

## LSB Industries, Inc. (NYSE: LXU)

Price Target: \$12.35  
Rating: Buy

## Comprehensive Report

November 30, 2021

### Stock Information

Current Price: \$9.78  
52-Week Range: \$1.81 - \$10.86  
Avg Daily Volume: 310,586  
Dividend Yield: -  
Shares Out (MM): 88.8  
Float %: 30.6%

Market Cap (MM): \$868.5  
Preferred Stock\* (MM): \$3.0  
Total Debt (MM): \$469.9  
Cash (MM): \$32.9  
Enterprise Value (MM): \$1,308.5

### Financial Metrics

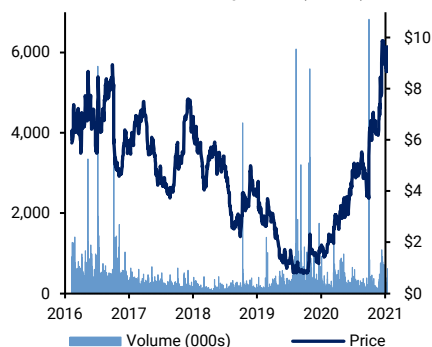
TTM Revenue (MM): \$454.9  
TTM Adj. EBITDA (MM): \$111.4  
EV/EBITDA: 11.7x  
Tangible BV/Share: \$4.42  
P/TBV: 2.2x

## LSB Industries, Inc. Comprehensive Report – with a Deep Dive on Blue and Green Ammonia

LSB Industries, Inc. ("LSB") recently recapitalized its balance sheet, paving the way for accelerated investment in high-margin internal growth projects and acquisitions. An exceptionally strong upcycle for ammonia and ammonia-based products suggests that our bull-case scenario (presented herein) could materialize over the coming quarters, supporting our price target of \$12.35. Over the long term, increasing industrial interest in blue and green ammonia could spur end-market demand far exceeding current supply as ammonia becomes widely recognized as a front-runner for clean energy generation.

- Management has led a multiyear operational and cultural turnaround.
- Over the last two months, LSB exchanged its Series E Preferred for common stock and refinanced its 9.625% senior secured notes due 2023, lowering net debt/ EBITDA from 11.4x at YE 2020 to an estimated 3.4x at YE 2021. With fewer capital restraints, LSB will be better positioned to undertake accretive growth opportunities.
- Strong end-market demand, low inventories, high input costs curtailing European production, and Russian and Chinese export restrictions are resulting in decade-high prices for ammonia and ammonia-based products. We believe current market dynamics support our bull-case scenario, which implies a target price of \$12.35.
- LSB has made clear its intent to grow through acquisition. The company's recapitalized balance sheet should accommodate reasonable acquisition financing, and we expect potential acquisitions to dovetail with the company's existing businesses.
- Potential tariffs on UAN imports could help buoy domestic prices.
- We estimate that every 1% improvement in LSB's on-stream rate improves EBITDA by \$5 million to \$6 million at current price levels. Improving on-stream rates by 3% to 5% – which we believe is reasonable – could increase EBITDA by \$15 million to \$30 million.
- The Leidos Lawsuit remains a potential windfall of \$100 million or greater. We expect any award to LSB would be used to fund further growth ambitions or be returned to shareholders.
- ESG: Increasing industrial interest in blue and green ammonia could spur substantial end-market demand. Blue and green ammonia is not currently supplied or marketed in commercially significant volumes. We expect ammonia to emerge as a front-runner for clean energy generation.
- 45Q tax credits, which were expanded in December 2020, are available to industrial facilities that capture and store CO2 that would otherwise be emitted into the atmosphere. LSB may be able to claim these tax credits by capturing carbon dioxide (a byproduct of ammonia synthesis) at its facilities. We believe these tax credits have been and will continue to be a catalyst for investment across the industry.

LSB Price and Trading Volume (5 Years)



All compensation received for coverage is in cash, not stock (or stock warrants); see analyst certification and disclosures at the end of this report.

## Valuation

We lower our price target to \$12.35 from \$13.50 primarily due to a modest upward revision in fully diluted share count in our valuation calculation to more accurately reflect the conversion of the Series E Preferred to common stock, as well as a decrease in forecasted cash of about \$30 million through our forecast horizon (YE 2022). Our forecasted adjusted EBITDA (\$226.0 million) and EV/EBITDA multiple (7.0x) are unchanged.

Our \$12.35 price target is based on a 7.0x EV/EBITDA multiple applied to our bull-case scenario adjusted EBITDA estimate of \$226.0 million. A 7.0x multiple is well below LSB's five-year low/high EV/EBITDA range of 10.7x to 13.1x, but we believe it appropriately reflects a peak-cycle valuation. Our bull case scenario does not assume acquisitions or a favorable award from the Leidos Lawsuit, and while it contemplates modest growth capital expenditures, larger opportunities for internal investment are not incorporated.

We believe our bull-case scenario price inputs are reasonable against the backdrop of the current market environment, which has been characterized by multiyear price highs for ammonia and many ammonia-based products. Specifically, we assume an average annual Tampa ammonia price of \$545/mt and commensurate prices for LSB's other ammonia-based products, which drives adjusted EBITDA of \$226.0 million. \$545/mt is well below quoted market prices as of the date of this report, and is consistent with price realization experienced since FQ2 2021. Several factors have combined to support recent high price levels, including low global ammonia inventories, significant curtailment of European production due to high natural gas input costs, export restrictions in Russian and Chinese markets, and strong end-market demand.

## Company Description

LSB engages in the manufacture, marketing, and sale of chemical products for use in agriculture, industrial, and mining markets. LSB owns and operates three chemical manufacturing facilities in El Dorado, Arkansas; Cherokee, Alabama; and Pryor, Oklahoma; and operates a chemical manufacturing facility in Baytown, Texas, on behalf of Covestro AG. The company's products include anhydrous ammonia, urea ammonium nitrate solutions (UAN), and high-density ammonium nitrate (HDAN) for agricultural applications; anhydrous ammonia, nitric acid commercial blends, concentrated nitric acid, mixed acid, diesel exhaust fluid, and sulfuric acid for industrial applications; and ammonium nitrate (AN) solutions, and low-density ammonium nitrate (LDAN) for mining applications. LSB is headquartered in Oklahoma City, Oklahoma, and the majority of its sales are conducted in North America.

Tons Per Year	El Dorado	Cherokee	Pryor	Total
Plant (Acres)	150	160	47	
Site (Acres)	1400	1300	104	
Capacity (Tons per Day)	1350	515	650	
<b>Agriculture</b>				
Ammonia			85	85
UAN		210	350	560
HDAN	275			275
<b>Industrial and Mining</b>				
Ammonia	230	45		275
Nitric Acid	150	40	150	340
LDAN	130			130
AN Solutions	25	55		80
DEF		15		15
Sulfuric Acid	160			160
Carbon Dioxide	80	110	85	275

Source: LSB Industries, Granite Research

**Table 2: Strategic Advantages of Facilities**

<u>Facility Name</u>	<u>Annual Ammonia Production*</u>
<b>El Dorado, AR (Owned)</b> Access to the Nustar pipeline provides supply and offtake flexibility. Advantaged freight rates for customers west of the Mississippi River. Access to western United States via direct rail routes.	<b>493,000 Tons</b>
<b>Cherokee, AL (Owned)</b> \$8-10/ton freight advantage vs. UAN shipments originating in the Gulf. Barge, truck, and rail access provides logistics optionality. Access to Eastern Corn Belt.	<b>188,000 Tons</b>
<b>Pryor, OK (Owned)</b> Proximity to Southern Plains and Northern Plains markets.	<b>246,000 Tons</b>
<b>Baytown, TX (Operated on Behalf of Covestro AG)</b> Long-term nitric acid supply agreement.	

*\*Production volumes represent nameplate capacity; we expect long-term on-stream rates of 95%.*

*Source: LSB Industries, Granite Research*

## End Markets

**LSB manufactures products for two primary markets: industrial and mining, and agriculture. Historically, the industrial and mining market generates about 50% of annual revenue and carries an adjusted gross margin of approximately 32% to 40%, while the agriculture market generates about 50% of annual revenue and carries far more variable adjusted gross margins.**

As a manufacturer of ammonia-based agricultural fertilizers, LSB's stock price movement often tracks highly cyclical ammonia fertilizer markets. LSB's agriculture market typically involves sales based on variable spot market pricing; therefore, revenue and gross margins can vary significantly. Financial results in the agriculture market are largely dependent on selling prices, production volumes, and efficiency.

LSB's industrial and mining market is comparatively less cyclical. Approximately 45% of revenues attributable to industrial and mining products are tied to long-term contracts structured as cost-plus arrangements, providing stable revenue and attractive margins. Growth in these segments depends less on product pricing than on achieving additional commercial penetration and higher production rates.

The **agriculture** end market serves customers primarily in the central United States, with the Southern Plains region representing the most significant geographic end market. In the agriculture market, LSB manufactures ammonia, fertilizer grade ammonium nitrate prills (HDAN), and urea ammonia nitrate (UAN). We believe LSB is the largest producer of HDAN in the U.S., followed by CF Industries, and that LSB is the second-largest producer of UAN in the U.S., with CF Industries being the largest. These products are used as fertilizers for crops with high nitrogen demand (corn, wheat, milo, cotton) and to fertilize pastureland for grazing livestock. FY 2020 agricultural product sales were \$180.0 million, representing 51.2% of total revenue.

The **industrial and mining** end market serves customers throughout the United States, Canada, and Mexico. LSB's industrial products include high purity and commercial grade ammonia, blended and regular nitric acid, low-density ammonium nitrate prills (LDAN), high purity AN, sulfuric acids, concentrated, mixed nitrating acids, diesel exhaust fluid (DEF), sulfuric acid, and carbon dioxide. Applications include the production of polyurethane, specialty fibers, manufacture of semiconductors, synthesis of plastics, abatement of emissions, metal processing, and pharmaceuticals. Large consumers of industrial products include the automotive, construction, power generation, and water treatment industries. FY 2020 Industrial products sales were \$133.0 million, representing 37.9% of total revenue. LSB's mining products include low-density ammonium nitrate (LDAN) and ammonium nitrate (AN) solutions for mining applications. These products are used in a variety of mining applications, including the mining of aggregates used as construction materials. Large consumers include coal, gold, copper, iron ore, and vanadium ore mining operations. FY 2020 mining products sales were \$38.3 million, representing 10.9% of total revenues.

## Natural Gas

Most ammonia plants, including all three of LSB's own ammonia plants, use natural gas feedstock to produce ammonia, which is the precursor to numerous ammonia-based products. As such, natural gas pricing is an important determinant of the economics of ammonia production. LSB's access to inexpensive natural gas feedstock is a particularly notable competitive advantage. At the El Dorado Facility and Cherokee Facility, natural gas feedstock pricing is approximated by Henry Hub spot pricing plus \$0.10 to \$0.15 per MMBtu of transportation costs. However, at the Pryor Facility, LSB generally purchases natural gas feedstock at a discount to Henry Hub pricing.

## Depreciation and Capital Expenditures

**Expected depreciation exceeds forecasted capital expenditures by a wide margin. Still, we believe current capital expenditure levels are appropriate** while recognizing that infrequent large capital outlays are likely necessary over the very long term. LSB's high depreciation expense stems from heavy investment in the El Dorado Facility between FY 2013 and FY 2016. Since then, ongoing capital expenditure levels have been much more tempered, generally falling between \$30 million and \$40 million annually. We estimate annual capital expenditures to fall between \$35 million to \$40 million going forward, a level that we expect to be sufficient to maintain the company's existing asset base and undertake periodic growth initiatives. Meaningful expansion is more likely to be undertaken by acquisition than by new plant construction, although incremental downstream product capacity additions and investments targeting blue and green ammonia production are possible. Depreciation in excess of capital expenditures detracts approximately \$0.35 from net earnings per share; therefore, we believe investors are better served by considering EBITDA and cash flow when evaluating the business.

## Management and Governance

**Mark Behrman has been the CEO of LSB since December 2018.** Mr. Behrman has been with the company since March 2014. Before assuming the CEO role, he had served as CFO since June 2015. He has over 30 years of financial and investment banking experience focusing on the industrial and business services sectors and has orchestrated numerous corporate transactions. Mr. Behrman's 2020 compensation totaled \$993,800, consisting of a base salary of \$650,000, \$336,000 in non-equity incentive plan compensation, and \$7,800 in all other compensation. He currently owns 2.3% of the outstanding common stock.

**Cheryl Maguire has been the CFO since December 2018.** Ms. Maguire has been with LSB since November 2015. Before her tenure at LSB, she held senior financial management positions at LyondellBasell (July 2012 – June 2015) and Petroplus (November 2006 – October 2010), where she was involved in accounting, external reporting, and corporate financing. Ms. Maguire's 2020 compensation totaled \$504,000, consisting of a base salary of \$370,000 and \$134,000 in non-equity incentive plan compensation. She currently owns 0.4% of the outstanding common stock.

**John Burns was hired as EVP Manufacturing in February 2020 to succeed retiring EVP Manufacturing John Diesch.** Mr. Burns was hired from Koch Industries, Inc., where he was employed since 1993 in various roles. Notably, from 2007 to 2014, he served as the Vice President of North American Nitrogen Operations, overseeing Koch's five nitrogen chemical manufacturing facilities and implementing maintenance and turnaround processes to enhance plant reliability. Most recently, Mr. Burns served as the Performance Innovation and Improvement Director at Flint Hills Resources, a Koch subsidiary. We believe he is qualified to build upon LSB's substantial progress in operational reliability. Mr. Burns's 2020 compensation totaled \$616,985, consisting of a base salary of \$316,346, \$187,139 in stock awards, and \$113,500 in non-equity incentive plan compensation. He currently owns 0.2% of the outstanding common stock.

