



**Extraction of Fresh Water, Rare Earth and
Essential Minerals from Oil/Gas**



Produced Water

Kevin Thimmesch

- Chief Operating Officer for Eureka Resources
 - BS Biology
 - MS Industrial Hygiene
 - Experience
 - 29 years of mineral extraction
 - EHS (environment health and safety)
 - Sales including retail and industrial
 - Marketing
 - Business management
 - Operations
 - Procurement and Supply chain
 - Mergers and Acquisitions

Eureka Resources

- Is an environmental solutions company.
- We utilize patented technology for advanced treatment of Oil and Gas waste-water turning that waste into valuable resources including:
 - Fresh Water-(meets USEPA Drinking Water Standards)
 - High Purity Evaporated Salt (sold into retail as pool salt)
 - Calcium Chloride (sold into the oil and gas industry with plans for retail sales)
 - Methanol (sold to gas compression and biodiesel industries)
 - Oil (sold into the refinery industry)
 - Lithium (sold into the ion battery industry)
 - Iodine (sold into the medical industry)

Snapshot of Eureka Resources

Overview

- Eureka's patented processes enable us to be the only company in the advanced water treatment industry to meet EPA drinking water standards while extracting valuable minerals and co-products.
 - Oil, Methanol, Sodium Chloride, Calcium Chloride, Lithium are all extracted in our water treatment process and sold into a variety of diverse markets.
- Eureka provides a clean reliable and responsible water solution for oil and gas companies while reducing environmental exposure and costs relative to conventional saltwater disposal wells.
- Eureka's ability to recover and produce lithium positions it uniquely in the energy transition landscape.

Standing Stone Facility



1st and Only

In the water treatment industry to meet EPA drinking water standards

100

Dedicated Employees.

13

Years of operation in the Marcellus Shale Play

1st and Only

Advanced Treatment company capable of extracting valuable minerals from produced water

>50 Million

Gallons of wastewater treated per year.

6

Patents issued with 4 US and 2 Canadian patents.

1st and Only

Advanced water treatment company with an NPDES discharge permit.

3

Facilities currently operational in the Marcellus Shale Play

>200

Years of leadership and expertise in wastewater management and Mineral Extraction Industries.

1st and Only

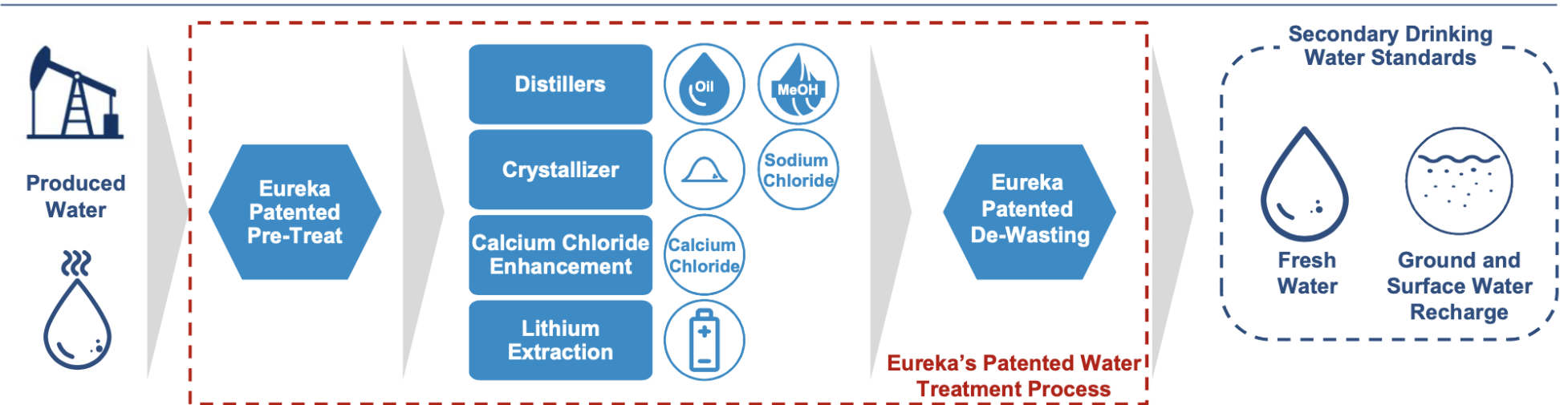
Advanced treatment company capable of extracting Petro-Lithium.

