amount equals \$3.00 / kg ⁽¹⁾ multiplied by the applicable percentage of emissions reduction, resulting in the following sliding scale (which is adjusted for inflation starting in 2023):
 - **<0.45 kg of CO₂e: 100%**
 - **0.45 kg of CO₂e – 1.5 kg of CO₂e: 33.4%**
- Additional optionality to claim ITC in lieu of PTC

(1) Subject to prevailing wage and apprenticeship requirements

Line of Sight to Lowest Hydrogen Carbon Intensity

Well-to-Gate (Scope 1 / Scope 2 and upstream Scope 3 kg CO₂e / kg H₂)

- >95% reduction in CO₂ emissions versus SMR
- Majority of emissions is Scope 3 emissions associated with upstream pipeline natural gas

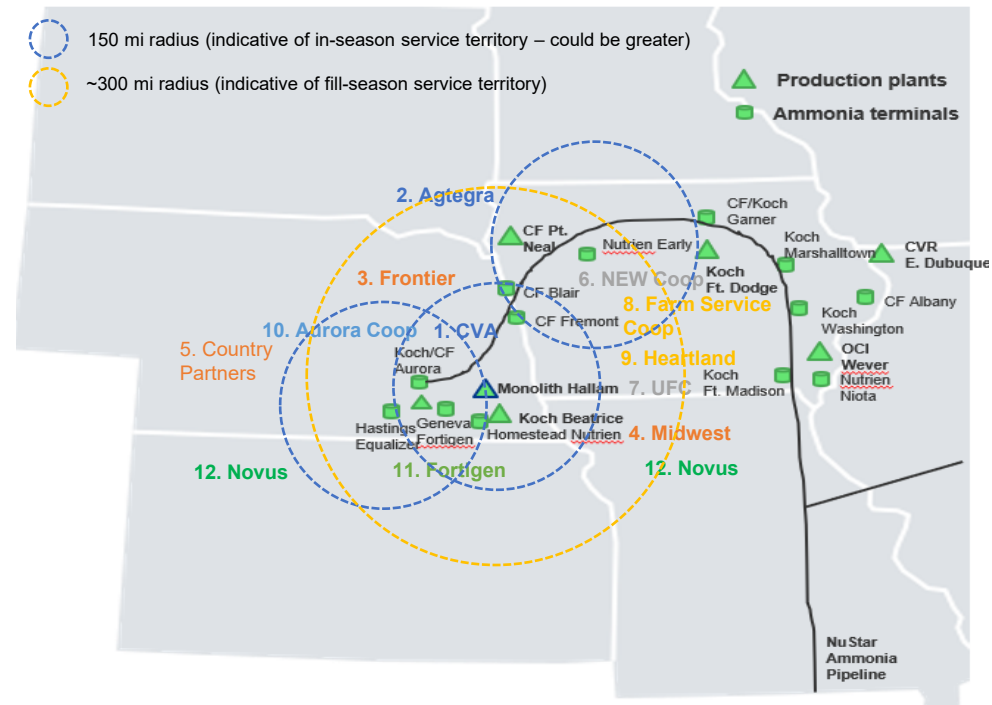


Note: Electrolysis and pyrolysis assume 100% renewable energy. RNG refers to "renewable natural gas"
 Sources: NREL Hydrogen Analysis (H2A) Production Models, Version 3.2108, Central SMR without CCUS; NREL Hydrogen Analysis (H2A) Production Models, Version 3.2108, Central SMR with CCUS; Based on third party study using GREET1_2020 and AR5 GWP (CO₂, N₂O, CH₄); NREL Hydrogen Analysis (H2A) Production Models, Version 3.2108, Central Electrolysis (Process emissions only); Based on third party study using GREET1_2020 and AR5 GWP (CO₂, N₂O, CH₄)

Monolith potential ammonia market

- ~1,750 tonnes of Ammonia imported into the US Cornbelt to meet Ammonia demand
- Monolith’s production will primarily be sold in Nebraska, northern Kansas, northern Missouri and western Iowa where sales will be primarily focused on the local market near the plant with additional sales requiring leasing off-site tanks to store product for sales in the spring, fall, and fill seasons

Updated Customer Forecasts (metric tons)	
CAS (Consolidated Ag Solutions)	45,000
1. Central Valley Ag	40,000
2. Agtegra	5,000
WinField United (Land of Lakes)	85,000
3. Frontier	30,000
4. Midwest Coop	25,000
5. Other (Country Partners + Others)	30,000
Kiefer Group	15,000
6. NEW Coop	6,000
7. United Farmers Coop	9,000
United Services Association	5,000
8. Farm Service Coop	3,500
9. Heartland Coop	1,500
10. Aurora Coop	25,000
11. Fortigen (Tetrad) - 50% Farmers Coop	30,000
12. Novus	20,000
Other Ag Retailers (Nutrien, Agriland, Helena)	30,000
Industrial	20,000
Kugler - Culbertson (ATS)	15,000
Other (APP/Lyzine)	5,000
Total	275,000