**Damien Renwick was hired as the Chief Commercial Officer in January 2021.** Mr. Renwick has over 17 years of experience in the chemicals industry, most recently as chief commercial officer at Cyanco International, the world's largest producer and distributor of sodium cyanide. From 2003 to 2016, Mr. Renwick was employed by Wesfarmers Chemicals, Energy & Fertilizers, where he held various managerial positions. Mr. Renwick currently owns 0.1% of the common shares stock outstanding.

## Industry Overview, Competitive Positioning and Pricing

LSB's products are primarily ammonia and ammonia-based chemicals. Ammonia (NH<sub>3</sub>) is a compound of nitrogen and hydrogen synthesized when natural gas, water, and nitrogen (air) are heated in a high-pressure reactor. Ammonia serves as a precursor to almost every other product manufactured by LSB and is produced at all three of the company's owned facilities. Ammonia can be easily transported via rail, truck, barge, or pipeline.

About 190 million metric tons of ammonia are produced and traded globally on an annual basis. The U.S. Geological Survey estimates that 17.0 million metric tons of ammonia were produced, and 19.5 million metric tons of ammonia were consumed in the United States in 2020, with the difference of approximately 2.5 million metric tons imported. By contrast, LSB produced about 1.3 million tons of ammonia and ammonia-based products in FY 2020.

LSB operates in a highly competitive industry against many other larger chemical companies with substantial resources. Because ammonia and its derivative products are commodities, competition is based primarily on price. Pricing of delivered ammonia products is a function of proximity to the end customer and access to reasonable means of transportation. CF Industries Holdings, Inc., CVR Partners LP, Dyno Nobel, Koch Industries, Inc., Nutrien Ltd., and Yara International ASA are notable competitors.

LSB operates in the United States, which enjoys one of the lowest cost structures for ammonia production globally due to inexpensive and readily available natural gas feedstock. Between 2015 and 2019, an estimated 4.7 million tons of capacity were added in the United States, growing domestic capacity by approximately 50%. This additional tonnage ultimately impacted global production and distribution channels and negatively impacted pricing (Chart 1). Prices strengthened rapidly through 2021, suggesting that excess capacity has been absorbed. While there is potential for further global capacity growth, we do not foresee meaningful additional capacity coming online before 2025.

## Seasonality and Cyclicity

**Agriculture** - Because LSB's agriculture business is seasonal, we expect more robust financial results in the spring (March through June) and fall (September through November) periods. This pattern corresponds to fertilizer applications: anhydrous ammonia is applied to soil shortly after fall crop harvests conclude and prior to spring planting to replenish nutrients; UAN is applied to crops shortly after spring planting. Historically, financial results are strongest in the second quarter, followed by the first, fourth, and third quarters. The company's industrial and mining market is significantly less seasonal. In addition to seasonality, short-term fluctuations in revenue and profitability are affected by cyclicity (in both product pricing and demand) and temporarily decreased production capacity due to planned maintenance and plant turnarounds.

Fertilizer use is dependent on crop selection, soil conditions, weather patterns, and other environmental factors. As a result, almost all agriculture sales are based on spot pricing, driven by relatively short-term supply and demand. Sales of agricultural products typically range between 40% and 60% of LSB's quarterly revenue, but the volatility of unpredictable spot pricing can lead to gross margins that range from 0% to 50%.

**Industrial and Mining** - Sales of industrial and mining products exhibit minimal seasonality, although quarterly results can be affected by the timing of orders and product price fluctuations. Historically, industrial and mining product pricing has been determined by long-term contracts with pricing based on the Tampa Ammonia Index, providing stability of earnings. However, recent contract awards have trended towards pricing based on natural gas to more aptly reflect the cost of production.

LSB's industrial and mining markets tend to follow economic cycles. Demand for LSB's industrial and mining products decreased in FY 2020 as activity in end markets slowed due to the COVID-19 pandemic, although has since recovered. In addition, production volumes for industrial and mining products accelerated substantially in FY 2021 as new contracts the company was awarded in late 2020 that commenced in early 2021 have ramped.

Management has led a multiyear operational and cultural turnaround.

**On-stream rates have improved from approximately 80% in FY 2016 to the low 90% range since FY 2019.** The company has invested \$1 billion in facility improvements since FY 2013, and management has shifted production to higher-margin downstream products. Weak pricing for ammonia and ammonia-based products from 2015 through 2020 pressured LSB's cash flow, limiting management's ability to manipulate the company's balance sheet (which was highly leveraged until recently). By early 2021, low inventories and strong global demand driven by a recovery from the COVID-19 pandemic began to cause ammonia prices to move sharply above our assessed normalized mid-cycle levels. As a result, LSB experienced a rapid improvement in earnings and cash flow, allowing management to undertake a substantial recapitalization of the balance sheet.

Over the last two months, LSB exchanged its Series E Preferred for common stock and refinanced its 9.625% senior secured notes due 2023, lowering net debt/ EBITDA from 11.4x at YE 2020 to an estimated 3.4x at YE 2021.

On September 27, 2021, LSB exchanged its approximately \$310 million of 14.5% Series E Preferred (representing all the outstanding shares), and the single outstanding share of Series F Preferred (which existed primarily to infer voting rights) for common stock. Both the Series E Preferred and the Series F Preferred were held by Eldridge Industries, the company's largest shareholder (with current ownership of 54.4 million shares, or 60.2% of the outstanding common stock). The exchange removed a significant overhang by eliminating expensive financing. The Series E Preferred had been accounted for as temporary/mezzanine equity due to its redeemability stemming from an embedded put option, and the outstanding balance was classified as a liability on LSB's balance sheet. In connection with this transaction, LSB paid a 0.3 share special dividend on October 8, 2021 to common shareholders of record on September 24, 2021. On September 29, 2021, LSB commenced a refinance of its 9.625% senior secured notes due 2023 with \$500 million of newly issued 6.25% senior secured notes due 2028. Despite the higher principal amount, we estimate the lower interest rate will reduce the company's annualized interest expense by \$9.0 million, benefitting EPS by about \$0.10.

With fewer capital restraints, LSB will be better positioned to participate in efficiency and high-margin growth opportunities.

## Efficiency and High-Margin Growth Opportunities

LSB has invested more than \$1 billion since FY 2013 on significant facility improvements. Annual capital expenditures generally fall between \$30 million and \$40 million, of which we estimate \$20 million to \$25 million is required for maintenance.



nance expenditures. Despite unfavorable end market conditions, management executed on growth projects starting in 2019 with 20%+ internal rates of return, including an HDAN storage facility and infrastructure to accommodate new carbon dioxide and nitric acid supply contracts. We believe these projects, coupled with previous investments, largely explain the significant volume growth of high-margin products observed this year.

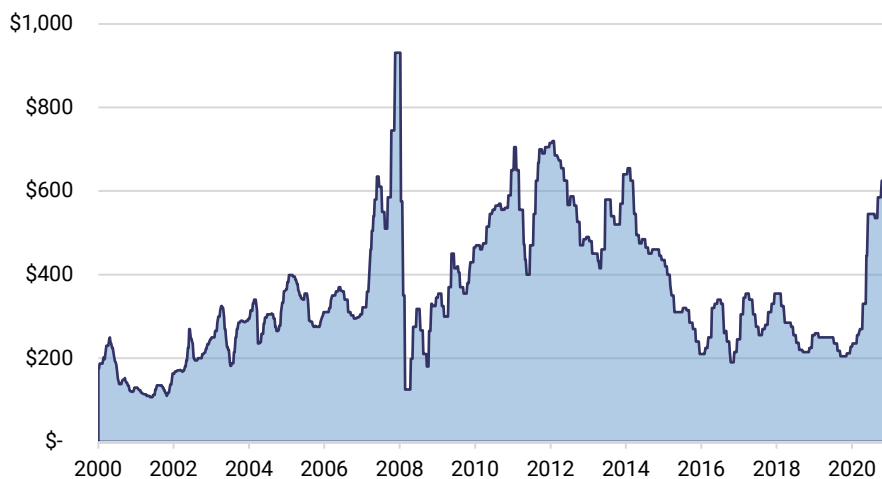
We believe the company's recapitalized balance sheet will facilitate similar discretionary capital spending on high-return growth projects in the future. LSB hired Damien Renwick as Chief Commercial Officer in January 2021 to help identify areas of strategic growth. With that in mind, management is actively evaluating the next phase of internal investment opportunities. We expect future projects will focus on further product upgrading, production debottlenecking, and storage or loading capabilities.

Strong end-market demand, low inventories, high input costs curtailing European production, and Russian and Chinese export restrictions are resulting in decade-high prices for ammonia and ammonia-based products.

**Over the last year, global nitrogen demand and supply balance has tightened dramatically, propelling prices for ammonia-based products to levels not seen in more than a decade.** Concerns among end-market customers around an inability to source product has been noted, suggesting that markets may continue to tighten. High product prices are showing few signs of abating, and we expect a prolonged period of elevated pricing to favorably impact earnings and valuation multiples for producers.

**There is precedent for extended periods of high pricing.** During the last sharp upcycle, the price of Tampa Ammonia (Chart 1) moved from a low of \$125/mt in January 2009 to above \$400 in March 2010, where it remained for more than five-and-a-half years. We believe the current market environment supports an extended period of elevated pricing as well.

Chart 1: Tampa Ammonia is Nearing 10-Year Highs



Source: Green Markets, Granite Research

## Long-Term Bear, Bear, Base, and Bull Case for EBITDA

We believe our bull case scenario price inputs can materialize in the current market environment, which has been characterized by multiyear high prices for ammonia and many ammonia-based products. We estimate that if the average price of Tampa ammonia (Chart 1) remains at or above \$545/mt for an entire year, that LSB could generate \$226.0 million of adjusted EBITDA. Similar price realization last occurred during 2012 to 2013, when Tampa Ammonia remained at or above \$545/mt for more than one year, and we believe the current upcycle could be characterized by similar prolonged price strength. Considering the delay in market price realization, which we estimate to be 60 to 90 days, we believe that LSB first recognized the recent uptick in product pricing in F2Q 2021. Tampa Ammonia moved from an average price per metric ton of \$239/mt in F4Q 2020 to \$348/mt in F1Q 2021 and \$545/mt in F2Q 2021. Most recently, Tampa ammonia is quoted at \$990/mt. If product pricing remains strong through FQ1 2022 – which we believe is likely considering current market conditions – LSB's TTM adjusted EBITDA may exceed \$226.0 million. Under such a scenario, our valuation analysis, which uses an EV/EBITDA multiple of 7.0x, produces a price target of \$12.35.

LSB's financial results are highly sensitive to product pricing and sales volumes. To better understand LSB's long-term earnings risk and potential, we have modeled bear case, base case, and bull case scenarios based on actual historical results, management's FY 2021 guidance, and our assumptions about business developments and end-market conditions (Table 3).

	<u>2021E</u>	<u>Bear Case</u>	<u>Base Case</u>	<u>Bull Case</u>
Adjusted EBITDA	\$172.8	\$90.9	\$175.9	\$226.0
EV/EBITDA Multiple	9.0x	12.0x	9.0x	7.0x
Enterprise Value	\$1,555.6	\$1,090.9	\$1,583.2	\$1,581.8
Net Debt	\$479.8	\$438.6	\$438.6	\$438.6
Other Preferred Stock	\$3.0	\$3.0	\$3.0	\$3.0
Common Equity Value	\$1,072.8	\$649.2	\$1,141.6	\$1,140.2
Shares Outstanding (Fully Diluted)	92.5	92.5	92.5	92.5
<b>Value Per Share</b>	<b>\$11.60</b>	<b>\$7.02</b>	<b>\$12.34</b>	<b>\$12.33</b>

*Note: Net debt values and Other Preferred Stock values reflect forecasted FY 2022 year-end values.*

*Source: Granite Research*

Our **bear case** represents a weak ammonia pricing environment. We assume a 30-day turnaround at the El Dorado Facility (the company's largest ammonia reactor), causing lower production volumes for ammonia and certain downstream products relative to our base case. In this scenario, we use a gross price per ton of \$215 for agricultural ammonia, \$150 for UAN, and \$250 for HDAN. We assume a level of \$250 for the Tampa Ammonia Index and a natural gas input price of \$2.85 per MMBtu, net of transportation costs. We assume sales volumes are slightly below management's FY 2021 guidance.

Our **base case** represents a normalized mid-cycle pricing environment. We assume a 30-day turnaround at the Pryor Facility. In this scenario, we use a gross price per ton of \$350 for agricultural ammonia, \$190 for UAN, and \$295 for HDAN. We assume a level of \$350 for the Tampa Ammonia Index and a natural gas input price of \$3.00 per MMBtu, net of transportation costs. We assume sales volumes at the midpoint of management's FY 2021 guidance.

Our **bull case** represents strong pricing at or near a cyclical peak. We assume a 30-day turnaround at the Cherokee Facility (the company's smallest ammonia reactor), causing higher production volumes for ammonia and certain downstream products relative to our base case. In this scenario, we use a gross price per ton of \$435 for agricultural ammonia, \$264 for UAN, and \$334 for HDAN. We assume a level of \$545 for the Tampa Ammonia Index and a natural gas input price of \$4.15 per MMBtu, net of transportation costs. We assume sales volumes near the high end or slightly above management's FY 2021 guidance (although in no case do our assumed sales volumes for any product exceed management's guidance by more than 3%).