Eureka Overview

Eureka is the only company to successfully commercialize a process which (i) recovers valuable co-products including lithium, (ii) produces fresh water which meets EPA standards for secondary drinking or discharge to the environment and (iii) is appropriate for many other commercial uses

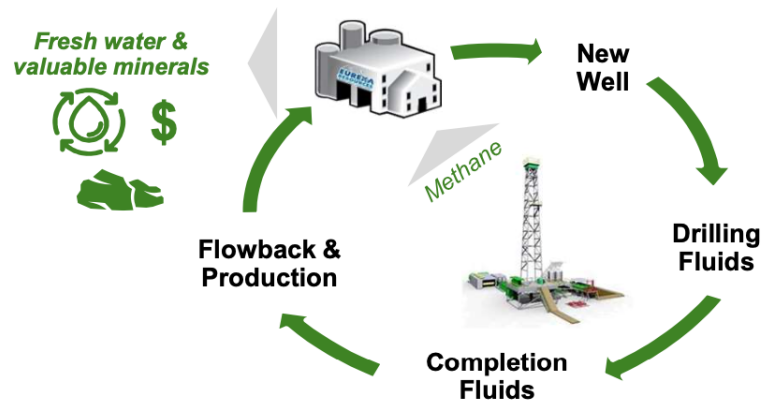
- Eureka has leveraged water treatment and salt evaporation technologies to create a unique, patented treatment process to extract minerals from high salinity wastewater, while returning fresh water to secondary drinking water standards
- Eureka currently operates two advanced water treatment facilities
 - ▶ One facility in Williamsport, PA (“Second Street Facility”) and one in Standing Stone, PA (the “Standing Stone Facility”)
- As a result of recently signed long-term contracts, Eureka plans to construct the Susquehanna Facility, Bradford Mineral Works and the Second Street Crystallizer (collectively the “Expansion Facilities”)

