THE OWL FUND

Initiation of Coverage
November 2, 2019

Chart Industries, Inc.

Exchange: NASDAQ | Ticker: GTLS | Target Price: $78.00

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INVESTMENT THESIS

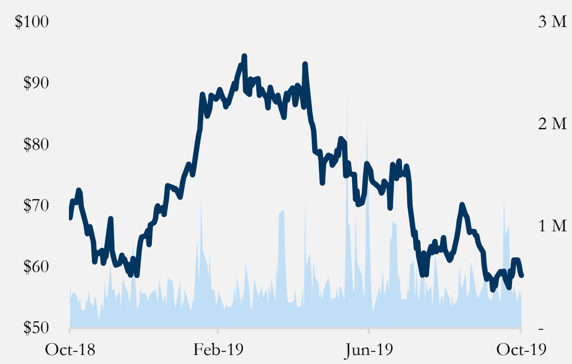
- Despite diversifying its product portfolio to capitalize on industry tailwinds in small-scale and specialty LNG applications, near-sighted concerns regarding the current LNG build cycle, such as ongoing large project delays, have overshadowed GTLS' underlying business.
- LNG spot prices have deteriorated due to a temporary supply surplus because of the aggressive LNG build-out in recent years. As a result, concerns over future orders have weighed on the multiple, although expected global demand should far exceed supply by 2023, indicating a long-term need for new project sanctions.
- U.S.-China trade tensions have halted contract negotiations between Chinese buyers and U.S. exporters, causing final investment decision (FID) delays for Tellurian's Driftwood and Cheniere's Corpus Christi 3. GTLS is supplying substantive solutions to both projects, so the timeline delays have pushed back significant cash flows.
- Along with interest in some of the largest LNG projects across the globe, management is focusing its efforts on small and mid-scale LNG, specialty applications in food & beverage, and self-help initiatives through portfolio reviews and cost-cutting efforts to improve margins and counter the cyclical nature of big LNG FIDs.
- GTLS is currently trading at 17.7x LTM EBITDA, representing a 26.2% discount to its two-year median multiple of 22.6x. We believe investors' near-sighted focus on big LNG delays creates a buying opportunity for a company with an attractive position in a highly sought-after industry. We apply a 13.0x multiple to our 2020E EBITDA for our price target of $78.00, representing ~31.8% upside.

COMPANY OVERVIEW

Chart Industries, Inc. (GTLS) is a global manufacturer of solutions used in the production, transportation, storage, and use of hydrocarbon and industrial gases. Founded in 1992, the Georgia-based company manufactures equipment used to convert gases to cryogenic liquids, including liquefaction processing units, heat exchangers, cold boxes, containment vessels, and more. The Company reports in four segments: Energy & Chemicals FinFans (35.4% of 3Q'19 Revenue), Distribution & Storage West (31.7%), Distribution & Storage East (19.4%), and Energy & Chemicals Cryogenics (13.5%). GTLS is scheduled to release its 4Q'19 results on February 13, 2020.

Key Statistics (US$ in M, except per share data)			
Price (2-Nov)	$59.17	52-Week Low	$54.12
Exp. Return	~32%	52-Week High	$95.66
Shares O/S	35.8	Div. Yield	-
Market Cap	$2,159	Ent. Value	$2,927

One-Year Price Graph



Earnings (Adj.) / Revenue Surprise History

Quarters	EPS	Revenue	Δ Price
4Q'18	15.23%	2.46%	4.11%
1Q'19	(8.24%)	(0.34%)	(0.99%)
2Q'19	13.71%	(3.59%)	6.12%
3Q'19	1.85%	(6.25%)	0.78%

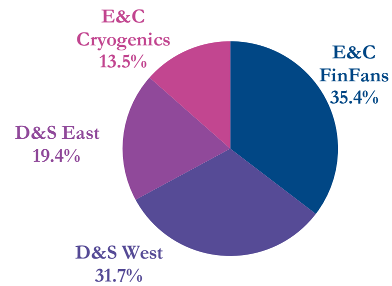
Earnings Projections (Adj.)

	Q1	Q2	Q3	Q4	FY
2017A	$0.01	$0.21	$0.18	$0.97	$1.37
2018A	0.24	0.38	0.77	0.58	1.97
2019E	0.38	0.67	0.70	0.94	2.69
2020E	0.91	1.19	1.34	1.47	4.91

Source: Bloomberg

GTLS BUSINESS OVERVIEW

GTLS Revenue Breakdown



GTLS designs, manufactures, and provides equipment, solutions and services globally to businesses in the liquid gas supply chain. GTLS creates a variety of products used to support the liquefaction of natural gas such as cryogenic equipment, heat exchangers, and ambient temperature fans. Its customers are mainly producers and distributors of hydrocarbon and industrial gases within the energy and industrial gas industries. Prior to the Harsco Industrial Air-X-Changers acquisition in July 2019, GTLS operated in three segments: Energy and Chemicals (E&C), Distribution and Storage Western Hemisphere (D&S West) and Distribution and Storage Eastern (D&S East). Following the close of the acquisition, GTLS added a new segment, Energy and Chemicals FinFans (E&C FinFans) and changed the prior E&C segment to E&C Cryogenics, which is reflected in GTLS' 3Q'19 financials.