## **End Markets for Ammonia and Ammonia-Based Products are Strong**

**High crop prices and low global grain stocks are expected to underpin global fertilizer demand in the near term.**

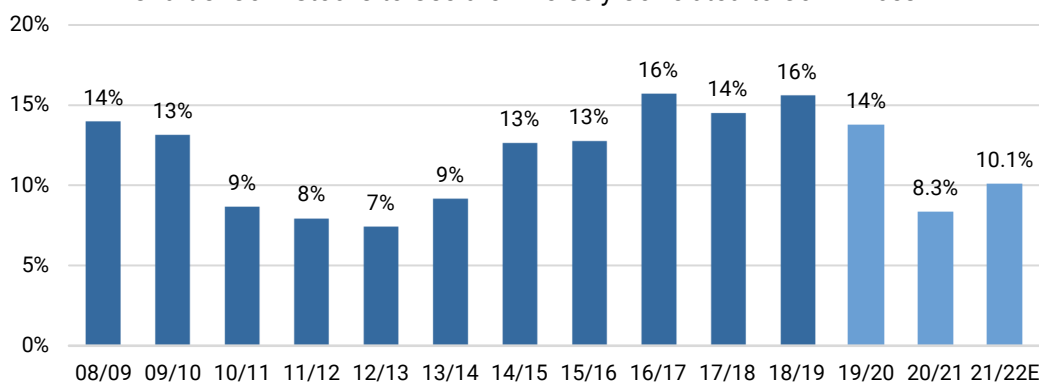
**Corn represents the largest crop grown in the United States, and fertilizer demand tends to move in conjunction with corn prices and planted acreage.** Acreage estimates for this year's corn crop point to higher fertilizer demand. The November 15, 2021 World Agricultural Supply and Demand Estimates (WASDE) report projects that 93.3 million acres of corn will be planted in the 2021/2022 crop year, up from 90.7 million acres planted in the 2020/2021 crop year. Increased acreage should drive continued strong demand for nitrogen fertilizers. Corn (Chart 2) continues to trade well off its average lows between 2015 and 2020 (about \$3.32/bushel), and we believe pricing remains sufficiently strong to encourage continued planting. In addition, pricing for soybeans, wheat, and cotton continues to move higher, so we do not foresee a structural shift in farmland use that would negatively impact corn pricing. Forward pricing curves point to elevated crop prices through 2023, supporting continued strong plantings and fertilizer use.

Chart 2: US Corn Prices Pull Back from Seven-Year High



Source: FactSet, Granite Research

Chart 3: Corn Stocks-to-Use are Inversely Correlated to Corn Prices



Source: U.S. Department of Agriculture, Granite Research

**Estimated corn stocks-to-use (inventory – Chart 3) in the U.S. remains low, and global (ex-China) stocks-to-use for coarse grains are at the lowest levels since 2012. We estimate that at least two growing seasons will be required to replenish global inventories to normalized levels.** Stocks-to-use indicates the level of carryover inventory at year-end for a given commodity as a percentage of the total use. Corn prices tend to be higher when stocks-to-use are lower, and vice versa. Chart 2 and Chart 3 show the inverse correlation between corn stocks-to-use and corn prices. After several years of relatively high inventories and low prices, inventories moved lower in the 2019/2020 crop year and were further drawn down to 8.3% in the 2020/2021 crop year, as demand sharply rebounded following the COVID-19 pandemic. From late 2020 through early 2021, low inventories pushed corn prices to a seven-year high (\$7.32/bushel on May 7, 2021). Prices have retreated by 44% since then (to \$5.10/bushel), but have remained relatively strong (currently \$5.94/bushel). The November 15, 2021 WASDE report estimated corn stocks-to-use at 10.1% for the 2021/2022 crop year, reflecting the anticipated increase in acres planted and a high expected average yield per acre. This level represents only a modest replenishment of corn stocks, suggesting that inventories will continue to support elevated corn prices. Furthermore, global (ex-China) stocks-to-use for coarse grains are at the lowest levels since 2012, suggesting imports are unlikely to negatively impact domestic corn prices. We do not expect inventory normalization until the end of the 2022/2023 crop year, at the soonest.

Low corn inventories in the U.S. are partially attributable to supply disruptions brought on by severe weather in 2020 that destroyed nearly 10 million acres of corn in Iowa (representing about 11% of the year's crop) and drought conditions that have continued through 2021 from Western Canada to the U.S. and Mexico. On a global basis, the largest corn exporters are the U.S., Brazil, Argentina, and Ukraine; the latter three are currently experiencing drought conditions considered among the worst in a century. On the demand front, domestic production of ethanol, which is primarily used as a fuel additive) and has historically accounted for about 40% of domestic corn use, has rebounded to pre-pandemic volumes. Additionally Chinese imports of U.S. corn have increased substantially: 21.5 million metric tons (mmt) were imported in 2020/21, versus 2.1 mmt or less in each of the prior five years.

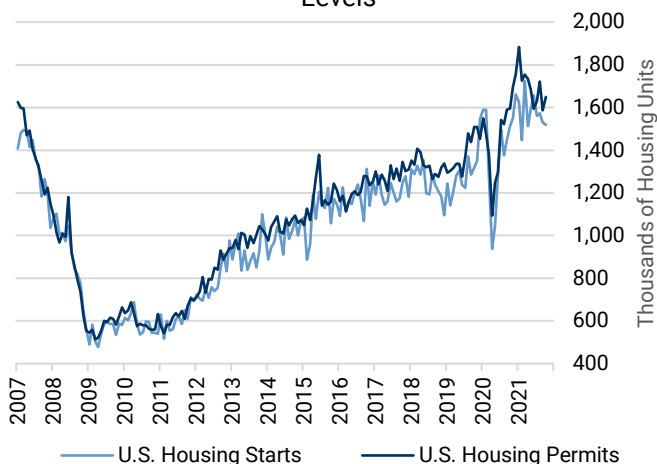
**In China, the increasing prevalence of large institutional swine farms appears to have significantly increased the long-term demand for corn.** After a reduction in the size of the Chinese swine herd attributable to a swine flu outbreak, the swine population is again growing, with herd growth more pronounced among institutionalized hog farms. Relative to smaller bespoke farming operations that had previously characterized Chinese hog farming, larger institutional operations more heavily rely on corn as a feed. Chinese corn imports amounted to 29.5 mmt 2020, and have totaled approxi-



mately 26.0 mmt year-to-date in 2021. This compares to average annual corn imports of 4.2 mmt over the past five years. A 52.1% drop in Chinese pork prices from January to October suggests that efforts to grow the swine herd have been successful, and feedstock needs could adjust. Chinese corn producers also appear to be experiencing a bumper crop in 2021/22, with expectations of 273.0 mmt of corn production, an increase of approximately 5% from 2020/21 and above the average annual corn production of 260.3 mmt over the past five years. While we expect a rebalancing of Chinese supply and demand, we anticipate that Chinese corn import requirements will be significant going forward.

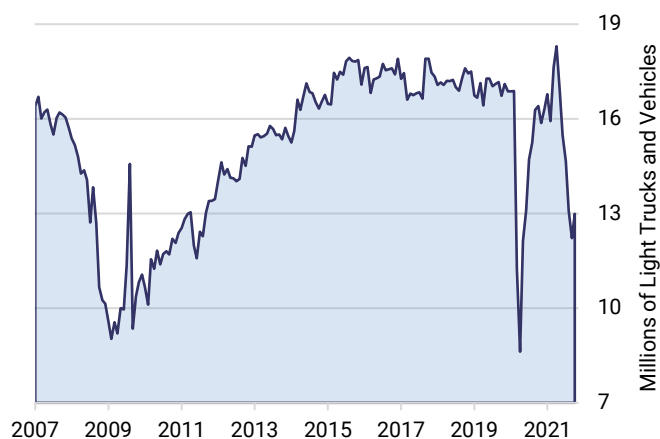
**Industrial end markets are strong.** Housing permits and housing starts (Chart 4) have slowed since earlier this year due to material shortages and high material costs, but remain above pre-COVID levels and well above levels observed over the past decade. Likewise, domestic light vehicle sales (Chart 5) have rebounded, but sales have slowed as the industry works through inventory shortages.

Chart 4: U.S. Housing Permits Above Pre-COVID-19 Levels



Source Granite Research, Federal Reserve Bank of St. Louis

Chart 5: Light Weight Vehicle Sales



Source: Bureau of Economic Analysis, Granite Research

**Prices for several metals, notably copper (Chart 6), continue to experience multiyear highs in 2021, which should drive increased extraction activity.** We expect strengthening long-term secular demand for metals such as copper, especially as battery and electronics technologies improve for products such as electric vehicles.

Chart 6: Global Price of Copper



Source: International Monetary Fund, Granite Research

## The Balance Between Supply and Demand for Ammonia and Ammonia-Based Products is Tightening

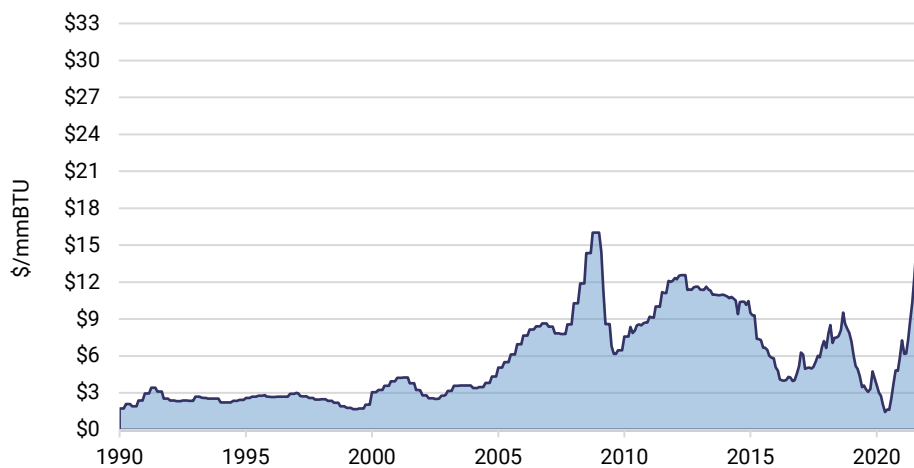
**The global economic rebound following the COVID-19 pandemic and high crop prices continue to drive demand for nitrogen fertilizers.** There are concerns that the high cost of fertilizers will lead to demand degradation. Still, we believe high crop prices support farm profitability to a degree sufficient enough to buoy fertilizer prices without eroding demand. Ammonia producers' order books are full, demonstrating strong ongoing demand. Additionally, international demand remains robust: India awarded a tender on November 15, 2021 for nearly 1.6 million metric tons of urea at \$981/mt and higher – a three-fold price increase relative to March 2021 levels. Through October, year-to-date ammonia imports in Brazil have increased 41% from the same period last year as reduced corn production in 2021 has supported higher crop prices and suggests higher planted corn acres in the current and upcoming planting seasons.

**Global inventories and supplies are constrained due to severe weather in North America, maintenance outages worldwide, high natural gas costs in Europe, and government export restrictions.** Winter storm Uri resulted in a "February Freeze" in Texas and parts of surrounding states (Chart 8). This anomalous weather event curtailed U.S. ammonia production by approximately 200,000 tons, which we estimate to represent approximately 15% of average U.S. monthly demand. In late August, Hurricane Ida resulted in the idling of several facilities on the U.S. Gulf Coast. Nitrogen production was reduced by both planned and unplanned downtime, with as many as 17 unscheduled global ammonia plant shutdowns in FQ1 2021 (including some facilities that rank among the largest in the world). In July, Chinese authorities suspended fertilizer exports, and Russian authorities recently announced export quotas extending through May 2022, in both cases to ensure domestic supply. There are emerging concerns that customers in some regions of the world will not be able to secure adequate amounts of nitrogen fertilizers, resulting in lower crop yields. If this were to occur, we expect U.S. corn inventories to remain below normalized levels for two or more years, further supporting prices for corn and agricultural fertilizers.

**Global production and inventories continue to be strained by the recent spike in European natural gas prices (Chart 7),** which has led Yara, CF Industries, BASF, Borealis, and other ammonia producers to curtail European output. On September 20, 2021, Yara International ASA reported cutting European production by 40%, opting to import ammonia from Trinidad to meet demand. Other European producers have followed suit, with an estimated 8 to 10 million tons of annual ammonia capacity (~4% to 5% of global demand) temporarily removed from the region. The global increase in natural gas prices is partially attributable to a surge in demand as economies recover from the COVID-19 pandemic. Unseasonably cold weather during the winter and spring in Europe also contributed to a drawdown in natural gas inventories in that region, while low storage inventory levels and higher Asian demand for gas are exacerbating supply shortages well into 2022.

The U.S. Department of Agriculture estimates it takes about 33 MMBtu of natural gas to produce one ton of ammonia. Natural gas was priced at \$31.05 per MMBtu in Europe on October 31, 2021, putting the cost of gas per ton of ammonia at \$1,024 per ton. This compared unfavorably to concurrent European market prices for ammonia of about \$905 per ton. Until the relationship between natural gas input costs and ammonia pricing normalizes, we do not foresee significant resumption of production in these markets.