Eureka Water Treatment Process Overview

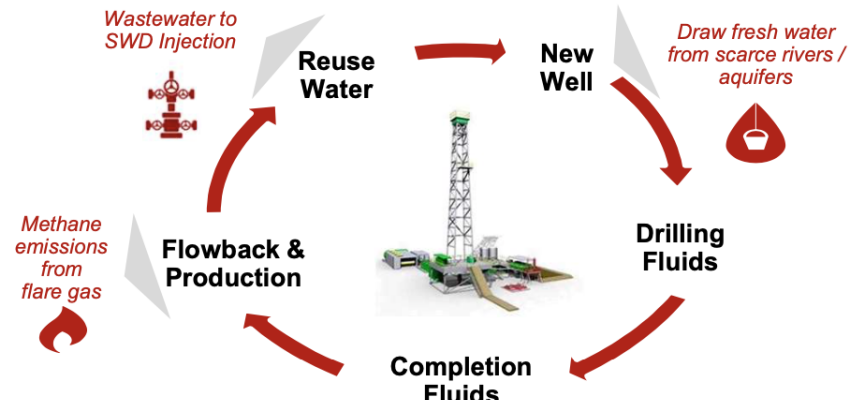


Eureka's Technology has Clear Environmental Advantages

Eureka's Environmentally Optimized Solution



Typical Oil & Gas Hydrological Cycle

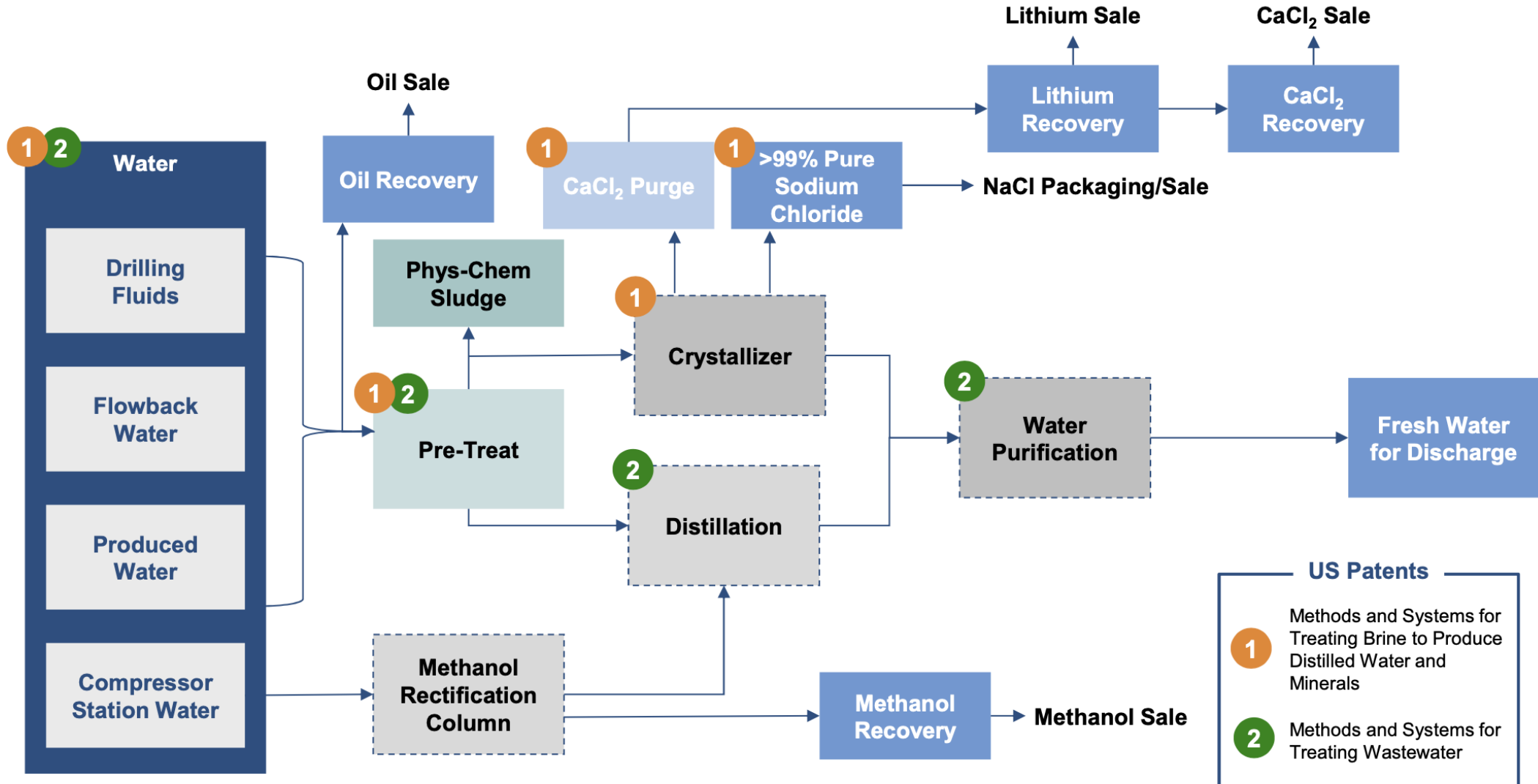


Eureka Versus the Status Quo

		Eureka Resources		Status Quo	
	Scarce Surface & Aquifer Water	✓	Treated water is reused by producers or other customers	✗	Consumes precious surface and / or aquifer water
	Excess Methane Gas	✓	Used for power generation in large-scale plants	✗	Flared into the atmosphere, emitting CO ₂
	Mineral Production	✓	Water treatment co-products providing high quality, responsibly sourced raw materials	✗	Typically sourced outside the US at higher cost
	Excess Water	✓	New source of fresh water and valuable minerals	✗	Injected back into the ground using SWDs with seismicity risk
	Hydrological Cycle	✓	INTACT	✗	BROKEN