Distribution & Storage (51.1% of 3Q'19 Revenue):

The D&S segment provides cryogenic solutions for the storage and delivery of liquids used in LNG, manufacturing, electronics, and aftermarket services. These liquids include nitrogen, hydrogen, helium, and natural gas. This segment is divided into D&S West and D&S East with $345mm and $217mm in 2019 sales, respectively. (See Appendix Exhibit VIII for the further breakdown of geographic breakdown)

- **D&S West**: Post-AXC close, D&S West accounted for ~32% of 3Q'19 revenue, and it serves the Americas region. This segment also includes cryobiological storage business from the divested BioMedical segment at the end of 2018. It sells vacuum-insulated containment vessels for biological materials. D&S West includes specialty markets such as the food & beverage industry. Its products range from LNG, cryobiological storage, packaged gas and bulk industrial gas.

- **D&S East**: Post-AXC close, this segment represented approximately 19% of 3Q'19 sales. It serves businesses across Europe, MEA, and Asia. A portion of the VRV business, acquired in 4Q'18, added geographic exposure to India. The product mix includes packaged gas, bulk industrial gas, and LNG.

Energy & Chemicals (48.9% of 3Q'19 Revenue):

The E&C segment sells equipment and systems used throughout the gas-to-liquid application to natural gas, petrochemical processing, petroleum refining, and industrial gas companies. Additionally, GTLS leads the market in the distribution of axial cooling fans for power and HVAC. Post AXC close, the E&C business divided into two segments: E&C Cryogenics and E&C FinFans, with $131M and $272M in 2019 sales, respectively. The E&C business spans across the United States as well as Europe, Asia, and the Middle East.

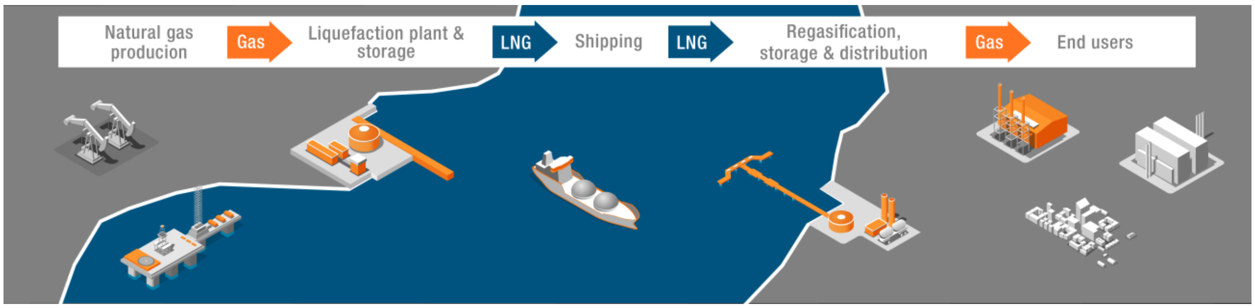
- **E&C Cryogenics**: As of 3Q'19, this segment accounted for ~14% of sales. The most notable product in its portfolio are its brazed aluminum heat exchangers (BAHX), used in LNG liquefaction, industrial gas production, natural gas processing, and petrochemical applications. Within this segment, GTLS also provides technology services focused on mid-scale applications for LNG processes.

- **E&C FinFans**: As of 3Q'19, this segment accounted for ~35% of sales. The business is comprised of the AXC business (up/midstream), the Hudson Products (downstream) business acquired in 2017, and cooler services. As the name implies, the segment specializes in air-cooled heat exchangers (ACHX). These are used in the production of oil and gas, refining, and re-gasification in power plants and LNG. Management expects to see continued revenue and cost synergies in this segment from the AXC acquisition.

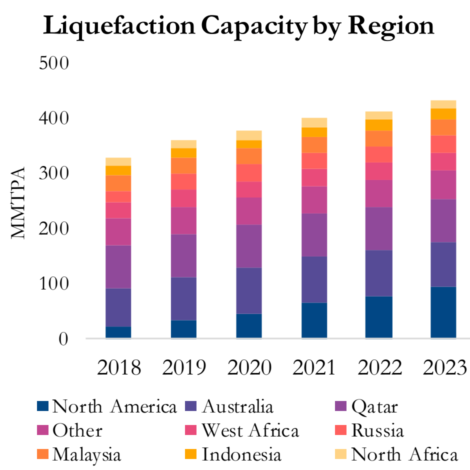
INDUSTRY OVERVIEW

What is LNG?:

Liquefied natural gas (LNG) is simply natural gas that has been pressurized and cooled to its liquid state at -258°F for easier transport from exporting countries (U.S., Qatar, etc.) to importing countries (China, India, etc.). The LNG value chain starts with the upstream production of natural gas, which is then transported through pipelines to a liquefaction plant that is typically located on a coastline. Here, natural gas is liquefied and readied for transport. The LNG is then loaded onto tankers and shipped to importing countries. Upon arrival, the LNG is stored at terminals before going through the regasification process (if needed, the process of converting LNG back into natural gas) and distributed to end users for power generation, industrial, transportation, and other applications.



LNG is the **fastest-growing gas supply source**, driven by global macro trends toward environmental sustainability. Natural gas (which includes LNG and NGL) will account for 35% of incremental energy demand through 2040, **with LNG demand growing at a ~5.7% CAGR through 2023, outpacing supply by 80bps.**



LNG has three main benefits over other alternative fuels: **environmental friendliness, high mobility, and economic feasibility**.

- As worldwide initiatives trend towards sustainable energy sources, LNG is one of the prime benefactors because it burns cleaner than other fossil fuels. **The combustion of LNG compared to oil-based fuels and coal reduces CO2 emissions by up to ~25% and ~50%**, respectively. Furthermore, LNG use reduces sulphur oxide (SOx) emissions by ~99%, nitrogen oxide (NOx) by ~90%, and fine dust particulates by ~99%. When used in vehicles, it reduces maintenance and cuts greenhouse gas emissions by up to ~40%.