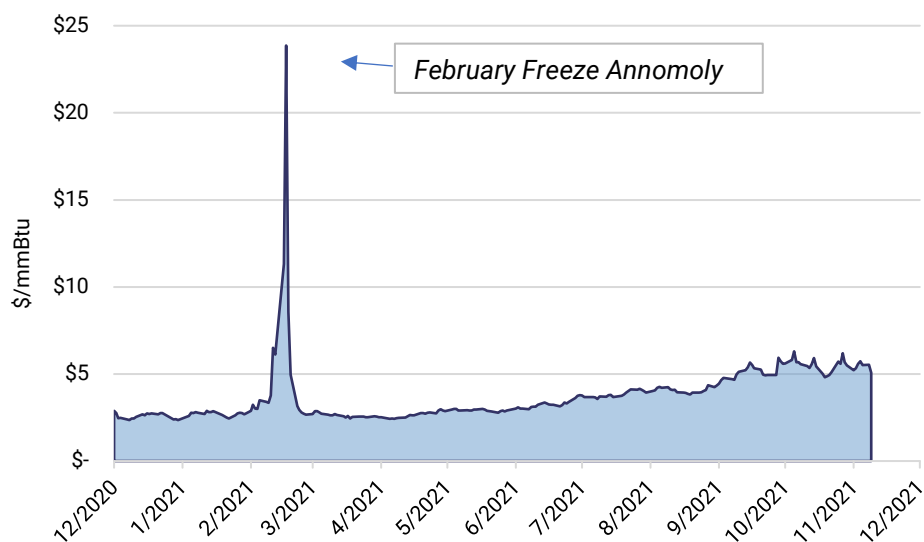
Chart 7: Natural Gas Prices in Europe Have Spiked



Source: International Monetary Fund, World Bank, Granite Research

As lower European production puts more upward pressure on global ammonia prices, U.S. producers have experienced wider margins. LSB's manufacturing facilities are all in the United States, which enjoys one of the lowest cost structures for ammonia production globally due to inexpensive and readily available natural gas feedstock. Henry Hub natural gas (Chart 8), which roughly approximates domestic input prices, was priced at \$5.49 per MMBtu on October 31, 2021, up 81% from \$3.03/MMBtu year-over-year. The jump in U.S. natural gas costs is significant, but only represents a production cost increase of \$81 per ton of ammonia. During the same period, the Tampa Ammonia Index increased about \$430 per ton. We expect LSB will capture nearly all of the net \$349 price change per ton of ammonia as profit. The current disconnect between European and U.S. natural gas pricing further highlights the relative competitiveness of U.S. producers.

Chart 8: Henry Hub Spot Prices Have Risen Steadily Throughout the Year



Source: FactSet, Granite Research

## Magellan Pipeline

We supply disruptions in the Southern Plains market caused by the decommissioning of the Magellan Midstream Partners LP ammonia pipeline ("Magellan Pipeline") in F4Q 2019 to have fully reversed by YE 2021. CF Industries, Koch, Nutrien, and LSB all operate plants that service the Southern Plains market (or, more broadly, the South – Oklahoma, Arkansas, and Louisiana), which was disproportionately affected by the decommissioning of the Magellan Pipeline in F4Q 2019. The Magellan Pipeline stretched from northern Texas and Oklahoma through Kansas, Missouri, Iowa, and southern Minnesota. Shipping ammonia by barge, truck, or rail from the southern United States to the northern United States is significantly more expensive than transporting it by pipeline. Since the Magellan shutdown, ammonia previously shipped to Iowa, Illinois, Minnesota has accumulated in the Southern Plains market. Historically, Southern Plains ammonia sold at a \$100/short ton (st) premium to Tampa ammonia, but due to oversupply, Southern Plains ammonia has recently been selling at a \$100/st discount to Tampa ammonia. However, due to recent supply shortages, Southern Plains ammonia has again begun trading at a premium to Tampa ammonia (with price evidence first observed in October). We expect local market dynamics to be further disrupted when Koch begins upgrading ammonia to urea following the completion of upgrades at its Enid, Oklahoma plant in 2022.

LSB has made clear its intent to grow through acquisition. The company's recapitalized balance sheet should accommodate reasonable acquisition financing, and we expect potential acquisitions to dovetail with the company's existing businesses.

## Potential for Accretive Acquisitions

LSB's management has been evaluating potential acquisitions for the last 18 months, and the recapitalization of the balance sheet should provide the financial flexibility to transact. On November 16, 2021, LSB filed a \$200 million shelf registration for the potential issuance of equity and/or debt, which we view as a step towards a potential acquisition.

Management has expressed interest in acquisition targets that fit its existing agriculture, industrial, or mining businesses. We do not expect acquisitions outside of LSB's core competencies and believe that acquisitions will be focused on expanding capacity for higher-margin products or distribution into new geographic markets.

Management has targeted a long-term net debt/EBITDA target ratio of 3.5x to 4.0x, assuming EBITDA of \$100 million at a cyclical trough. However, management has expressed willingness to allow leverage to move as high as 5.0x in order to complete an acquisition if there is a clear path to returning to the target range within 12 to 24 months.

Although our model does not contemplate acquisitions due to the uncertainty of timing, size, and financing, we offer the following illustrative example. LSB's management has characterized potential acquisition as of a relatively modest size and focused on expanding the company's geographic reach, enhancing production capabilities, or enabling further product upgrading. We estimate that initial acquisition targets would have EBITDA of between \$30 million and \$50 million, and believe that a multiple of 7.0x to 8.0x is reasonable. Using EBITDA inputs of \$100 million for the existing business and \$40 million for an acquired business, consolidated post-acquisition EBITDA of \$140 would support net debt as high as \$700 million. **We believe this amount of leverage, which is 5.0x net debt, is reasonable in the context of an accretive**

**acquisition.** Assuming \$480 million of existing net debt (consistent with our YE 2021 estimate), LSB's additional borrowing capacity is \$220 million under this scenario. If the acquired business is valued at a multiple of 7.0x, total acquisition consideration would be \$280 million. If \$220 million is financed with debt, then we would expect \$60 million to be financed with cash and/or equity (in this example, we would not expect an equity issuance).

**We believe management remains acutely aware of leverage,** and do not expect the company to find itself overleveraged if its end markets weaken. We also note that CEO Mark Behrman is one of the company's largest shareholders, and that two representatives of Eldridge Industries, LSB's largest shareholder, are directors of the company. As such, we would expect additional equity issuances to be undertaken judiciously.

While we refrain from speculating on the effect of an acquisition on LSB's share price, we believe any acquisition would offer meaningful synergies, and that management would build a thoughtful case surrounding the creation of shareholder value.

Potential tariffs on UAN imports could help buoy domestic prices.

## DOC/ITC UAN Dumping Investigations

On June 30, 2021, CF Industries, the largest domestic producer of UAN, filed petitions with the U.S. Department of Commerce (DOC) and the U.S. International Trade Commission (ITC) to launch antidumping and countervailing duty investigations into UAN imports from Russia and Trinidad. On August 13, 2021, the ITC found a reasonable indication that imports of UAN from Russia and Trinidad materially injure domestic producers. This determination was in part based on the fact that on a nitrogen equivalent basis, UAN traded at a discount to urea between 2019 and early 2021 – a market dislocation that had been noted by multiple domestic producers.

As a result of the ITC's determination, the DOC will continue investigations of UAN imports from Russia and Trinidad to determine whether product is being dumped in the U.S. market or unfairly subsidized. If both the DOC's final determination and ITC's final injury determination are affirmative, the DOC will issue antidumping and countervailing duty orders on UAN from Russia and Trinidad.

Last year, Mosaic successfully argued that the domestic phosphate industry was injured through market share loss by the import of lower-cost subsidized product from Russia and Morocco. CF Industries appears to be running Mosaic's playbook, and even engaged the same law firm to file their suit. CF Industries must successfully argue that Russian producers received a subsidized benefit for product sold in the U.S., allowing imported UAN to be sold at a price that caused injury to domestic producers. In this case, CF is claiming Russian government-sponsored energy companies sell natural gas feedstock to Russian UAN producers at artificially low prices, resulting in similarly artificially below-market selling of UAN in the U.S.

We normally expect a final ruling from the DOC approximately 10 months after the initial filing of the petition, but CF Industries pushed the preliminary determination hearing from September to December. We now expect a resolution by mid-2022.

LSB produces 500,000 tons of UAN annually, making it the company's largest derivative product by volume. We estimate that every \$10 change in the price of UAN equates to a \$5 million change in adjusted EBITDA to LSB. If tariffs are ultimately imposed, we expect domestic producers to benefit as downward price pressures dissipate. Tariffs would remain in place for at least five years.

We estimate that every 1% improvement in LSB's on-stream rate improves EBITDA by \$5 million to \$6 million at current price levels. Improving on-stream rates by 3% to 5% – which we believe is reasonable – could increase EBITDA by \$15 million to \$30 million.

## On-Stream Rates

The efficient operation of LSB's physical plant assets is critical to the company's financial performance. On-stream rates, or the percent of the time that the ammonia reactor at a plant operates, are referenced as a measurement of operational reliability. Because ammonia is the precursor for nearly all of LSB's products, on-stream rates are a critical measure of performance. On-stream rates do not consider planned downtime for scheduled repairs, modifications, or turnarounds (a comprehensive planned maintenance event occurring every two to three years, depending on plant condition) but account for unplanned downtime for unscheduled repairs.

The historical reliability of LSB's production assets has been inconsistent, with the company's three plants experiencing numerous unplanned maintenance shutdowns between FY 2012 and FY 2018. In mid-FY 2015, LSB began hiring execu-

tive management with the expertise to design and execute an operational turnaround plan. Extensive turnarounds have been undertaken at each facility, most recently in FY 2019 at the El Dorado Facility and the Pryor Facility. Capital investment, including commissioning a new urea reactor at the Pryor Facility in FY 2019, has further improved production capacity and reliability. Implementing a new maintenance management system, engaging in consultants, hiring qualified and experienced plant-level management, and expanding employee training on procedures and workflows have also contributed to markedly improved operational reliability. Consistent with these efforts, LSB has steadily increased its average company-wide annual on-stream rate from 80% in FY 2016 to a high of 91% in FY 2019. We believe on-stream rates remain in the low 90% range today.

The company achieved record production volumes and experienced little unplanned downtime in FY 2020 and 2021, but management has set their sights on moving on-stream rates from the low 90% range to its target of 95% or better. We view this as a “block-and-tackle” exercise to continuously improve operating procedures and capital equipment care. On LSB’s F3Q 2021 earnings call, CEO Mark Behrman stated this operational performance opportunity represents a \$25 million to \$30 million of incremental EBITDA that could be recognized over the coming 24 months. We expect management’s focus on this key performance metric to drive on-stream rates higher over that time period.

The Leidos Lawsuit remains a potential windfall of \$100 million or greater. We expect any award to LSB would be used to fund further growth ambitions or be returned to shareholders.

## Leidos Lawsuit

LSB is currently involved in litigation against Leidos Constructors, LLC relating to cost overruns in the expansion of the ammonia plant at the El Dorado Facility from 2013 to 2016. LSB is seeking damages for breach of contract, fraud, gross negligence, professional negligence, and negligence. The case is styled Global Industrial, Inc. d/b/a Global Turnaround vs. Leidos Constructors, LLC et al. The case ID is 70CV-16-76; the case docket is available through the CourtConnect Website of the State of Arkansas's Administrative Office of the Courts. The case was scheduled to be heard by a jury in September 2020 but has been delayed until late 2022 to early 2023 due to the COVID-19 pandemic.

While management has only disclosed that it is seeking more than \$100 million of damages in this litigation, we believe this number could very well be higher, and the proceeds could be used to fund acquisitions. Management has also suggested that a return to shareholders in the form of a stock repurchase program or special dividend may be considered.

ESG: Increasing industrial interest in blue and green ammonia could spur substantial end-market demand. Blue and green ammonia is not currently supplied or marketed in commercially significant volumes. We expect ammonia to emerge as a front-runner for clean energy generation.

## Blue and Green Ammonia Initiative

At the beginning of 2021, LSB identified blue and green ammonia as an area of potential future growth. Later in the year, LSB hired a technology partner to perform feasibility studies evaluating the potential for blue and green ammonia at each of its facilities, which they expect to complete by FQ1 2022. Management is targeting F2Q 2022 to review proposed projects, which may commence as soon as FQ2 2022.

**As funding sources emerge for blue and green ammonia, we believe LSB could trade closer to our back-of-the-envelope asset replacement value of approximately \$15 per share.** Management has suggested that a partnership arrangement to retrofit one of LSB's existing ammonia reactors may be the most sensible way to approach the production of blue or green ammonia, and we agree. Low-carbon and zero-carbon ammonia will likely attract substantial capital from sources that may not have previously considered investment in LSB or its peer companies. Ammonia plants are currently cheaper to buy than to build in the U.S., generally making it more sensible to re-outfit an existing plant for blue or green ammonia production than build new ammonia facilities. In addition, LSB's storage, transportation, and distribution networks would be difficult to replicate as they have taken decades to develop. We believe that joint ventures and partnerships focused on the development of blue and green ammonia production capacity will begin to take form, potentially causing LSB's shares to trade at levels commensurate with the replacement value of the company's assets.

## Blue and Green Ammonia Potential

**Argus Media estimates that if ammonia were to be used for energy consumption globally, demand would be five times the amount of current global annual production.** There is an estimated 190 million metric tons of ammonia produced each year globally. If demand were to grow fivefold, we believe it would take decades for supply to catch up with demand.

**New sources of demand and lack of available supply have provided us with an example of blue ammonia commanding a premium price relative to conventional ammonia.** In August 2021, Fertiglobe, a joint venture between Abu Dhabi state-



owned Adnoc and Amsterdam-listed OCI, announced two sales of blue ammonia to separate Japanese companies. Adnoc commented that the Idemitsu shipment was sold at "an attractive premium" to conventional ammonia.

**A number of large global chemical companies have committed to reducing their carbon footprint with specific carbon neutral targets without a specific solution in place.** We believe the use of blue ammonia, as opposed to conventional ammonia, may provide optionality for these multinationals to achieve their stated climate goals. Producers who have announced their intent to manufacture blue ammonia have noted that they receive frequent inquiries on blue ammonia availability. We expect blue ammonia to be priced at a premium to conventional ammonia.

**Increased demand may also result in a richer mix of cost-plus contracts,** which represent approximately 35% of LSB's revenues today and drive strong, predictable margins relative to highly cyclical agricultural ammonia.

#### **What is Blue and Green Ammonia?**

**Blue and green ammonia is essentially low-carbon (blue) and zero-carbon (green) ammonia.** Ammonia (NH<sub>3</sub>) is a compound of nitrogen and hydrogen synthesized when natural gas, water, and nitrogen (air) are heated in a high-pressure reactor; the byproduct of this process is carbon dioxide (CO<sub>2</sub>). Blue ammonia is conventional ammonia produced in a facility that captures CO<sub>2</sub>. Green Ammonia differs in that hydrogen is sourced from the electrolysis of water instead of natural gas; this hydrogen reacts with nitrogen at high heat and pressure to form ammonia, but there is no CO<sub>2</sub> byproduct produced in its synthesis ("zero-carbon" ammonia).