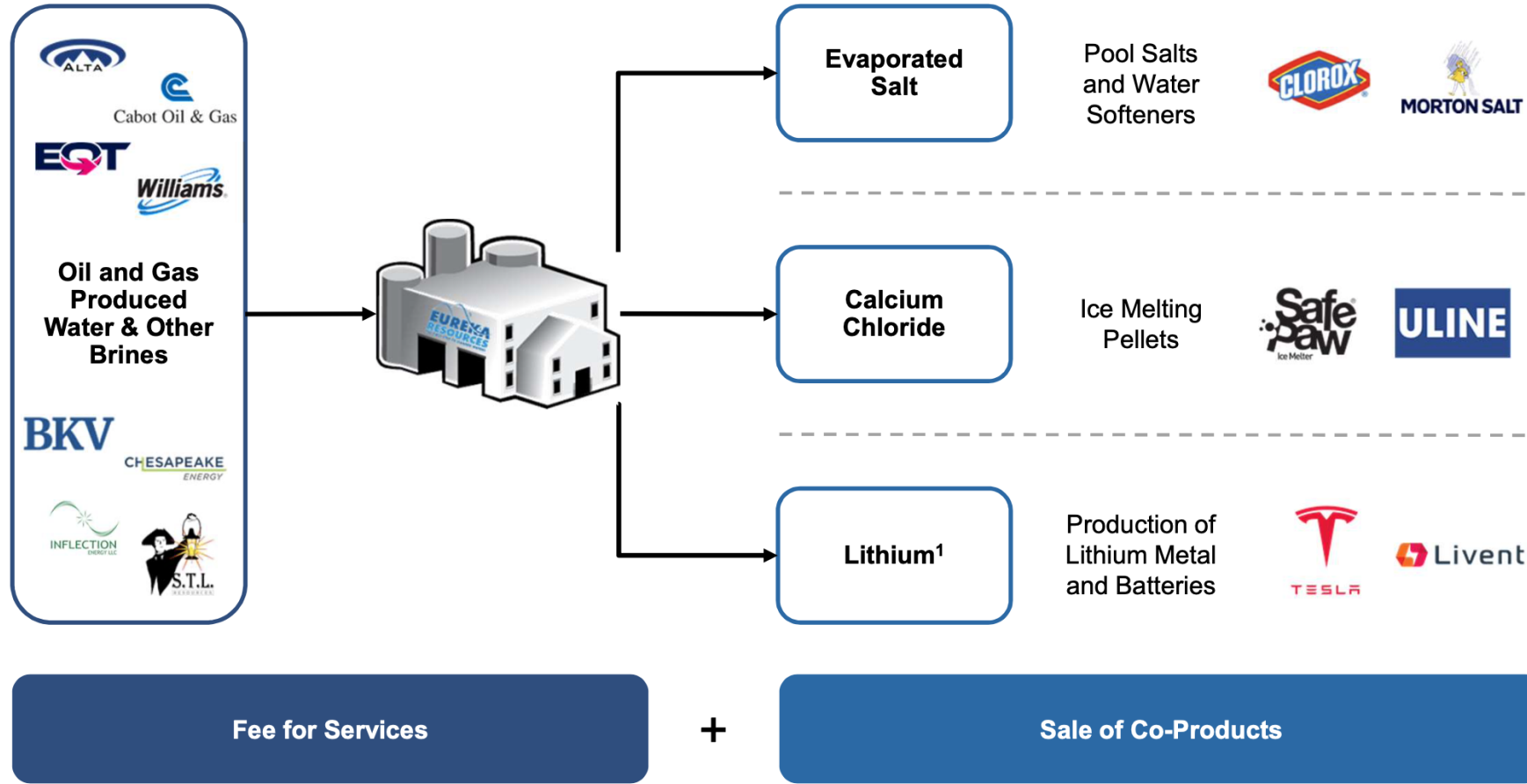
Process Overview

Eureka's proprietary, patented treatment process makes it the only water treatment company that has successfully commercialized treatment of produced water to meet river discharge standards while monetizing valuable lithium, sodium chloride and calcium chloride



Eureka's Business Model

Environmentally Friendly Minerals to Diversified End Markets



Co-Product Extraction and Marketing

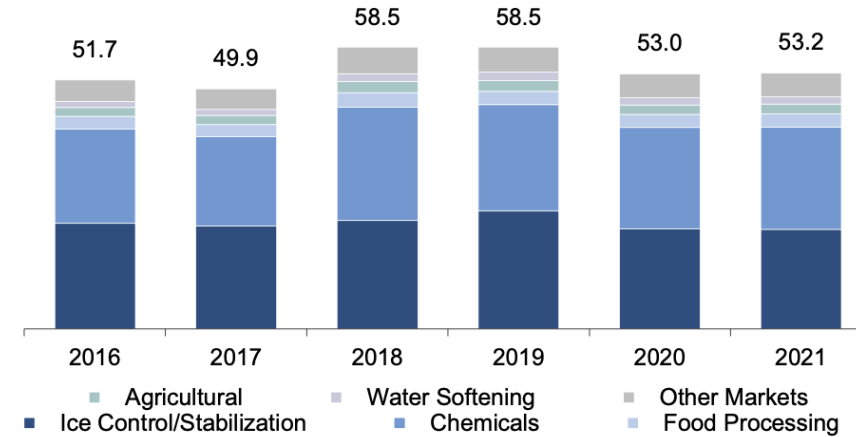
Overview of Sodium Chloride Market and Pricing