- **Liquefaction of natural gas reduces the volume by 600 times, making it far easier to transport** from producing regions to demand regions. Historically, proximity limited natural gas distribution, although technological advances are expanding its capabilities.

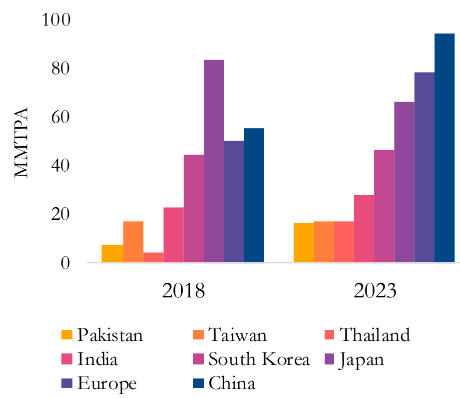
- LNG is currently in a **period of excess capacity,** and with natural gas prices near multi-year lows, the spread between LNG spot prices and oil has increased significantly year-to-date given oil's relative price stability. Lower near-term prices incentivize the transition to LNG usage in end-markets, while the bridge between supply and demand in the long-term continues to incentivize suppliers to invest in new facilities.
  - Liquefaction is the most expensive and complex part of the process, with estimated costs of ~$5.0B for a 5.0 MMTPA facility. Transportation and storage are similarly costly given no prior infrastructure.

Policy Provides an Energy Boost:

- Many major energy importing countries are enacting environmental initiatives to reduce pollution and waste, driving natural gas infrastructure build-outs. For example, China (10.6% of GTLS FY'18 revenue) implemented its **three-year Blue Sky campaign beginning June 2018**, which aims to reduce SOx and NOx emissions by 15% and fine particulate matter particles by 18% by 2020. As a result, **LNG demand in China increased by 37% in 2018 alone**. Natural gas consumption in China is predicted to **grow from 4% of the total energy mix in 2010 to ~10% by 2020**. China currently has little natural gas infrastructure, making investment necessary.
- **Beginning January 1, 2020, the International Maritime Organization (IMO) will require all ships to lower sulfur content in fuel to 0.5% versus the current regulation of 3.5%**. LNG is one of few alternatives that is in compliance with these restrictions, driving long-term LNG demand for shipbuilders.
    - **GTLS' marine fuel system bookings began ramping up in 3Q'19 in anticipation of IMO 2020.** The Company has also provided an increasing amount of project quotes for infrastructure supporting LNG bunkering in Europe, with project potential of $5-30mm each.

Supportive Supply and Demand Outlook:

LNG Demand by Country



- With demand steadily increasing, the industry expects a supply-demand deficit in the mid-2020s, requiring more investment in supply to meet long-term demand. **Asia is the largest importer of LNG, comprising ~75% of global volume shipments** due to its lack of infrastructure. China, Japan, and South Korea, proponents of various clean energy initiatives, accounted for 57.5% of LNG deliveries in 2018. The IEA expects China's natural gas consumption to grow by 8% annually until 2024, comprising ~40% of global gas demand growth.
- The largest exporters of LNG are Qatar, Australia, and the U.S., with the U.S. gaining increasing market share, as the growth of cheap natural gas in the Permian has made the U.S. a net exporter. Because of this, former LNG import terminals transformed into export terminals with increasing utilization. To maintain this net exporter qualification, the U.S. must build out ~150 MMTPA (million tons per annum) of export capacity, presenting GTLS with ample opportunity for growth. Order growth from the U.S. will continue into 2020, earning delayed revenues until a likely build-out downturn in 2023.

The Big LNG Process:

- Big LNG projects begin with a **feasibility study**, which determines economic possibility based on regulations, market conditions, and site conditions and typically lasts one year. Next are the **pre-FEED and FEED** (front-end engineering and design) periods, which each last two years and include development, engineering, siting, financing, and environmental, FERC (Federal Energy Regulatory Commission), and regulatory guidelines. Once all approvals are complete, the **FID** is negotiated and the **EPC** (engineering, procurement, and construction) period lasts about five years. After FID, distribution, storage, regasification, and other actions can commence and occur within and beyond the EPC phase.
    - GTLS' role in **liquefaction** includes process technology, heat exchangers, storage tanks, and cryogenic equipment. **Regasification** and storage require the use of industrial heaters, which utilize **~40% of the same components** as liquefaction, including pumps, valves, piping, LNG vaporizers, gas compressors, as well as insulation and storage equipment. **Transportation** involves spherical or membrane LNG tankers, which are cryogenic cargo containers that keep the LNG at a cool temperature.

UNDERVALUATION & THESIS:

- Chart Industries, Inc. is currently trading at 17.7x LTM EV/EBITDA, representing a 26.2% discount to its two-year median multiple of 22.6x. Additionally, GTLS is trading at 25.8x LTM P/E, representing a 41.4% discount to its two-year median multiple of 37.0x. Despite continuing to deliver exceptional operational performance and strategically diversifying its product offerings and market opportunities, **the stock has significantly sold off in relation to LNG cycle concerns, including the delay of several big LNG FIDs.** While big LNG continues to dominate the narrative, underlying business fundamentals remain attractive, including new market opportunities in small-scale and mid-scale LNG, strong specialty market demand in the food & beverage industry, and robust aftermarket services demand aided by recent acquisitions.