Blue ammonia involves carbon capture, utilization, and storage (CCUS) of CO<sub>2</sub>. Utilization refers to the use of captured carbon dioxide as a feedstock for other commercial purposes, including injection into hydrocarbon reservoirs for enhanced oil recovery (EOR). Storage refers to the post-production injection and sequestration of carbon dioxide into the ground for permanent storage. Tax credits are awarded to low carbon ammonia producers in the U.S. that utilize the CO<sub>2</sub> for existing commercial use or EOR, and a premium credit for CO<sub>2</sub> that is sequestered. CO<sub>2</sub> is prolifically used in the food and drug, chemical, and energy industries, including meat and produce preservation, soft drinks, dry ice, dry cleaning, fire extinguishers, and blasting coal.

**Zero-carbon green ammonia is a long-term goal, but the cost is currently prohibitively high. Blue ammonia is within economic reach and represents a massive step towards decarbonizing conventional ammonia production.** Electricity is the primary feedstock for green ammonia, and a large portion of economically practical energy is sourced from power plants fueled by hydrocarbons. We do not expect to see substantial capital investment in electrolyzers at ammonia production facilities until enough low-cost green electricity is available to make green ammonia competitive with conventional ammonia. LSB has stated that the company does not intend to invest in green ammonia without concurrently securing purchase agreements at levels commensurate with the cost of production.

**Ammonia does not generate carbon emissions when used as a fuel.** Ammonia is a combustible gas that can be widely used in thermal power generation, industrial furnaces, and engines as an alternative to fossil fuels. The combustion of ammonia produces nitrogen oxide (NO<sub>x</sub>) emissions, which can be abated with catalytic reduction systems. Ammonia can also be used in fuel cells, which also do not produce and emit CO<sub>2</sub> or NO<sub>x</sub>.

**Ammonia offers a practical, efficient, and safe option for the storage and transportation of hydrogen.** One liter of liquid ammonia contains more hydrogen than one liter of liquid hydrogen, positioning ammonia as an efficient and practical option for the storage and transportation of hydrogen; the higher boiling point of ammonia makes it easier and safer to handle as well. The global trade of ammonia and collective safety experience of ammonia producers and transporters further evidences the practicality of ammonia as a fuel. A mature international set of laws and regulations and a sophisticated support sector provide ammonia users and first responders with safety equipment, training, and education. Ammonia transportation systems are well-established, reaching into many key markets. Upon combustion, the atomic bonds between nitrogen and hydrogen atoms are easily broken, resulting in the release of energy.

#### **Demand for Blue Ammonia as a Fuel is Beginning to Accelerate**

**In July 2021, Japanese authorities revised the country's energy plan to commit to generate 1% of the nation's power using hydrogen and ammonia by 2030.** The move followed the aggressive strengthening of Japan's 2030 Paris Agreement goals earlier this year by raising its targeted GHG emissions from 26% to 46% by 2030 (from 2013 levels). The Institute of Energy Economics, Japan's CEO, Toyoda Masakazu, states that about 10% of power in Japan can be generated by 30 million tons of blue ammonia. Japan has signed MOUs with potential suppliers in the Middle East and the Asia Pacific region, and Saudi Aramco delivered its first shipment (40 tons) of blue ammonia to Japan last year.

**Strong interest has been expressed by maritime vessel operators in ammonia as a fuel to comply with existing zero-sulfur content (IMO 2020) and zero-carbon emission (IMO 2050) regulations.** As one of the most widely produced chemicals in the world, ammonia storage infrastructure is already in place at ports around the world, and the construction of additional land-based or waterborne storage could be undertaken using established and tested designs. However, widespread use of ammonia as a maritime fuel will likely not occur until later this decade, as many vessels constructed with engines able to combust ammonia are not scheduled for delivery for several years.

Dutch fuel provider OCI estimates that converting all long-distance shipping fuel to ammonia would require approximately 750 million to 900 million tons of ammonia annually by 2050, or approximately four to five times the current annual global production of ammonia. Richard Ewing, Global Ammonia Market Editor at ICIS, believes this would require the construction of 800 new ammonia plants over the next 30 years.

**A prolonged period of elevated ammonia prices could spur investments in green ammonia production.** Tampa Ammonia selling at \$990/metric ton (mt) is well above the estimated cost of producing green ammonia. The International Energy Association (IEA) estimates green ammonia costs \$500 and \$700 per ton to produce when electricity costs are approximately \$30 and \$50 per MWh, respectively. These electricity costs compare favorably to the average 2019 wholesale price of solar at \$26 per MWh and wind at \$63 per MWh in Texas, Oklahoma, and Kansas, according to the U.S. Energy Information Administration. If conventional ammonia remains well above the estimated cost of green ammonia for a prolonged period, we believe large multinational chemical companies with carbon footprint reduction targets could be willing to enter contractual agreements for enough green ammonia to stimulate new production capacity. For reference, Tampa ammonia is currently quoted at \$990/mt.

45Q tax credits, which were expanded in December 2020, are available to industrial facilities that capture and store CO<sub>2</sub> that would otherwise be emitted into the atmosphere. LSB may be able to claim these tax credits by capturing carbon dioxide (a byproduct of ammonia synthesis) at its facilities. We believe these tax credits have been and will continue to be a catalyst for investment across the industry.

**Newly expanded and extended 45Q tax credits have positive economic implications for blue ammonia producers.** Section 45Q of the Internal Revenue Code provides tax credits, ranging from \$22.68 to \$50.00 per metric ton, intended to incentivize investment in CO<sub>2</sub> capture, utilization, and sequestration (CCUS) technologies by large industrial sources. The production of one ton of ammonia generates an estimated 1.6 tons of CO<sub>2</sub>, making the potential tax credit per ton of blue ammonia produced approximately \$36.29 to \$80.00 per ton. The Taxpayer Certainty and Disaster Tax Relief Act of 2020, passed on December 27, 2020, significantly expanded and extended 45Q tax credits, which triggered a number of ammonia producers to advance feasibility studies in 2021 for projects that enable CCUS. Although data on the cost of such projects is scant, CF Industries, the largest producer of ammonia in the U.S., indicated on its F3Q 2021 earnings call that blue ammonia may cost \$20 to \$30 more per ton to produce relative to conventional ammonia.

**A tax credit per metric ton of CO<sub>2</sub> is attributable to the taxpayer that owns the carbon capture equipment and physically or contractually ensures the capture and disposal, injection, or utilization of the carbon dioxide in the U.S.** The captured CO<sub>2</sub> can either be: 1) "geologically sequestered," which is the process of injecting and disposing CO<sub>2</sub> into underground geological formations, where it is either permanently trapped or transformed; 2) used as a "tertiary injectant" for EOR, a technique using CO<sub>2</sub> and water to flush residual oil and natural gas trapped in rock formations of aging energy reservoir fields; or 3) utilized in a qualifying manner "for any other purpose for which a commercial market exists," incentivizing a significant uptick in carbon capture by existing industries engaged in the use of CO<sub>2</sub>.

**The amount of the tax credit depends on the timing and type of project.** "Utilization" and "EOR" tax credits for equipment placed into service after February 8, 2018, are eligible for \$22.68/mt (mt) of CO<sub>2</sub> in 2021, increasing linearly to \$35 per ton in 2026 and adjusted by inflation after that. "Sequestration" credits are more attractive at \$34.81 per ton of CO<sub>2</sub> in 2021, increasing linearly to \$50.00 per ton by 2026 and adjusted by inflation after that. Construction for qualifying facilities must begin before January 1, 2026, and the claim period extends 12 years once the facility is placed into service. Recall that each metric ton of ammonia generates 1.6 metric tons of CO<sub>2</sub>; resulting in utilization and EOR credits of \$36.29 to \$56.00 per ton and sequestration credits of \$62.10 and \$80.00 per ton. If the incremental cost to produce blue ammonia instead of conventional ammonia is \$20 to \$30 per ton, then tax credits should offer an attractive return on capital for retrofitting existing facilities.

**Partnering with an injection and sequestration expert could help LSB manage risk.** Per IRC Section 45Q, if sequestered CO<sub>2</sub> escapes into the atmosphere during the three years after the injection, the taxpayer is required to repay any tax credit received. LSB may opt to sell CO<sub>2</sub> (and the associated tax credit) to a counterparty specializing in sequestration. Many well-established potential counterparties could provide expertise and optionality for CO<sub>2</sub> captured from LSB's ammonia production. A partnership with such a company may reduce LSB's execution risk.

**Taxpayers can monetize Section 45Q credits through various structures.** 45Q credits can be transferred to counterparties that contractually ensure the sequestration of CO<sub>2</sub>. Tax equity structures are also eligible under 45Q to attract outside investment in carbon capture projects in exchange for a portion of the returns and tax credits. We note that similar structures are regularly used to finance wind and solar projects.

## Risks

Risks to LSB's operations and financial condition are significant and should be thoroughly understood by investors.

These include, but are not limited to:

- Pricing for LSB's products is volatile. Pricing for ammonia and ammonia-based products experienced a period of extended weakness from FY 2016 through FY 2020. Although pricing has strengthened recently, this trend could reverse.
- End markets for LSB's products may be affected by fluctuations in demand and prices. The COVID-19 pandemic depressed demand across LSB's end markets. Similarly, extreme weather events have in the past lowered expected demand. Imbalances between supply and demand can result in elevated product inventories or disruptions to supply chains, which have in the past affected LSB's financial results.
- Potential acquisitions may fail to produce expected results and may expose LSB to unexpected liability
- Despite significant deleveraging in FY 2021, LSB could incur additional indebtedness, and potential leverage could be significant. In a disorderly disposal of assets or distressed sale of the business, equity value may be partially or entirely impaired.