By 2024 Eureka will produce approximately 43,000 tons of salt annually, equals to approximately 0.2% of imported salt

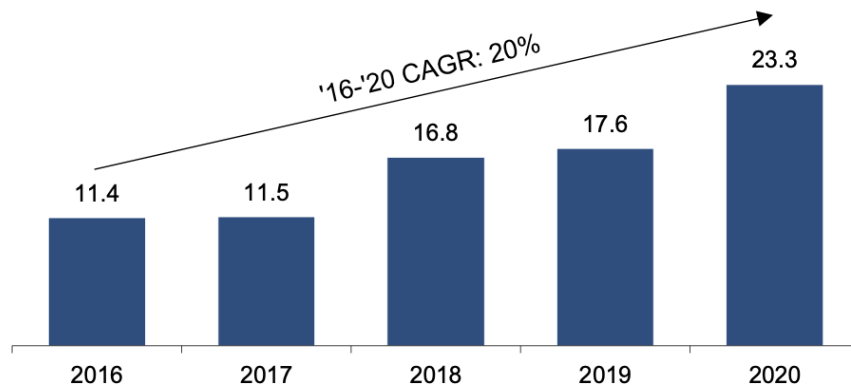
Key Trends by End User Market

- Estimates for sodium chloride demand growth varies
- Chemical production accounted for over half of the Sodium Chloride market share in 2019
- **US Market:** Demand for salt is forecast to total 59.6 million metric tons in 2025, representing a 2.4% average annual increase from 53.0 million metric tons in 2020
 - ▶ Increases reflect a return from the pandemic-related drop in 2020
- **Industrial:** Salt consumption in chemical manufacturing is expected to grow 1.4% annually to 22.6 million metric tons through 2025

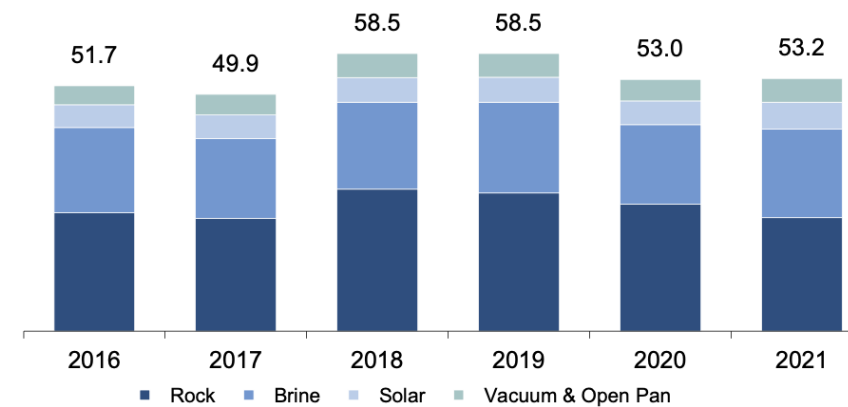
US Salt Demand by Market (MMT)



Net US Salt Imports (MMT)



US Salt Demand by Product (MMT)



Co-Product Extraction and Marketing

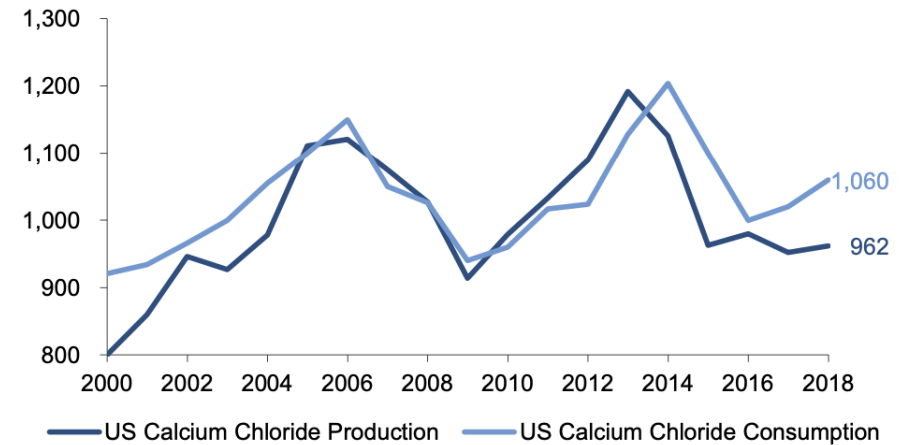
Overview of Calcium Chloride Market and Pricing