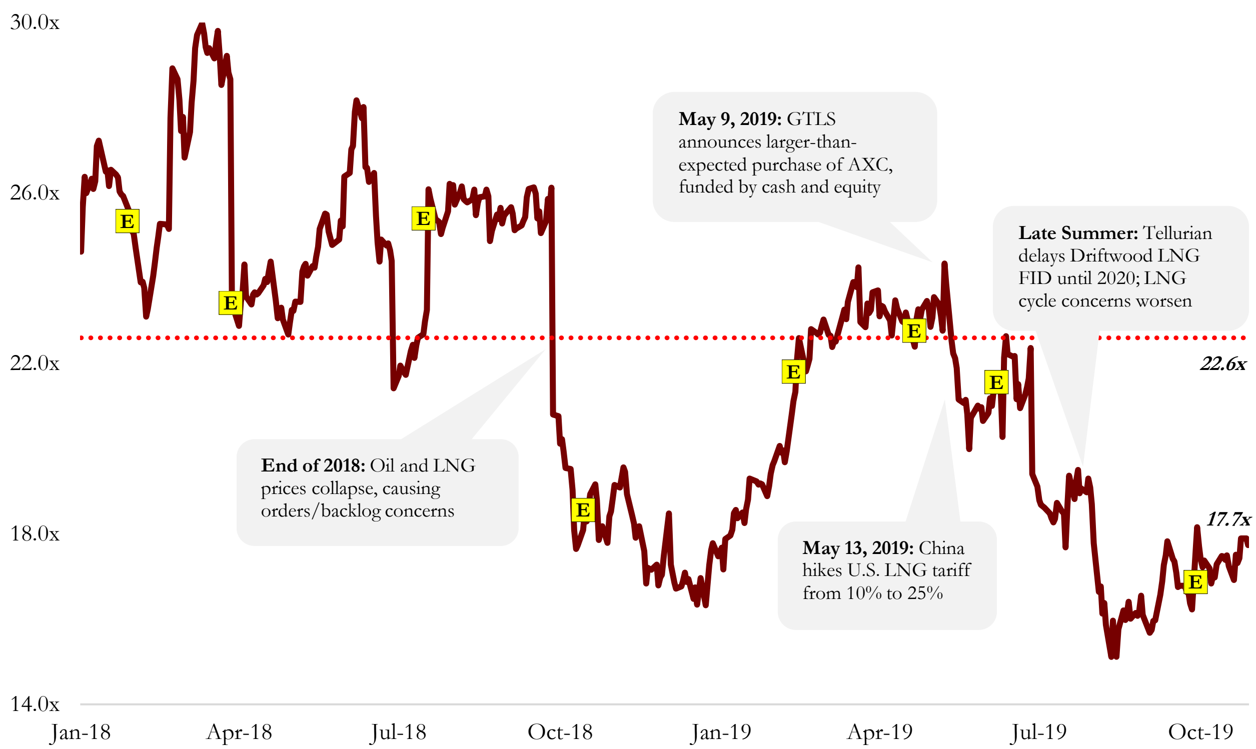
- The story begins with the collapse of oil and LNG prices in late 2018. While commodity prices do not directly affect GTLS, **the stock historically moves at least partially based on backlog and orders**. Since LNG uptake relies on its economic feasibility compared to other fuels, cheaper prices for oil create concern for future orders and backlogs. However, the infrastructure buildout is the main driver for GTLS' demand, so **with long-term demand firmly in place, momentary short-term pricing pressures are unlikely to remain a headwind in the coming years, as new LNG sanctions will be required to fill the upcoming supply-demand gap.**

- In May 2019, GTLS announced it was acquiring Harsco's Air-X-Changers business for $592mm, financed through cash on hand and debt. AXC enhances the Company's heat exchangers and fans product suite and sports accretive gross and operating margins, as well as strong free cash flow generation. The knee-jerk pullback after the announcement is likely due to the sheer size of the deal, as expectations for future M&A deals fell between $100-200mm, similarly to prior transactions. **Within the next month, GTLS announced a secondary offering of 4.9mm shares** with intentions to use the proceeds to fund a portion of the deal, service-related fees, and repay debts. Once again, investors reacted negatively, although management noted they were reluctant to increase leverage at the top of a cycle and because acquisition synergies, which are now ahead of schedule, are expected to offset the dilution effects. **On one hand, we understand why investors would be so concerned by the stock sale, but given the Company's end-of-year deleveraging targets, the decision starts to make more sense given the stock was trading near its all-time high.**

- Final investment decision delays for big LNG projects including Tellurian's Driftwood LNG and Cheniere's Corpus Christi Stage 3 (CC3) have furthered pressured GTLS's multiple. During its 1Q'19 earnings call, Tellurian postponed the timeline to make its FID on its proposed $30B Driftwood LNG export project from the first half of the year to year-end. The first phase will comprise 16.6 MMTPA, making it among the largest LNG projects globally. **With the U.S.-China trade war escalating throughout the year, Driftwood and CC3 have both been pushed into 2020 due to reluctance from Chinese buyers in signing offtake agreements with U.S. exporters given China's 25% tariff on U.S. LNG.** Total order sizes for the Driftwood and CC3 projects are $375-400mm and $275-300mm, respectively, including huge cash flow generation. While the delays have weighed on GTLS over the course of the year, **management, analysts, and industry experts remain confident in the FID approvals for these two projects, among others**. CEO Jill Evanko took an interestingly positive stance during the 3Q'19 call, stating that the delays help to extend long-term visibility of big LNG through 2023.