**Income Statement and Summary Statement of Cash Flows**

	2017	2018	2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021 E	2021 E	Q1 2022 E	Q2 2022 E	Q3 2022 E	Q4 2022 E	2022 E	Bear Case	Base Case	Bull Case
<b>Product Volumes (Tons Sold)</b>																					
<b>Agriculture</b>																					
Ammonia				20,510	28,383	20,181	28,299	97,367	22,054	17,038	14,100	22,054	75,246	22,054	17,038	14,100	22,054	75,246	70,000	80,000	80,000
UAN	94,210	82,586	83,924	20,510	28,383	20,181	28,299	97,367	22,054	17,038	14,100	22,054	75,246	22,054	17,038	14,100	22,054	75,246	70,000	80,000	80,000
HDAN	488,794	400,054	359,905	114,689	111,860	140,524	131,665	488,738	109,243	121,995	82,556	142,198	455,992	114,243	126,995	72,556	142,198	455,992	480,000	490,000	490,000
Other	279,789	284,433	277,820	65,874	128,018	27,800	70,987	292,679	76,162	76,539	37,011	74,536	264,248	81,162	86,539	32,011	74,536	274,248	280,000	290,000	290,000
Industrial	25,664	23,422	19,655	2,946	9,257	2,824	2,997	18,024	2,750	6,628	2,394	2,750	14,522	2,750	6,628	2,394	2,750	14,522	18,000	18,000	18,000
<b>Mining</b>																					
LDAN/HDAN/AN Solution	228,849	238,519	275,253	70,528	62,108	68,366	68,483	269,485													
Industrial, Mining, and Other	100,628	110,975	99,544	25,823	19,048	20,254	29,270	94,395													
Ammonia	29,171	32,109	35,107	10,888	9,587	13,031	14,369	47,875													
AN, Nitric Acid, and Other	148,845	163,309	151,935	30,723	44,354	41,469	44,970	161,516													
Sulfuric Acid								269,485	43,193	67,503	65,901	73,703	250,300	43,193	67,503	65,901	73,703	250,300	240,000	250,000	250,000
								303,786	116,165	118,327	101,540	124,243	460,275	126,165	123,327	101,540	124,243	475,275	400,000	420,000	440,000
								146,000				38,750	155,000	38,750	38,750	38,750	38,750	155,000	145,000	155,000	155,000
<b>Product Pricing</b>																					
<b>Agriculture</b>																					
Ammonia - Gross (10-Q)				\$ 245	\$ 255	\$ 192	\$ 230		\$ 288	\$ 408	\$ 552	\$ 700		\$ 450	\$ 450	\$ 375	\$ 375		\$ 215	\$ 350	\$ 435
Ammonia - Net (8-K)				\$ 235	\$ 250	\$ 182	\$ 210		\$ 283	\$ 395	\$ 545	\$ 685		\$ 435	\$ 435	\$ 360	\$ 360		\$ 205	\$ 340	\$ 425
UAN - Gross (10-Q)				\$ 161	\$ 163	\$ 138	\$ 150		\$ 161	\$ 245	\$ 315	\$ 435		\$ 300	\$ 300	\$ 250	\$ 250		\$ 150	\$ 190	\$ 264
UAN - Net (8-K)				\$ 150	\$ 149	\$ 130	\$ 132		\$ 150	\$ 231	\$ 305	\$ 425		\$ 285	\$ 285	\$ 235	\$ 235		\$ 140	\$ 180	\$ 250
HDAN - Gross (10-Q)				\$ 236	\$ 261	\$ 232	\$ 237		\$ 237	\$ 314	\$ 384	\$ 475		\$ 280	\$ 280	\$ 260	\$ 260		\$ 250	\$ 295	\$ 334
HDAN - Net (8-K)				\$ 198	\$ 232	\$ 201	\$ 159		\$ 207	\$ 286	\$ 355	\$ 445		\$ 250	\$ 250	\$ 230	\$ 230		\$ 220	\$ 265	\$ 305
Tampa Ammonia (Metric Ton)				\$ 250	\$ 234	\$ 207	\$ 239		\$ 348	\$ 545	\$ 610	\$ 665		\$ 550	\$ 550	\$ 475	\$ 475		\$ 250	\$ 350	\$ 545
Tampa Ammonia (Short Ton)									\$ 494	\$ 553	\$ 603	\$ 603		\$ 499	\$ 499	\$ 431	\$ 431		\$ 227	\$ 318	\$ 494
<b>Natural Gas Info</b>																					
MMBTUs Purchased				7.7	7.4	7.4	7.6		6.9												
Price/MMBTU				\$ 2.09	\$ 1.81	\$ 1.98	\$ 2.46		\$ 3.15												
Cost				\$ 16.09	\$ 13.39	\$ 14.65	\$ 18.70		\$ 21.74												
% of Cost of Sales				19.90%	15.57%	19.53%	20.24%		24.13%												
Agriculture Revenue	\$ 184.10	\$ 187.16	\$ 187.64	\$ 41.46	\$ 65.00	\$ 31.99	\$ 41.60	\$ 180.04	\$ 44.91	\$ 66.51	\$ 51.10	\$ 122.50	\$ 285.02	\$ 72.74	\$ 76.08	\$ 34.51	\$ 68.69	\$ 252.03	\$ 184.76	\$ 217.53	\$ 283.72
Industrial Revenue	\$ 130.70	\$ 148.60	\$ 139.64	\$ 35.21	\$ 29.56	\$ 32.37	\$ 35.89	\$ 133.02	\$ 40.28	\$ 60.61	\$ 63.92										
Mining Revenue	\$ 38.90	\$ 42.40	\$ 37.79	\$ 6.75	\$ 10.48	\$ 9.61	\$ 11.42	\$ 38.26	\$ 12.93	\$ 13.58	\$ 12.18										
Industrial, Mining, and Other Revenue													\$ 97.86	\$ 301.35	\$ 67.60	\$ 76.17	\$ 64.94	\$ 76.77	\$ 211.91	\$ 312.49	\$ 377.72
Total Revenue	\$ 353.70	\$ 378.16	\$ 365.07	\$ 83.41	\$ 105.03	\$ 73.97	\$ 88.90	\$ 351.32	\$ 98.12	\$ 140.70	\$ 127.20	\$ 220.36	\$ 586.37	\$ 140.34	\$ 152.26	\$ 99.45	\$ 145.46	\$ 537.51	\$ 396.67	\$ 530.01	\$ 661.44
<b>Fixed Expenses</b>																					
Salary, Wages, Operational Initiatives												\$ 25.00		\$ 25.00	\$ 25.00	\$ 25.00	\$ 25.00		\$ 95.00	\$ 100.00	\$ 105.00
Logistics/Rail Car Lease												\$ 3.13		\$ 3.13	\$ 3.13	\$ 3.13	\$ 3.13		\$ 10.00	\$ 12.50	\$ 15.00
<b>Variable Expenses</b>																					
Natural Gas (MMBtu)												11.84		8.22	8.92	5.83	8.52		30.00	31.50	33.00
Cost/MMBTU												\$ 5.50		\$ 4.33	\$ 3.50	\$ 3.52	\$ 3.62		\$ 2.85	\$ 3.00	\$ 4.15
Natural Gas Cost												\$ 65.11		\$ 35.61	\$ 31.23	\$ 20.51	\$ 30.86		\$ 85.50	\$ 94.50	\$ 136.95
Electricity												\$ 13.22		\$ 8.42	\$ 9.14	\$ 5.97	\$ 8.73		\$ 23.80	\$ 31.80	\$ 39.69
Catalyst Expense												\$ 3.31		\$ 2.11	\$ 2.28	\$ 1.49	\$ 2.18		\$ 5.95	\$ 7.95	\$ 9.92
Freight												\$ 22.04		\$ 14.03	\$ 15.23	\$ 9.94	\$ 14.55		\$ 39.67	\$ 53.00	\$ 66.14
Other Purchased Products												\$ 6.61		\$ 4.21	\$ 4.57	\$ 2.98	\$ 4.36		\$ 11.90	\$ 15.90	\$ 19.84
Other Expenses												\$ 3.31		\$ 2.11	\$ 2.28	\$ 1.49	\$ 2.18		\$ 5.95	\$ 7.95	\$ 9.92
Depreciation												\$ 18.13		\$ 18.13	\$ 18.13	\$ 18.13	\$ 18.13		\$ 70.00	\$ 70.00	\$ 70.00
Turnaround Expense												\$ -		\$ -	\$ -	\$ -	\$ -		\$ 10.00	\$ 10.00	\$ 10.00
Cost of Sales	\$ (422.04)	\$ (362.33)	\$ (360.09)	\$ (80.86)	\$ (86.01)	\$ (75.03)	\$ (92.37)	\$ (334.27)	\$ (90.06)	\$ (105.69)	\$ (109.75)	\$ (159.84)	\$ (465.33)	\$ (112.74)	\$ (110.98)	\$ (98.64)	\$ (109.11)	\$ (431.47)	\$ (357.77)	\$ (403.60)	\$ (482.47)
Cost of Sales as a % of Revenue	119.32%	95.81%	98.63%	96.94%	81.89%	101.43%	103.90%	95.15%	91.79%	75.12%	86.28%	72.53%	79.36%	80.33%	72.89%	99.19%	75.01%	80.27%	90.19%	76.15%	72.94%
Gross Profit	\$ 5.47	\$ 15.84	\$ 4.99	\$ 2.55	\$ 19.02	\$ (1.06)	\$ (3.47)	\$ 17.05	\$ 8.06	\$ 35.01	\$ 17.45	\$ 60.52	\$ 121.04	\$ 27.60	\$ 41.28	\$ 0.80	\$ 36.35	\$ 106.04	\$ 38.91	\$ 126.41	\$ 178.97
Gross Margin	1.55%	4.19%	1.37%	3.06%	18.11%	-1.43%	-3.90%	4.85%	8.21%	24.88%	13.72%	27.47%	20.64%	19.67%	27.11%	0.81%	24.99%	19.73%	9.81%	23.85%	27.06%
+ Depreciation Included in Cost of Sales		\$ 70.18	\$ 68.26	\$ 17.58	\$ 16.96	\$ 17.36	\$ 17.60	\$ 69.50	\$ 16.74	\$ 16.94	\$ 17.63	\$ 18.13	\$ 69.44	\$ 18.13	\$ 18.13	\$ 18.13	\$ 18.13	\$ 72.50	\$ 70.00	\$ 70.00	\$ 70.00
+ Turnaround Expense		\$ 9.77	\$ 13.21	\$ -	\$ 0.01	\$ 0.03	\$ 0.03	\$ 0.08	\$ 0.14	\$ 0.71	\$ 7.98	\$ -	\$ 8.82	\$ -	\$ -	\$ 10.00	\$ -	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00
- Recovery from Certain Vendors		\$ -	\$ -	\$ -	\$ (5.66)	\$ -	\$ -	\$ (5.66)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Adjusted Gross Profit	\$ 95.79	\$ 86.46	\$ 20.13	\$ 30.33	\$ 16.34	\$ 14.17	\$ 80.96	\$ 24.94	\$ 52.66	\$ 43.06	\$ 78.65	\$ 199.30	\$ 45.73	\$ 59.40	\$ 28.93	\$ 54.48	\$ 188.54	\$ 118.91	\$ 206.41	\$ 258.97	
Adjusted Gross Margin	25.33%	23.68%	24.13%	28.87%	22.09%	15.94%	23.04%	25.42%	37.43%	33.85%	35.69%	33.99%	32.58%	39.02%	29.09%	37.45%	35.08%	29.98%	38.94%	39.15%	
Selling, General, and Administrative Expenses	\$ (34.99)	\$ (40.81)	\$ (34.17)	\$ (10.01)	\$ (8.50)	\$ (7.07)	\$ (6.51)	\$ (32.08)	\$ (8.79)	\$ (8.55)	\$ (11.60)	\$ (9.00)	\$ (37.94)	\$ (6.50)	\$ (6.50)	\$ (6.50)	\$ (6.50)	\$ (26.00)	\$ (30.00)	\$ (32.50)	\$ (35.00)
Other Income (Expense), Net	\$ (4.57)	\$ 1.95	\$ (9.90)	\$ 0.47	\$ (0.88)	\$ (0.26)	\$ (0.50)	\$ (0.50)	\$ (0.01)	\$ (0.47)	\$ (0.47)	\$ -	\$ (0.22)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Operating Income (EBIT)	\$ (34.09)	\$ (23.03)	\$ (39.09)	\$ (6.99)	\$ 10.68	\$ (9.00)	\$ (10.23)	\$ (15.54)	\$ (0.47)	\$ 26.46	\$ 5.37	\$ 51.52	\$ 82.88	\$ 21.10	\$ 34.78	\$ (5.70)	\$ 29.85	\$ 80.04	\$ 8.91	\$ 93.91	\$ 143.97
Interest Expense, Net	\$ (37.27)	\$ (43.06)	\$ (46.39)	\$ (13.48)	\$ (12.48)	\$ (12.55)	\$ (12.61)	\$ (51.12)	\$ (12.37)	\$ (12.29)	\$ (12.96)	\$ (12.98)	\$ (50.60)	\$ (9.63)	\$ (9.58)	\$ (9.54)	\$ (9.49)	\$ (38.23)	\$ (38.23)	\$ (38.23)	\$ (38.23)
Gain (Loss) on Extinguishment of Debt	\$ -	\$ (5.95)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (10.00)	\$ -	\$ (15.70)	\$ (5.70)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-Operating and Other Income (Expense), Net	\$ 0.31	\$ 1.55	\$ 1.14	\$ 0.68	\$ 0.13	\$ (0.22)	\$ (0.60)	\$ (0.01)	\$ (0.40)	\$ (0.75)	\$ (1.33)	\$ (2.47)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Earnings Before Taxes (EBT)	\$ (71.05)	\$ (70.49																			