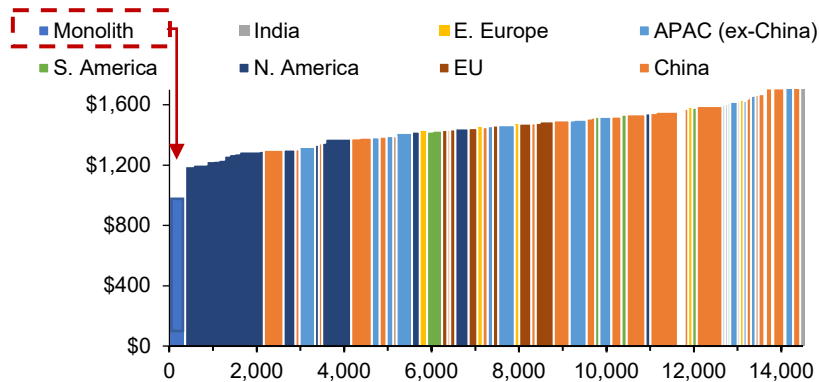


Total NE, KS, IA demand is ~1,270 Tonnes

Carbon Black enables a low-cost clean hydrogen solution without government incentives

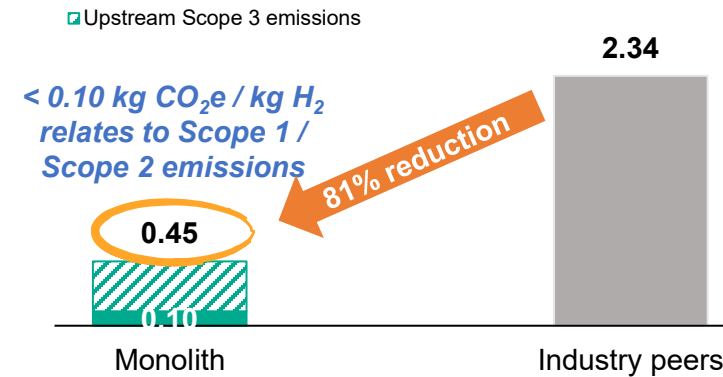
US carbon black cost curve (\$ / tonne)¹

Already competitive: The low-cost producer at scale



Carbon black CO₂ footprint (tonne CO₂ / tonne)

Reduced carbon footprint compared to competition



The tire industry is focused on reducing their carbon footprint...

"Goodyear's net-zero goal and alignment to SBTi (Science Based Targets initiative), reflect our commitment to sustainability and reducing our carbon footprint."

Richard Kramer,
Goodyear Chairman,
CEO and President



Climate strategy by 2050

Achieve carbon neutrality across:

- Entire manufacturing base,
- Logistics operations,
- Raw materials and components supply chain

"In 2050, Michelin tires will be 100% sustainable throughout their entire life cycle."



long-term environmental vision 2050 and beyond:

"Bridgestone has announced its goal of achieving carbon neutrality in its long-term environmental vision for 2050 and beyond, along with its target of reducing absolute CO₂ emissions by 50% from 2011's level by 2030."



Source: Equity research and company documents

Note: Monolith hydrogen costs per kilogram allocate costs between carbon black and hydrogen on a mass basis; Allocated costs include electricity, natural gas, variable costs, fixed costs, operating and maintenance, and overhead; 2026 reference year chosen to reflect the first full year of OC2 operations. Equity research assumes respective capex per kWh of \$910, \$1,583, \$872, for SMR (Today), SMR & CCS (Today), and Electrolysis (Today), natural gas prices of \$3.00 / MMBtu, methane pyrolysis (2030) assumes power prices of \$20 / MWh, Electrolysis (2030) assumes capex per kWh of \$269 and power prices of \$20 / MWh

¹ Vertical axis represents cash production cost + shipping cost (\$ / tonne); horizontal axis represents global nameplate capacity (kMT)

OC2 is FID-ready



Already completed

Engineering status

- ✓ Proven core technology
- ✓ FEED complete with Kiewit
- ✓ Lump-sum turnkey EPC contract with appropriate performance and schedule LDs
- ✓ KBR selected for ammonia technology

Commercial status

- ✓ Facility is fully permitted for construction
- ✓ 65-year lease on site
- ✓ 5-year incentive (low-cost) electricity rate schedule
- ✓ Long-term power agreement beyond the 5-year incentive period
- ✓ 20+ year pipeline agreement for natural gas delivery

Market status

- ✓ MOUs in place with key tire customers for carbon black offtake

Financing status

- ✓ Received conditional commitment for a \$1.04 billion loan from the US DOE Advanced Fossil Energy Projects program established via the Title XVII Innovative Energy Loan Guarantee Program at attractive rates with a 10-year maturity



Next steps

- EPC contract to be executed
- Negotiate long-term renewable electricity agreement(s)
- Convert portion of MOUs to offtakes with margin protection
- Project equity financing



Thank you