By Q1 2024 Eureka will produce approximately 40,000 tons of calcium chloride annually, equal to approximately 3% of Chinese imports¹

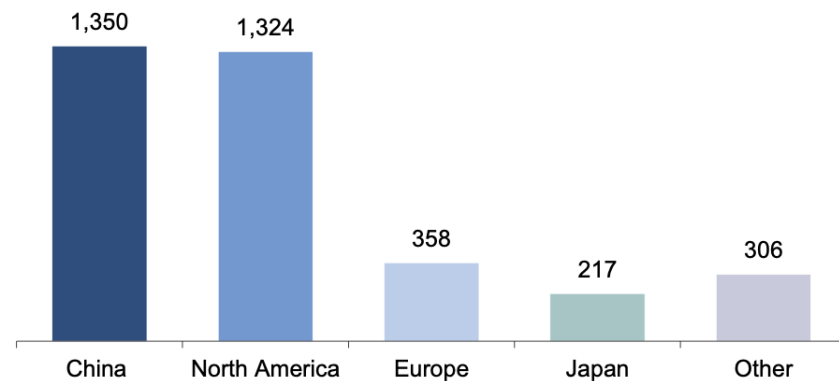
Key Trends by End User Market

- Total consumption of calcium chloride is expected to increase at 0.5% per year through 2023
 - ▶ Recovery in the energy sector and deicing segments are difficult to predict due to price sensitivity to oil prices and weather conditions
- **Deicing:** Deicing revenue is driven by flight volumes in cold weather areas
 - ▶ Calcium chloride consumption for deicing is decreasing relative to salt given pricing and deicing characteristics
- **Dust Control:** Dust control applications are expected to grow
 - ▶ Calcium chloride used to bind fine dust to increase air quality in urban areas

US Calcium Chloride Production vs. Consumption (kT)

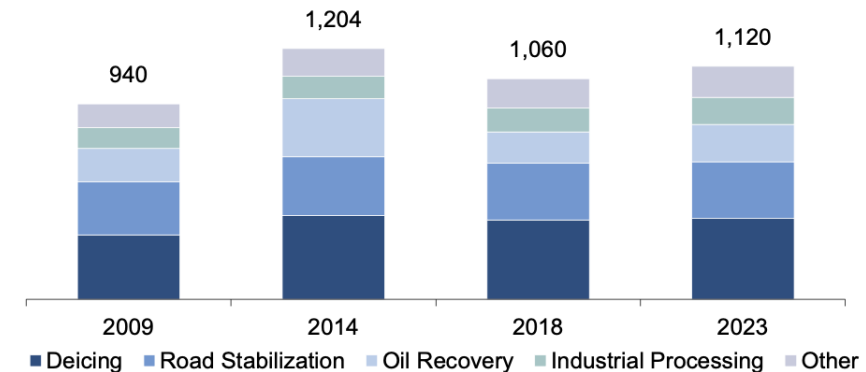


2018 Global Calcium Chloride Production (kT)



Source: IHS
1. Based on IHS 2018 volumes

US Calcium Chloride Consumption by Sector (kT)



Co-Product Extraction and Marketing

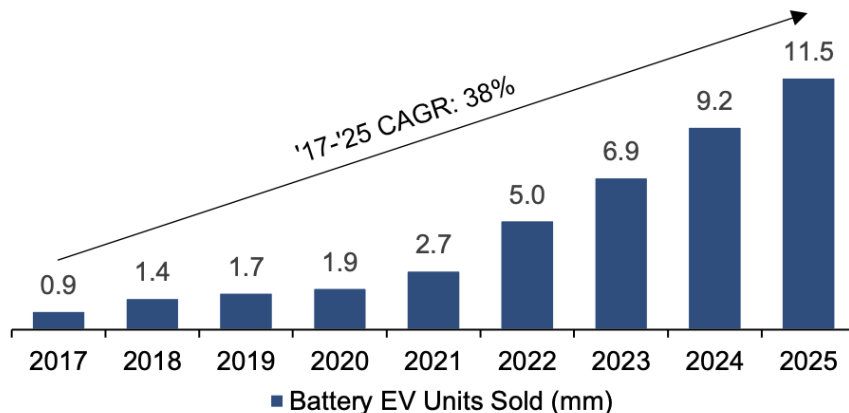
Overview of Current Lithium Market and Pricing