**Income Statement and Summary Statement of Cash Flows**

	2017	2018	2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	2020	Q1 2021	Q2 2021	Q3 2021 E	Q4 2021 E	2021 E	Q1 2022 E	Q2 2022 E	Q3 2022 E	Q4 2022 E	2022 E	Bear Case	Base Case	Bull Case
<b>EBITDA Calculation</b>																					
Net Income (Loss)	\$ (29.22)	\$ (72.23)	\$ (63.42)	\$ (19.45)	\$ (0.37)	\$ (20.40)	\$ (21.69)	\$ (61.91)	\$ (13.28)	\$ 23.67	\$ (8.93)	\$ 17.59	\$ 19.05	\$ 8.84	\$ 19.40	\$ (11.73)	\$ 15.68	\$ 32.19	\$ (22.58)	\$ 42.87	\$ 81.42
+ Interest Expense	\$ 37.27	\$ 43.06	\$ 46.39	\$ 13.48	\$ 12.48	\$ 12.55	\$ 12.61	\$ 51.12	\$ 12.37	\$ 12.29	\$ 12.96	\$ 12.98	\$ 50.60	\$ 9.63	\$ 9.58	\$ 9.54	\$ 9.49	\$ 38.23	\$ 38.23	\$ 38.23	\$ 38.23
+ Depreciation and Amortization	\$ 69.14	\$ 72.63	\$ 69.57	\$ 17.91	\$ 17.30	\$ 17.70	\$ 17.94	\$ 70.84	\$ 17.08	\$ 17.28	\$ 17.97	\$ 18.44	\$ 70.76	\$ 18.13	\$ 18.13	\$ 18.13	\$ 18.13	\$ 72.50	\$ 70.00	\$ 70.00	\$ 70.00
+ Provision (Benefit) for Income Tax	\$ (40.76)	\$ 1.74	\$ (20.92)	\$ (0.34)	\$ (1.30)	\$ (1.37)	\$ (1.74)	\$ (4.75)	\$ 0.04	\$ (0.25)	\$ 0.02	\$ 5.25	\$ 5.07	\$ 2.64	\$ (3.50)	\$ 4.68	\$ 9.62	\$ (6.75)	\$ 12.81	\$ 24.32	\$ -
+ Other	\$ (1.08)	\$ 5.95	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (10.00)	\$ -	\$ -	\$ (10.00)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>EBITDA</b>	<b>\$ 35.36</b>	<b>\$ 51.16</b>	<b>\$ 31.62</b>	<b>\$ 11.60</b>	<b>\$ 28.11</b>	<b>\$ 8.48</b>	<b>\$ 7.11</b>	<b>\$ 55.30</b>	<b>\$ 16.21</b>	<b>\$ 42.99</b>	<b>\$ 22.02</b>	<b>\$ 54.26</b>	<b>\$ 135.48</b>	<b>\$ 39.23</b>	<b>\$ 52.90</b>	<b>\$ 12.43</b>	<b>\$ 47.98</b>	<b>\$ 152.54</b>	<b>\$ 78.91</b>	<b>\$ 163.91</b>	<b>\$ 213.97</b>
+ Stock-Based Compensation	\$ 5.30	\$ 8.37	\$ 2.22	\$ 0.50	\$ 0.69	\$ 0.45	\$ 0.13	\$ 1.76	\$ 0.71	\$ 1.06	\$ 2.55	\$ 0.45	\$ 4.78	\$ 0.50	\$ 0.69	\$ 0.45	\$ 0.45	\$ 2.08	\$ 2.00	\$ 2.00	\$ 2.00
+ Legal Expense	\$ -	\$ 4.82	\$ 9.57	\$ 3.29	\$ 0.96	\$ 0.90	\$ 0.57	\$ 5.72	\$ 0.89	\$ 0.44	\$ 0.27	\$ 0.50	\$ 2.10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Loss (Gain) on Disposal of Assets and Other	\$ 6.70	\$ (1.61)	\$ 11.19	\$ (0.22)	\$ (0.05)	\$ 0.89	\$ 0.31	\$ 0.92	\$ 0.08	\$ 0.09	\$ (0.22)	\$ 0.52	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Fair Market Value Adjustment on Preferred Stock E	\$ (0.70)	\$ (1.33)	\$ (0.56)	\$ (0.64)	\$ (0.12)	\$ 0.14	\$ 0.56	\$ (0.05)	\$ 0.44	\$ 0.72	\$ 1.11	\$ -	\$ 2.26	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Consulting Costs Associated with Reliability and P	\$ -	\$ 1.10	\$ 1.42	\$ 0.58	\$ -	\$ 0.00	\$ (0.02)	\$ 0.56	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Consulting Costs Associated with Blue-Gree Amm	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Unrealized Loss (Gain) on Commodity Contracts	\$ -	\$ -	\$ -	\$ 0.53	\$ (0.40)	\$ (0.67)	\$ 1.74	\$ 1.21	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Consulting Fee/Negotiated Property Tax Savings a	\$ -	\$ 2.76	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Derecognition of Death Benefit Accrual	\$ (1.40)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Severance Costs	\$ -	\$ 2.65	\$ 0.62	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ EBITDA from Businesses Sold	\$ (2.60)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Noncash Loss (Gain) on Natural Gas Contracts	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (1.21)	\$ -	\$ -	\$ -	\$ (1.21)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Loss on Extinguishment of Debt	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 15.70	\$ 15.70	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Costs Associated with Conversion of Series E Pref	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3.22	\$ 3.22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
+ Turnaround Costs	\$ 1.10	\$ 9.77	\$ 13.21	\$ -	\$ 0.01	\$ 0.03	\$ 0.03	\$ 0.08	\$ 0.14	\$ 0.71	\$ 7.98	\$ -	\$ 8.82	\$ -	\$ -	\$ 10.00	\$ -	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00
<b>Adjusted EBITDA</b>	<b>\$ 43.76</b>	<b>\$ 77.68</b>	<b>\$ 69.29</b>	<b>\$ 15.62</b>	<b>\$ 29.19</b>	<b>\$ 10.23</b>	<b>\$ 10.45</b>	<b>\$ 65.48</b>	<b>\$ 17.27</b>	<b>\$ 46.01</b>	<b>\$ 37.66</b>	<b>\$ 71.91</b>	<b>\$ 172.85</b>	<b>\$ 39.72</b>	<b>\$ 53.59</b>	<b>\$ 22.88</b>	<b>\$ 48.43</b>	<b>\$ 164.62</b>	<b>\$ 90.91</b>	<b>\$ 175.91</b>	<b>\$ 225.97</b>
<b>Share Count Information</b>																					
Weighted Average Basic Shares Outstanding				28.18	28.20	28.21	28.20		28.34	28.49	39.35	88.82		88.82	88.82	88.82	88.82		88.82	88.82	88.82
Weighted Average Diluted Shares Outstanding				28.18	28.20	28.21	28.20		28.34	30.14	39.35	88.82		88.82	88.82	88.82	88.82		88.82	88.82	88.82
Treasury Stock on Balance Sheet Date				1.98	1.97	1.97	1.97		1.25	0.98	0.98	0.98		0.98	0.98	0.98	0.98		0.98	0.98	0.98
Shares Outstanding on Filing Date				29.30	29.32	29.32	30.04		30.04	30.30	88.82	88.82		88.82	88.82	88.82	88.82		88.82	88.82	88.82
Convertible Preferred Stock				0.92	0.92	0.92	0.92		0.92	0.92	1.19	1.19		1.19	1.19	1.19	1.19		1.19	1.19	1.19
Stock Options				0.12	0.12	0.12	0.12		0.09	0.07	0.06	0.06		0.06	0.06	0.06	0.06		0.06	0.06	0.06
Warrants				-	-	-	-		-	-	-	-		-	-	-	-		-	-	-
Restricted Stock Units				1.21	1.31	1.40	1.33		1.81	0.74	2.43	2.43		2.43	2.43	2.43	2.43		2.43	2.43	2.43
Series E Embedded Derivative				0.30	0.30	0.30	0.30		0.30	0.30	-	-		-	-	-	-		-	-	-
Total Potentially Dilutive Shares				2.55	2.65	2.75	2.67		3.12	2.03	3.68	3.68		3.68	3.68	3.68	3.68		3.68	3.68	3.68
Calculated Fully Diluted Share Count				31.85	31.97	32.07	32.71		33.16	32.33	92.51	92.51		92.51	92.51	92.51	92.51		92.51	92.51	92.51
<b>EPS Information</b>																					
Earnings per Share, Basic	\$ (2.18)	\$ (3.74)	\$ (3.44)	\$ (1.01)	\$ (0.34)	\$ (1.06)	\$ (1.12)	\$ (3.53)	\$ (0.82)	\$ 0.44	\$ (6.39)	\$ 0.20	\$ (6.57)	\$ 0.10	\$ 0.22	\$ (0.13)	\$ 0.18	\$ 0.36	\$ (0.26)	\$ 0.48	\$ 0.91
Earnings per Share, Diluted	\$ (2.18)	\$ (3.74)	\$ (3.44)	\$ (1.01)	\$ (0.34)	\$ (1.06)	\$ (1.12)	\$ (3.53)	\$ (0.82)	\$ 0.42	\$ (6.39)	\$ 0.20	\$ (6.60)	\$ 0.10	\$ 0.22	\$ (0.13)	\$ 0.18	\$ 0.36	\$ (0.26)	\$ 0.48	\$ 0.91
<b>Summary Statement of Cash Flows</b>																					
Cash Flows from Operating Activities	\$ 2.28	\$ 17.62	\$ 2.10	\$ (2.18)	\$ 21.55	\$ 5.34	\$ (27.23)	\$ (2.51)	\$ 12.71	\$ 17.87	\$ 34.89	\$ (28.86)	\$ 36.61	\$ 116.21	\$ (40.35)	\$ 125.43	\$ (120.82)	\$ 80.47	\$ 103.07	\$ 151.21	\$ 172.69
Cash Flows from Investing Activities	\$ (10.85)	\$ (25.74)	\$ (35.93)	\$ (10.56)	\$ (7.10)	\$ (2.57)	\$ (8.21)	\$ (28.43)	\$ (5.94)	\$ (8.61)	\$ (11.17)	\$ (11.40)	\$ (37.12)	\$ (10.00)	\$ (10.00)	\$ (10.00)	\$ (10.00)	\$ (40.00)	\$ (35.00)	\$ (37.50)	\$ (40.00)
Cash Flows from Financing Activities	\$ (16.13)	\$ 0.55	\$ 30.57	\$ 27.43	\$ 4.57	\$ (17.19)	\$ 9.61	\$ 24.41	\$ (8.81)	\$ (5.86)	\$ (8.49)	\$ 49.60	\$ 26.44	\$ (6.82)	\$ (4.96)	\$ (4.74)	\$ 12.70	\$ (3.82)	\$ -	\$ -	\$ -
Cash Flows from Discontinued Operations	\$ (1.70)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Net Change in Cash</b>	<b>\$ (26.40)</b>	<b>\$ (7.57)</b>	<b>\$ (3.26)</b>	<b>\$ 14.69</b>	<b>\$ 19.03</b>	<b>\$ (14.42)</b>	<b>\$ (25.83)</b>	<b>\$ (6.53)</b>	<b>\$ (2.03)</b>	<b>\$ 3.39</b>	<b>\$ 15.23</b>	<b>\$ 9.34</b>	<b>\$ 25.93</b>	<b>\$ 99.39</b>	<b>\$ (55.31)</b>	<b>\$ 110.70</b>	<b>\$ (118.13)</b>	<b>\$ 36.66</b>	<b>\$ 68.07</b>	<b>\$ 113.71</b>	<b>\$ 132.69</b>
Free Cash Flow	\$ (33.15)	\$ (19.43)	\$ (33.98)	\$ (12.92)	\$ 14.34	\$ 1.06	\$ (35.47)	\$ (32.98)	\$ 6.58	\$ 9.15	\$ 23.64	\$ (40.26)	\$ (0.89)	\$ 106.21	\$ (50.35)	\$ 115.43	\$ (130.82)	\$ 40.47	\$ 68.07	\$ 113.71	\$ 132.69