- Big LNG FIDs have been the driving force of the stock in recent years, although improving fundamentals across its other growth verticals provide strong support for conservative FY'19 and FY'20 guidance. With new management in place, the Company has actively diversified its portfolio away from solely big LNG into more sustainable revenue avenues including small- and mid-scale LNG, specialty markets, and aftermarket maintenance. **We believe that at the current multiple, a unique buying opportunity for an industry leader exists; we would pay a discounted price for its attractive cryogenic product portfolio and receive huge potential upside in the form of big LNG free.**

GTLS 2-Year Median LTM EV/EBITDA



Bull Case Assumptions

Our bull case scenario (13.0x 2020E EBITDA) implies a price target of ~$97.00 per share, representing ~64% upside from current levels. Our assumptions include:

- Top-line grows at a CAGR of 16.0%, led by strong demand in its E&C FinFans segment and its D&S West segment, as well as additional big LNG FIDs that contribute to top-line and generate significant cash flows.
- Operating margins tick upwards to 15.6% by 2023, driven by stronger margin contributions from E&C FinFans and D&S West as a result of lucrative big LNG FIDs and profitable ssLNG/specialty projects.
- LNG spot prices move favorably and trade tensions at least partially resolve, supporting stronger-than-expected orders from big LNG FIDs (Driftwood, CC3, and others).

Bear Case Assumptions

Our bear case scenario (11.0x 2020E EBITDA) implies a price target of ~$57.00 per share, representing ~15% downside from current levels. Our assumptions include:

- Top-line grows at a CAGR of 7.6%, lower than historical levels, led mainly by timing slippages/cancellations of big LNG FIDs and deteriorating fundamentals in its industrial gas businesses.
- Operating margins remain relatively flat at 10.3% by 2023, driven by an uptick in SG&A spending and associated development costs in small- and mid-scale LNG projects.
- LNG spot prices and trade tensions discourage LNG infrastructure investments, causing orders to slow and bookings to be pushed a few quarters to the right.

CATALYSTS & DRIVERS:

The Big Leagues:

Big LNG is generally defined as larger-scale projects with capacities of 4+ MMTPA (million tons per annum). GTLS doesn't book orders until there is near certainty that the project will be approved during the FID, although management **has visibility into potential +$1.0B orders in 2020**. These bookings generate revenue for two to three years based on percentage-of-completion and there is typically a cash payment upfront that makes the project cash flow positive from the start. **Big LNG project margins are ~30-40%, depending on size and content, hence the huge cash flow boost from these projects.**

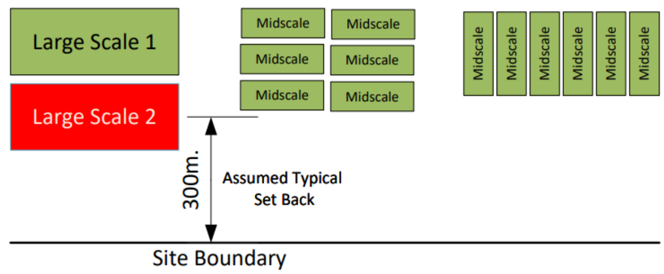
Management has identified **eleven big LNG projects** that it is focused on, located mostly around the U.S. Gulf Coast, with **over 100 MMTPA of supply and ~$2.0B of revenue potential.** None of the projects have contributed to revenue as of 3Q'19, which further explains our undervaluation case, but **~$225.0mm of the potential projects** have already been booked, meaning revenue will accrue between the first and third years after initial booking, depending on delivery schedules. Management highlighted five projects for which it anticipates revenue in 2020, accumulating $20.0mm in 4Q'19 and $215.0mm in FY'20.

- Beginning in 1Q'19, GTLS booked a $20.0mm order for the floating LNG project **Gimi**. $15.0mm in revenue will be realized by 4Q'19, with $5.0mm more coming in FY'20, and completion in 1Q'20.
- Another order for the **Calcasieu Pass** export terminal project was booked in 1Q'19 at a value of $135mm. In 3Q'19, GTLS received an $6.6mm order for air coolers, showing continued investment after initial booking. GTLS anticipates $15.0mm in revenue from Calcasieu Pass in 4Q'19 and $100mm in FY'20.
- FID for Phase 1 on Tellurian's **Driftwood** project is expected to commence in 1H'20, with only 4 MMTPA remaining to reach FID. This pushes ~$65.0mm of revenue into FY'20. However, considering the four-year length of the project and potential for $700.0mm from both phases, we believe that the ramp-up of global LNG infrastructure upcycle into the later years of our time horizon will offset the current delay.
- Management expects Cheniere's **Corpus Christi Stage 3** project to move to FID in 2020, with a conservative revenue add of $10.0mm for FY'20. Contracts with Cheniere have historically been timely, and this project will support Cheniere's recent 15-year natural gas purchase agreement with EOG Resources.
- The Venture Global **Plaquemines** project has FERC approval as of September 2019, and exports of 2.5 MMTPA have been approved and committed, with $35.0mm in revenue anticipated in FY'20.

While U.S. big LNG infrastructure build-out is a major driver of growth for GTLS, it is also poised to benefit from international terminal additions and expansions. Management identified a list of 19 global opportunities, 14 of which they anticipate participating in, with areas like Qatar, Canada, Russia, Mozambique providing the largest capacities *(Exhibit VII)*.