Eureka is currently forecast to produce over 4,000 metric tons of lithium annually by 2025

Key Trends by End User Market

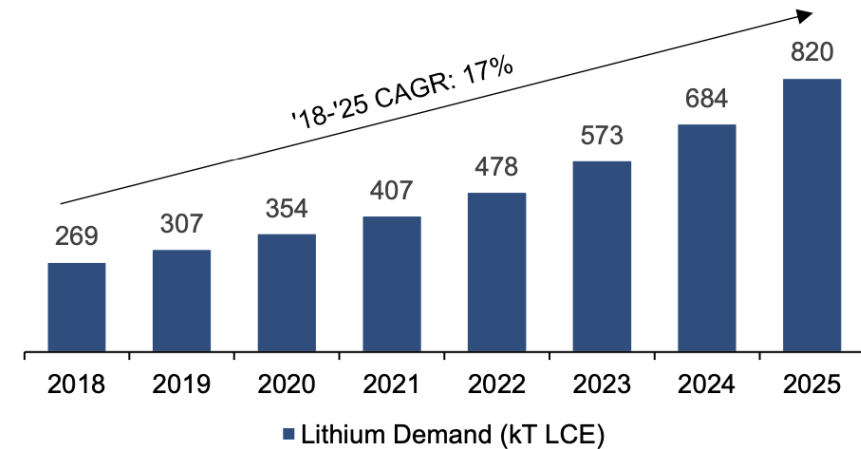
- **Energy Storage:** Rapidly growing market driven by accelerating adoption of EVs, particularly in China and Europe
 - ▶ Rechargeable batteries used extensively in portable electronic devices, tools and renewable energy / grid storage applications
 - ▶ Lithium currently provides the best combination of energy density and price for battery production
- **Industrial:** Remains a GDP growth-driven sector
- **Specialties:** Additional growth driven largely by niche automotive uses and pharmaceutical applications with growth from aging population trends

Global Battery EV Demand

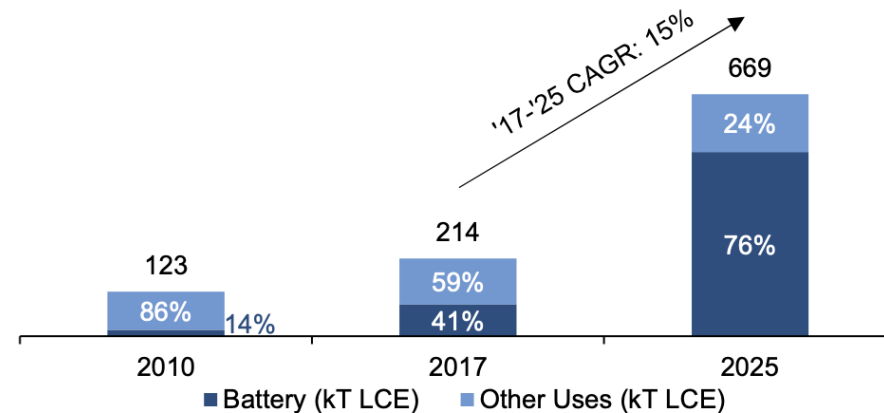


Source: SQM, McKinsey, Frost & Sullivan Estimates

Total Lithium Market Demand (SQM Estimates)



Total Lithium Market Demand (McKinsey Estimates)



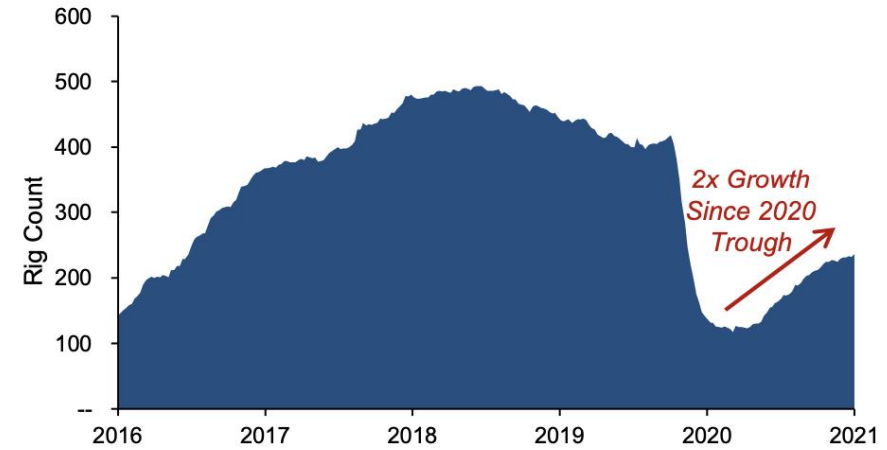
Overview of the Water Treatment Industry