## Balance Sheet

	Q4 2017	Q4 2018	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021 E	Q1 2022 E	Q2 2022 E	Q3 2022 E	Q4 2022 E
Cash and Cash Equivalents	\$ 33.62	\$ 26.05	\$ 22.79	\$ 37.48	\$ 56.51	\$ 42.09	\$ 16.26	\$ 14.23	\$ 17.63	\$ 32.86	\$ 42.20	\$ 141.59	\$ 86.28	\$ 196.98	\$ 78.85
Accounts Receivable	\$ 59.87	\$ 67.04	\$ 40.20	\$ 51.06	\$ 42.57	\$ 39.95	\$ 42.93	\$ 60.50	\$ 67.43	\$ 66.08					
Allowance for Doubtful Accounts	\$ (0.30)	\$ (0.35)	\$ (0.26)	\$ (0.33)	\$ (0.40)	\$ (0.39)	\$ (0.38)	\$ (0.38)	\$ (0.38)	\$ (0.38)					
Accounts Receivable, Net	\$ 59.57	\$ 66.69	\$ 39.94	\$ 50.73	\$ 42.17	\$ 39.55	\$ 42.55	\$ 60.13	\$ 67.05	\$ 65.71	\$ 103.80	\$ 22.66	\$ 104.50	\$ (6.14)	\$ 134.02
Raw Material	\$ 1.44	\$ 1.48	\$ 1.57	\$ 1.67	\$ 1.36	\$ 1.57	\$ 1.80	\$ 1.57	\$ 1.52	\$ 1.67					
Finished Goods	\$ 20.42	\$ 27.73	\$ 21.74	\$ 24.63	\$ 12.97	\$ 17.64	\$ 17.78	\$ 17.65	\$ 12.78	\$ 16.54					
Inventory Allowance Reserve	\$ (0.93)	\$ (0.28)													
Inventories	\$ 21.86	\$ 29.21	\$ 23.31	\$ 26.30	\$ 14.33	\$ 19.20	\$ 19.57	\$ 19.22	\$ 14.30	\$ 18.21	\$ 38.00	\$ 11.56	\$ 32.35	\$ 11.01	\$ 39.35
Supplies	\$ 27.73	\$ 24.58	\$ 24.69	\$ 25.16	\$ 25.22	\$ 25.17	\$ 25.29	\$ 25.41	\$ 25.88	\$ 26.01	\$ 25.00	\$ 25.00	\$ 25.00	\$ 25.00	\$ 25.00
Precious Metals	\$ 7.41	\$ -	\$ -	\$ -	\$ 7.68	\$ 7.18	\$ 6.79	\$ 6.67	\$ 7.80	\$ 10.67	\$ 7.00	\$ 7.00	\$ 7.00	\$ 7.00	\$ 7.00
Pre-Paid Insurance	\$ 10.54	\$ 10.92	\$ 11.84	\$ 8.72	\$ 5.20	\$ 1.48	\$ 12.32	\$ 10.05	\$ 5.68	\$ 1.88	\$ 12.93	\$ 10.55	\$ 5.97	\$ 1.97	\$ 13.58
Prepaid/Refundable Income Taxes	\$ 1.74	\$ 0.66	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Current Assets	\$ 1.28	\$ 8.30	\$ 8.30	\$ 8.83	\$ 1.66	\$ 3.35	\$ 6.80	\$ 3.26	\$ 4.76	\$ 7.63	\$ 4.00	\$ 4.00	\$ 4.00	\$ 4.00	\$ 4.00
<b>Total Current Assets</b>	<b>\$ 163.74</b>	<b>\$ 166.41</b>	<b>\$ 130.87</b>	<b>\$ 157.24</b>	<b>\$ 152.78</b>	<b>\$ 138.03</b>	<b>\$ 129.58</b>	<b>\$ 138.96</b>	<b>\$ 143.10</b>	<b>\$ 162.96</b>	<b>\$ 232.93</b>	<b>\$ 222.36</b>	<b>\$ 265.09</b>	<b>\$ 239.82</b>	<b>\$ 301.80</b>
Machinery, Equipment, and Automotive	\$ 1,163.53	\$ 1,189.44	\$ 1,204.70				\$ 1,213.36								
Proved Natural Gas Properties	\$ -	\$ -	\$ -				\$ -								
Buildings and Improvements	\$ 42.89	\$ 39.03	\$ 38.81				\$ 44.12								
Furniture, Fixtures, and Store Equipment	\$ 1.47	\$ 1.12	\$ 1.12				\$ 1.08								
Land Improvements	\$ 8.11	\$ 8.08	\$ 8.22				\$ 8.22								
Construction in Progress	\$ 27.97	\$ 28.75	\$ 31.58				\$ 18.39								
Capital Spare Parts	\$ 29.84	\$ 28.95	\$ 24.25				\$ 26.89								
Land	\$ 7.76	\$ 4.58	\$ 4.58				\$ 4.57								
Less Accumulated Depreciation, Depletion and Am	\$ (267.53)	\$ (325.70)	\$ (376.77)				\$ (425.44)								
Net Property, Plant, and Equipment	\$ 1,014.04	\$ 974.25	\$ 936.47	\$ 928.39	\$ 913.44	\$ 899.61	\$ 891.20	\$ 882.82	\$ 871.78	\$ 869.50	\$ 862.77	\$ 854.65	\$ 846.52	\$ 838.40	\$ 830.27
Operating Lease Assets			\$ 15.33	\$ 19.15	\$ 20.90	\$ 25.36	\$ 26.40	\$ 27.67	\$ 27.85	\$ 28.31	\$ 26.97	\$ 27.67	\$ 27.85	\$ 28.31	\$ 26.97
Intangibles and Other Assets	\$ 11.40	\$ 7.67	\$ 5.81	\$ 5.37	\$ 7.55	\$ 6.93	\$ 6.12	\$ 5.55	\$ 6.75	\$ 13.78	\$ 13.47	\$ 13.15	\$ 12.84	\$ 12.52	\$ 12.21
<b>Total Assets</b>	<b>\$ 1,189.18</b>	<b>\$ 1,148.33</b>	<b>\$ 1,088.49</b>	<b>\$ 1,110.15</b>	<b>\$ 1,094.67</b>	<b>\$ 1,069.93</b>	<b>\$ 1,053.30</b>	<b>\$ 1,055.00</b>	<b>\$ 1,049.49</b>	<b>\$ 1,074.54</b>	<b>\$ 1,136.14</b>	<b>\$ 1,117.83</b>	<b>\$ 1,152.30</b>	<b>\$ 1,119.05</b>	<b>\$ 1,171.24</b>
Accounts Payable	\$ 55.99	\$ 62.59	\$ 58.48	\$ 54.01	\$ 45.25	\$ 41.19	\$ 46.55	\$ 57.36	\$ 51.21	\$ 73.66	\$ 73.88	\$ 42.57	\$ 72.06	\$ 34.17	\$ 78.54
Accrued and Other Liabilities	\$ 35.57	\$ 42.13	\$ 25.48	\$ 40.54	\$ 27.77	\$ 40.96	\$ 30.37	\$ 40.72	\$ 30.54	\$ 50.77	\$ 30.37	\$ 40.72	\$ 30.54	\$ 50.77	\$ 30.37
Short-Term Financing	\$ 8.59	\$ 8.58	\$ 9.93	\$ 6.89	\$ 3.83	\$ 0.75	\$ 13.58	\$ 8.16	\$ 4.52	\$ 1.08	\$ 14.25	\$ 8.56	\$ 4.74	\$ 1.14	\$ 14.97
Current Portion of Long-Term Debt	\$ 9.15	\$ 12.52	\$ 9.41	\$ 9.67	\$ 11.49	\$ 15.20	\$ 16.80	\$ 18.08	\$ 9.05	\$ 9.25	\$ 9.25	\$ 9.25	\$ 9.25	\$ 9.25	\$ 9.25
<b>Total Current Liabilities</b>	<b>\$ 109.30</b>	<b>\$ 125.81</b>	<b>\$ 103.30</b>	<b>\$ 111.11</b>	<b>\$ 88.34</b>	<b>\$ 98.10</b>	<b>\$ 107.30</b>	<b>\$ 124.32</b>	<b>\$ 95.32</b>	<b>\$ 134.76</b>	<b>\$ 127.75</b>	<b>\$ 101.11</b>	<b>\$ 116.59</b>	<b>\$ 95.33</b>	<b>\$ 133.12</b>
Long-Term Debt	\$ 400.25	\$ 412.68	\$ 449.63	\$ 480.84	\$ 487.55	\$ 470.75	\$ 467.39	\$ 463.67	\$ 461.46	\$ 460.64	\$ 512.76	\$ 511.63	\$ 510.50	\$ 509.37	\$ 508.23
Non-Current Operating Lease Liabilities			\$ 11.40	\$ 14.51	\$ 15.96	\$ 19.25	\$ 19.85	\$ 20.24	\$ 20.28	\$ 20.70	\$ 20.10	\$ 20.24	\$ 20.28	\$ 20.70	\$ 20.10
Net Deferred Income Taxes	\$ 54.79	\$ 56.61	\$ 35.72	\$ 35.34	\$ 34.06	\$ 32.66	\$ 30.94	\$ 31.27	\$ 31.20	\$ 31.33	\$ 31.33	\$ 31.33	\$ 31.33	\$ 31.33	\$ 31.33
Non-Current Accrued and Other Liabilities	\$ 11.69	\$ 8.86	\$ 6.21	\$ 5.15	\$ 5.24	\$ 5.60	\$ 6.09	\$ 6.33	\$ 7.37	\$ 4.04	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00
Redeemable Preferred Stock	\$ 174.96	\$ 202.17	\$ 234.89	\$ 243.70	\$ 252.90	\$ 262.30	\$ 272.10	\$ 282.12	\$ 292.85	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Liabilities</b>	<b>\$ 750.99</b>	<b>\$ 806.14</b>	<b>\$ 841.16</b>	<b>\$ 890.66</b>	<b>\$ 884.05</b>	<b>\$ 888.66</b>	<b>\$ 903.66</b>	<b>\$ 927.96</b>	<b>\$ 908.47</b>	<b>\$ 651.48</b>	<b>\$ 696.95</b>	<b>\$ 669.31</b>	<b>\$ 683.70</b>	<b>\$ 661.73</b>	<b>\$ 697.79</b>
Common Stock, Par Value	\$ 3.13	\$ 3.13	\$ 3.13	\$ 3.13	\$ 3.13	\$ 3.13	\$ 3.13	\$ 3.13	\$ 3.13	\$ 8.98	\$ 18.07	\$ 18.07	\$ 18.07	\$ 18.07	\$ 18.07
Additional Paid in Capital	\$ 193.96	\$ 198.48	\$ 196.83	\$ 196.97	\$ 197.57	\$ 198.01	\$ 198.22	\$ 193.62	\$ 192.89	\$ 478.10	\$ 478.10	\$ 478.10	\$ 478.10	\$ 478.10	\$ 478.10
Treasury Stock	\$ (18.10)	\$ (16.19)	\$ (13.27)	\$ (12.97)	\$ (12.88)	\$ (12.88)	\$ (13.21)	\$ (7.92)	\$ (6.25)	\$ (6.56)	\$ (6.56)	\$ (6.56)	\$ (6.56)	\$ (6.56)	\$ (6.56)
Retained Earnings (Accumulated Deficit)	\$ 256.21	\$ 153.77	\$ 57.63	\$ 39.37	\$ 19.81	\$ 9.99	\$ (41.49)	\$ (64.79)	\$ (51.84)	\$ (71.46)	\$ (53.87)	\$ (45.04)	\$ (25.64)	\$ (37.36)	\$ (21.68)
Series B 12% Cumulative, Convertible Preferred Stock	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00
Series D 6% Cumulative, Convertible Preferred Stock	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00
Convertible Preferred Stock	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00
<b>Total Shareholders' Equity</b>	<b>\$ 438.20</b>	<b>\$ 342.20</b>	<b>\$ 247.33</b>	<b>\$ 219.50</b>	<b>\$ 210.62</b>	<b>\$ 181.27</b>	<b>\$ 149.64</b>	<b>\$ 127.04</b>	<b>\$ 141.02</b>	<b>\$ 423.07</b>	<b>\$ 439.18</b>	<b>\$ 448.51</b>	<b>\$ 468.60</b>	<b>\$ 457.32</b>	<b>\$ 473.45</b>
<b>Total Liabilities and Shareholders' Equity</b>	<b>\$ 1,189.18</b>	<b>\$ 1,148.33</b>	<b>\$ 1,088.49</b>	<b>\$ 1,110.15</b>	<b>\$ 1,094.67</b>	<b>\$ 1,069.93</b>	<b>\$ 1,053.30</b>	<b>\$ 1,055.00</b>	<b>\$ 1,049.49</b>	<b>\$ 1,074.54</b>	<b>\$ 1,136.14</b>	<b>\$ 1,117.83</b>	<b>\$ 1,152.30</b>	<b>\$ 1,119.05</b>	<b>\$ 1,171.24</b>
Current Ratio	1.50x	1.32x	1.27x	1.42x	1.73x	1.41x	1.21x	1.12x	1.50x	1.21x	1.82x	2.20x	2.27x	2.52x	2.27x
Days Sales Outstanding (DSO)	65.76	60.03	44.91	49.46	40.25	50.27	42.02	47.61	41.13	47.49	35.00	41.00	38.00	45.00	40.00
Days Inventory Outstanding (DIO)	20.13	26.06	23.20	27.92	21.50	20.34	19.10	19.60	14.43	13.48	16.00	20.00	18.00	20.00	21.00
Days Payables Outstanding (DPO)	48.20	65.35	59.44	63.30	52.51	52.42	43.22	52.50	46.74	51.77	42.00	47.00	47.00	49.00	47.00
Working Capital	\$ 54.44	\$ 40.60	\$ 27.57	\$ 46.12	\$ 64.44	\$ 39.93	\$ 22.29	\$ 14.64	\$ 47.78	\$ 28.19	\$ 105.17	\$ 121.25	\$ 148.49	\$ 144.49	\$ 168.67
Working Capital Turnover	6.50x	9.31x	13.24x				8.13x				11.98x				3.69x

## About

Granite Research produces and distributes investment research analysis on publicly traded companies designed for institutional investors. We perform in-depth research and analysis to identify investment opportunities and catalysts that we expect to generate shareholder value. Research reports and analysis are designed to provide professional investors with the information they expect in order to make informed investment decisions. Companies under our research coverage are typically underfollowed and undervalued but have established economic niches and attractive competitive positions. Our research focuses on the enterprise's underlying fundamental characteristics and long-term value rather than short-term earnings forecasts.

Granite Research's analysts are experienced financial professionals who understand the need for objective research and have adopted written ethical standards for independence and mitigating conflicts of interest. Granite Research's employees and independent contractors do not perform investor relations, investment banking, or consulting services, which can drive ancillary fees and potentially impact objectivity.

Granite Research was founded in 2017 and is a subsidiary of Global Value Investment Corp., a registered investment advisor based in Milwaukee, WI. Granite Research maintains offices in Boston, MA and Los Angeles, CA. In 2021, Granite Research was reorganized and rebranded from Global Value Research Company to focus on expanding its company-sponsored research coverage and broadening its investor outreach services.

## Analyst Biographies

### *JP Geygan*

Mr. Geygan is a generalist responsible for analytical coverage of companies across all sectors for Granite Research. In addition, Mr. Geygan is COO and Senior Vice President Global Value Investment Corp., where he serves on the Investment Committee and oversees all investment research, ensuring quality and rigor of analysis. Mr. Geygan joined Global Value Investment Corp., the parent company of Granite Research predecessor firm Global Value Research Company, in 2017. He was instrumental in establishing Global Value Research Company's company-sponsored research and served as its first research analyst. Prior to joining Global Value Investment Corp., Mr. Geygan was employed by Wells Fargo Bank, N.A. in both banking and investment product sales roles. Mr. Geygan received a Bachelor of Science in political science from the University of Wisconsin-Madison.

### *Rob McGuire*

Mr. McGuire is a generalist responsible for analytical coverage of companies across all sectors for Granite Research. He is a 25+ year Wall Street veteran and has established himself as an analyst-salesman, working with institutional investors covering industrials, materials, technology, consumer, healthcare, REITs, energy, and utilities. Nineteen years of Mr. McGuire's tenure was spent at Keybank Equity Capital Markets, a division of Keybank, a top-20 bank in the United States based in Cleveland, OH. While at Keybank, Mr. McGuire was a member of the Equity Capital Markets management team, ran a team of six people, and led the buildout of the firm's West Coast institutional sales effort. He developed the Morning Call Summary for the firm, which he and his team produced daily for use by salespeople throughout the country. Mr. McGuire also has a strong history of authoring in-depth investment theses and delivering idea flow to equity fund managers. His experience also includes working for Vertical Research Partners, LLC, the premier boutique independent research firm focusing on industrials and basic materials. Prior to working on Wall Street, Mr. McGuire worked for Emery Worldwide, the nation's largest heavyweight air freight carrier. Mr. McGuire received a Masters in Business Administration in finance and a Bachelor of Arts in international business from Loyola Marymount University.

## Analyst Certification

The research analyst responsible for this research report hereby certifies that the views expressed in the research report accurately reflect his or her personal views about the subject securities and issuers, and that no part of his or her compensation was, is, or will be directly or indirectly related to the specific recommendations or views contained in the research report.

## Disclosures

This report is published by Granite Research, a subsidiary of Global Value Investment Corp. (GVIC), and is primarily disseminated electronically and available to all recipients simultaneously. GVIC is a registered investment adviser and does not, has never, and has no future plans to, provide investment banking services. All statements or opinions contained in this report are solely the responsibility of Granite Research. All information, including facts and opinions, contained in this report were based solely on publicly available information and were obtained from sources believed to be reliable, but are in no way guaranteed to be complete or accurate. This report is for informational purposes only, and does not constitute a guarantee of any company's future value, an offer or solicitation to buy or sell any security, or an agreement, explicit or implied, to provide any service.

Employees of Granite Research and/or GVIC may have minority, non-controlling positions in the securities issued by the company discussed in this report (the "Company"). Granite Research retains ownership of this report and, other than confirming the accuracy of certain facts presented prior to publication, the Company has no control over its contents. Investments in the securities referenced in this report involve risks and uncertainties that could cause actual results to differ from the analysis and opinions provided by Granite Research and may not be suitable for all investors. Past performance of the Company should not be taken as an indication or guarantee of future results. Additional information about GVIC, Granite Research, and the services provided by each is available upon request.

## Compensation

Granite Research receives an annual non-contingent flat fee ranging from \$10,000 to \$75,000 from the Company for the publication of research content as deemed appropriate by Granite Research. To mitigate the conflict of interest created by the Company compensating Granite Research preparing the reports, Granite Research requires its fee to be fully paid in advance of the publication of its initial report. Granite Research has implemented policies and procedures to promote the objectivity of its analysts. Granite Research does not rely on revenues from any single company, including the Company, engaging the firm for its research services. Granite Research also prohibits companies from compensating it with stock-based or other forms of variable compensation and only accepts cash (or cash equivalents) for its services. Although Granite Research employees may own positions in the securities of companies covered by the firm, Granite Research has implemented strict procedures that prohibit employees from trading securities, including options, directly related to the subjects of its reports within ten days before and three days after their publication.

Copyright 2021 Granite Research. All rights reserved. No part of this report may be reproduced in any form without the express written consent of Granite Research.