Project	Customer	Operator	Size (MMTPA)	GTLS Content	Expected Order Timing	Value	Project Length
Gimi (Tortue)	Black & Veatch	Golar	3.75	4x cold boxes, BAHX	1H'19 (Booked)	$20mm	2019-2020
Calcasieu Pass	BHGE	Venture Global	10	18 cold boxes, BAHX	1Q'19 (Booked)	$135mm	2019-2021
Driftwood	Betchel	Tellurian	27 (Phase 1: 16.6)	IPSMR, cold boxes, BAHX, ACHX	3Q'19 (Phase 1)	~$700mm	2020-2024
Corpus Christi Stage 3 (CC3)	KBR	Cheniere	9.5	IPSMR, cold boxes, BAHX, ACHX	2H'19-1H'20	$275-300mm	2020-2023
Plaquemines	BHGE	Venture Global	20	36 cold boxes, BAHX	1H'20	$250-300mm	2020-2023
Magnolia	LNG Ltd	LNG Ltd	8.8	Cold boxes, BAHX, core-in kettles	2H'19 (50% in backlog)		
Pointe LNG	EPC TBD	Pointe LNG	6	IPSMR, cold boxes, BAHX, ACHX	2020		
Corpus Christi Stage 4 (CC4)	TBD	Cheniere	2 trains at 4.5 each	Cold boxes, BAHX, ACHX opportunities	2H'20-1H'21		
Pluto LNG	Bechtel	Woodside	5	Cold boxes and core-in kettles opportunities	2H'20-1H'21		
Ghandria	Black & Veatch	Golar	3.75	4x cold boxes, BAHX	1H'20		
Freeport LNG Train 4	KBR	Freeport LNG	15	BAHX on FEED gas pre-treatment	2020		

Big LNG's Not-So-Little Brothers:



In recent years, **LNG operators have come to favor multi-train, modular liquefaction units rather than the traditional large-train because of the low-cost installation, smaller footprint, flexibility, and simplicity.** Modular trains allow operators to quickly adjust operations in response to customer demand in a cost-efficient. **Mid-scale LNG is an attractive energy alternative for areas such as the Northeast U.S. and India, where large infrastructure build-outs are improbable.**

- Chart's Integrated Pre-Cooled Single Mixed Refrigerant (IPSMR) is a proprietary, patented liquefaction technology that is the industry-standard for mid-scale LNG trains given its smaller footprint, reliability, and cost and operating efficiencies. In April 2019, GTLS announced the newest installment of the process technology, the IPSMR+, which improves efficiency by 8% while using 25% less plot space, meaning improved margins for customers. Furthermore, the IPSMR+ can handle throughput capacity up to 3.0 MMTPA, well above the original's 0.5-1.5 MMTPA range.

- For mid-scale trains, **the IPSMR+ is often bundled with the Company's other engineered equipment including its heat exchangers and cold boxes**, which are optimized to work in tandem. The integrated suite of products drives higher content per project and aims to offset cyclicality from big LNG.

- **GTLS is the only player with a comprehensive portfolio spanning the entire LNG value chain, including upstream extraction, liquefaction, storage & shipping, regasification, and downstream use** (*see Appendix Exhibit V*).

Small-scale LNG (ssLNG), defined as 100-450k gallons per day, is another area of opportunity given the Company's global position and newfound customer interest. Unlike mid- and large-scale LNG, **ssLNG refers to the direct use of LNG in its liquid form for three primary end uses: marine fuel bunkering, heavy road transport, and power generation. PwC expects the ssLNG market to grow at a 12-15% CAGR through 2030**, with demand split nearly evenly between marine (32%), trucking (42%), and power (26%).

- **GTLS sizes the addressable market at >$650mm in the next three years**. Regulation and sustainability efforts are driving demand in multiple end-markets, further aided by the abundance of natural gas in the Permian and elsewhere globally.

- Recently, the European Union instituted new emission regulations for heavy-duty vehicles that aims to reduce carbon dioxide emissions by 30.0% by 2030. On January 1, 2020, the International Maritime Organization's 2020 regulations aimed at limiting marine sulphur emissions from 3.5% to 0.5% will go into effect. Because of industry trends such as these, GTLS has seen exponential demand for LNG fueling tanks and fueling stations for marine and over-the-road trucking applications.

- In 3Q'19, GTLS booked 19 LNG fueling station orders compared to just three in the prior year's quarter. Earlier in the year, the Company partnered with two heavy-duty truck manufacturers to be the sole provider of LNG fuel tanks and is now seven months into its development of a LNG vehicle tank line for Italy.

GTLS' business opportunities in small- and mid-scale LNG, which do not typically receive much investor attention, are significant drivers for stabilizing earnings throughout the big LNG build cycle. Order activity for both provided meaningful contribution to the Company's record backlog of $756.0mm in the third quarter.

Invest, Divest, Impress:

GTLS has primarily focused on organic growth after a series of acquisitions following its IPO in 2006. However, a change in C-Suite executives in 2017 has sparked a strategic portfolio review that includes new investments and divestitures with a focus on market and margin expansion opportunities. **The Company is focused on strategically expanding its offerings to new customers and end-markets within its cryogenic industrial gas and energy lines of businesses in an effort to reduce its exposure to the cyclicality of big LNG.** Management is levering "self-help" initiatives in its supply chain, back office, and plant facilities to reduce extraneous costs, improve its global footprint, and gain more exposure to the high margin aftermarket service and repair business, with goals to grow the segment from 13% sales in FY'18 to 21% by 2021.

Three of the Company's recent notable acquisitions include Hudson Products, VRV, and Harsco's AXC Business.