Produced Water Treatment Overview – Other US Basins

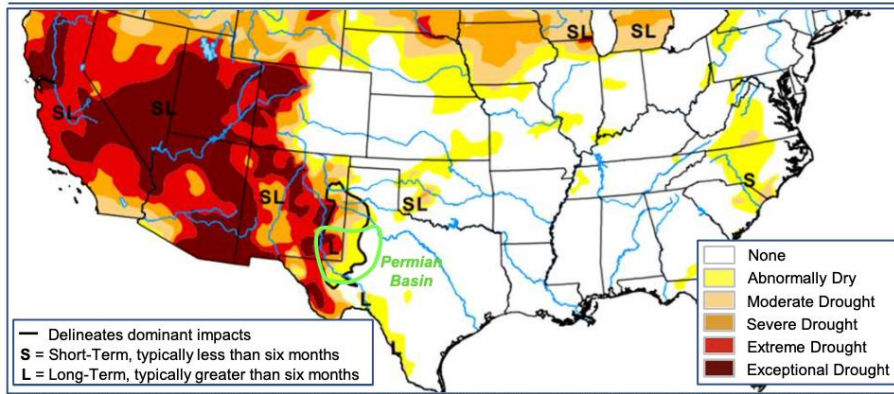
Eureka is positioned to treat water in basins that have high amounts of produced water, as well as, basins with high concentrations of dissolved minerals

- Depending on its geology, shale formations produce varying amounts of produced water
 - ▶ High Water Generation (over 1,000 gallons per MMcf): Permian Basin and Barnett Shale
 - ▶ Medium Water Generation (200 – 1,000 gallons per MMcf): Eagle Ford, Haynesville and Fayetteville
- As drilling continues to increase in the Permian Basin (Delaware Basin and Midland Basin) with a projected 38 MMBpd of produced water, it will become increasingly difficult for producers to dispose of wastewater
 - ▶ Through a series of facilities in the region, Eureka will be well positioned to capture market share comparable to its current 3% in the Marcellus, which would exceed 340 MBpd of produced water, based on the Permian's current over 11 MMBpd of produced water
- Increasing droughts in the arid southwest US will further drive demand for fresh water from treatment infrastructure

5-Year Permian Rig Count Evolution

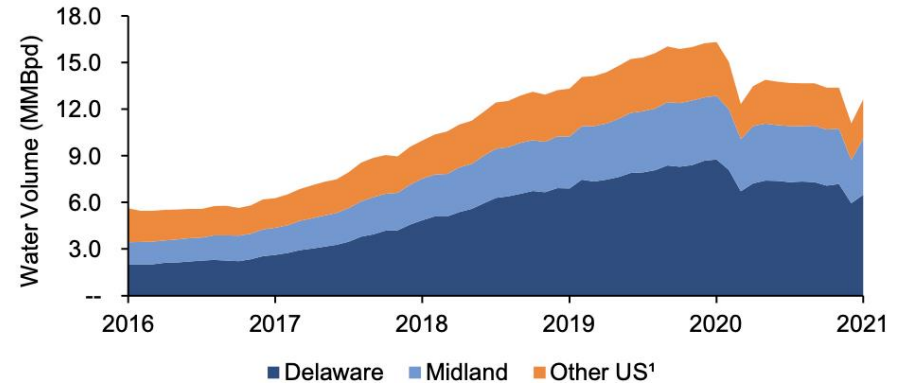


US Drought Intensity



Source: Environmental Protection Agency, US Drought Monitor as of 06/22/21 and Wall Street Research
 1. Includes Bakken, Barnett, Eagle Ford and Haynesville

Produced Water by Basin



Thank You!

Kevin Thimmesch

Chief Operating Officer

315 Second Street

Williamsport, PA

k.Thimmesch@eureka-resources.com

(913) 481-3856