- GTLS acquired Hudson Products in 2017, which significantly expanded its aftermarket exposure, which represented ~37% of Hudson's sales at the time of the deal. The deal broadened its portfolio of air-cooled heat exchangers (ACHXs) and axial flow cooling fans, while gaining additional end-market exposure to power, refining, chemical, industrial, and HVAC.
- In 4Q'18, GTLS acquired VRV, one of its direct European competitors that often outbid GTLS on price for European projects. The acquisition expanded the Company's global footprint to include facilities in Italy, France, and India, while also adding complementary technology to the portfolio.
- In July 2019, GTLS acquired Harsco's Air-X-Changers (AXC) business for $592mm, enabling access to both upstream and midstream markets such as E&P gathering, midstream processing and transmission. GTLS originally anticipated $20mm in cost synergies, though the integration has already delivered over 60% of those synergies in only four months. As a result, management **increased its cost synergy guidance from $20mm to $29mm, citing further facility consolidations.**

The VRV acquisition includes an important growth opportunity in India, the fourth largest LNG importing country, and one that GTLS had little to no success penetrating organically. **Indian gas demand is expected to grow at 7-8% CAGR through 2022, with the country allocating more than $30B for natural gas infrastructure, of which GTLS now has a hand in constructing** (*see Exhibit VI*).

- India's Petroleum and Natural Gas Regulatory Board designated seven companies to be responsible for distributing natural gas in 250 geographic blocks. In 2019, GTLS signed two Memorandums of Understanding (MOU) with Indian Oil Corporation Limited (IOCL) and Atlantic Gulf and Pacific (AG&P), two of the seven authorized companies. GTLS now has content exposure to the huge LNG buildout in India, and has already booked orders for refinery expansions, LNCG and CNG stations, and LNG trailers.

GTLS also divested two-thirds of its non-core oxygen businesses in 2019, selling its biomedical CAIRE business for $146.0mm. The remaining third of the oxygen business, the cryobiological unit, was added to D&S West.

Management is also focused on specialty applications such as food preservation, cannabis yields, nitrogen dosing, hydrogen lasers, and water treatment, among others. Historically, orders for these applications were viewed as a byproduct and the Company only took them on an opportunistic basis, although since the management shift in 2017, the Company sees these specialty markets as a large growth opportunity.

- **Management addresses the market size for each application as follows: Food & Beverage, $500mm; Cannabis, $250mm; Industrial Lasers, $200mm; Space, $200mm; Hydrogen, $500mm; Water Treatment, $400mm; Mechanical Freezers, $400mm; and Over-the-road Trucking, $750mm.**
- In 3Q'19, specialty market orders were +56.0% YoY, representing ~10.0% of total sales.

PEER GROUP ANALYSIS

Baker Hughes Co. (BKR): provides oilfield products and services including drilling, engineering, gas turbines, valves, actuators, generators, and motors. While BKR does have some competing products, it also acts as a customer of GTLS when delivering complex solutions. The company operates in four segments: Oilfield Services (50.8% of FY'18 revenue), Turbomachinery & Process Solutions (26.3%), Oilfield Equipment (11.5%), and Digital Solutions (11.4%). Of the $22.9B in revenue in 2018, the company earned 71.3% internationally with the remaining 28.7% coming from the U.S. Baker Hughes' current market capitalization is $22.0B, and the company reports earnings on January 30, 2020.

AZZ, Inc. (AZZ): manufactures specialty electrical equipment and components for the global power generation, power transmission, and distribution markets. AZZ specializes in the galvanization of steel for fabricators in the construction, electrical utility, and transportation end-markets. The company operates in two segments: Energy (52.5% of FY'19 revenue) and Metal Coating (47.5%). AZZ's current market capitalization is $1.0B, and the company reports earnings on January 7, 2020.

Lennox International, Inc. (LII): provides climate control solutions with equipment for heating, ventilation, air conditioning, and refrigeration. The company breaks down revenue into the following segments: Residential Heating & Cooling (57.3% of FY'18 revenue), Commercial Heating & Cooling (26.9%), and Refrigeration (15.8%). LII derives 84.3% of its revenue in the U.S. Lennox's current market capitalization is $9.5B, and it is scheduled to announce earnings on February 4, 2020.

Evoqua Water Technologies Corp. (AQUA): provides water treatment equipment and services including filter presses, intake rebuilds, captivator systems, and more to the industrial, commercial, and municipal water treatment markets. AQUA earned $1.3B in revenue in 2018, with 54.4% coming from its Industrial segment, 25.3% from its Products segment, and 20.3% from its Municipal segment. Evoqua's current market capitalization is $2.0B, and it reports earnings on November 21, 2019.

Pentair PLC (PNR): offers a range of smart, sustainable water solutions to the residential, commercial, industrial, infrastructure, and agriculture markets. The company operates through the following segments: Aquatic Systems (34.6% of FY'18 revenue), Filtration Solutions (33.8%), and Flow Technologies (31.6%). PNR earns 62.7% of its revenue from the U.S., with the remaining 37.3% coming internationally. Pentair's current market capitalization is $7.0B, and it reports earnings on January 28, 2020.

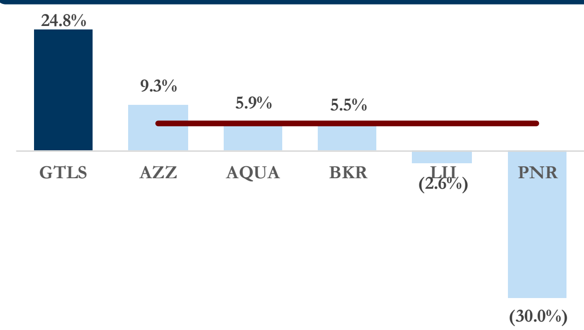
PEER GROUP ANALYSIS

Company		Market Statistics		Growth Analysis				Margin Analysis				Valuation Analysis					
												Enterprise Value /					
		Market	Enterprise	Sales		EPS		EBITDA Margin		Profit Margin		EBITDA		Sales		Price / Earnings	
	Ticker	Cap	Value	LTM	2019E	LTM	2019E	LTM	2019E	LTM	2019E	LTM	2019E	LTM	2019E	LTM	2019E
Chart Industries, Inc.	**GTLS**	**$2,079**	**$2,847**	**17.2%**	**24.8%**	**(1.2)%**	**45.0%**	**15.7%**	**15.7%**	**6.5%**	**6.8%**	**17.2x**	**13.4x**	**1.5x**	**1.5x**	**24.9x**	**20.7x**
Baker Hughes	BKR	22,194	26,393	61.5%	5.5%	10.5%	0.6%	15.2%	12.5%	2.6%	2.3%	8.7x	8.6x	0.9x	0.8x	17.8x	22.7x
AZZ Inc.	AZZ	1,013	1,344	10.0%	9.3%	14.5%	37.5%	14.4%	15.2%	5.9%	7.0%	9.5x	8.7x	1.1x	1.0x	18.0x	14.4x
Lennox International	LII	9,562	11,142	(4.2)%	(2.6)%	13.4%	16.9%	18.6%	18.0%	11.5%	11.8%	15.6x	16.3x	2.6x	2.5x	22.6x	21.9x
Evoqua	AQUA	2,003	2,926	7.4%	5.9%	(55.8)%	(12.8)%	10.3%	16.1%	3.0%	3.2%	20.1x	12.7x	1.4x	1.4x	128.3x	39.6x
Pentair PLC	PNR	7,025	8,113	(10.0)%	(30.0)%	42.7%	7.0%	19.6%	19.2%	12.7%	13.4%	15.0x	14.1x	2.4x	2.4x	18.9x	17.7x
High		**$22,194**	**$26,393**	**61.5%**	**24.8%**	**42.7%**	**45.0%**	**19.6%**	**19.2%**	**12.7%**	**13.4%**	**20.1x**	**16.3x**	**2.6x**	**2.5x**	**128.3x**	**39.6x**
Mean		**7,313**	**8,794**	**13.7%**	**2.2%**	**4.0%**	**15.7%**	**15.6%**	**16.1%**	**7.0%**	**7.4%**	**14.4**	**12.3x**	**1.6x**	**1.6x**	**38.4x**	**22.8x**
Median		**4,552**	**5,519**	**8.7%**	**5.7%**	**12.0%**	**12.0%**	**15.5%**	**15.9%**	**6.2%**	**6.9%**	**15.3**	**13.1x**	**1.5x**	**1.5x**	**20.8x**	**21.3x**
Low		**1,013**	**1,344**	**(10.0)%**	**(30.0)%**	**(55.8)%**	**(12.8)%**	**10.3%**	**12.5%**	**2.6%**	**2.3%**	**8.7**	**8.6x**	**0.9x**	**0.8x**	**17.8x**	**14.4x**

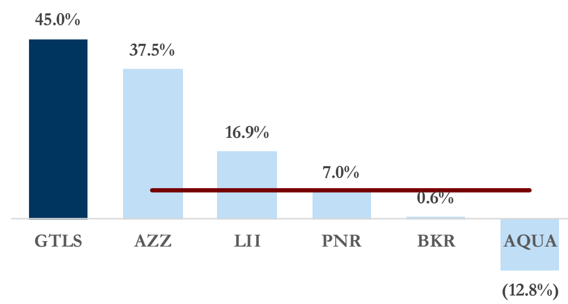
Company		General Statistics			Returns Analysis			2018A Leverage Analysis			2018A Coverage Analysis			Liquidity Profile		Credit Profile	
								Total Debt /									
	Ticker	Tax Rate	Beta	Dividend Yield	ROIC	ROE	ROA	Cap	EBITDA	Equity	EBITDA / Int. Exp.	(EBITDA -Cpx)/Int.	EBIT / Int. Exp.	Quick Ratio	Current Ratio	Moody's	S&P
Chart Industries, Inc.	**GTLS**	**21.2%**	**1.30**	**0.0%**	**5.4%**	**10.4%**	**4.9%**	**38.0%**	**3.0x**	**61.2%**	**6.9x**	**5.3x**	**5.9x**	**0.82**	**1.83**	**-**	**-**
Baker Hughes	BKR	47.7%	1.24	3.4%	0.7%	1.2%	0.4%	17.1%	1.6x	20.6%	7.3x	4.0x	2.3x	0.96	1.58	-	A-
AZZ Inc.	AZZ	21.1%	1.18	1.8%	6.5%	8.2%	4.5%	32.3%	1.9x	47.6%	9.5x	7.8x	5.1x	1.25	2.86	-	-
Lennox International	LII	20.2%	0.86	1.3%	40.4%	0.0%	19.4%	116.8%	1.7x	0.0%	14.7x	12.3x	13.0x	0.60	1.19	Baa3	BBB
Evoqua	AQUA	14.9%	1.11	0.0%	4.7%	2.2%	0.4%	72.2%	5.6x	259.6%	2.7x	1.3x	1.2x	1.10	2.01	-	B
Pentair PLC	PNR	15.3%	1.09	1.7%	8.1%	10.1%	5.6%	30.0%	1.4x	42.9%	17.4x	16.0x	17.0x	0.75	1.44	-	BBB-
High		**47.7%**	**1.30**	**3.4%**	**40.4%**	**10.4%**	**19.4%**	**116.8%**	**5.6x**	**2.6x**	**14.7x**	**12.3x**	**13.0x**	**1.25**	**2.86**		
Mean		**23.4%**	**1.13**	**1.4%**	**11.0%**	**5.4%**	**5.8%**	**51.1%**	**2.5x**	**0.7x**	**8.5x**	**6.3x**	**5.4x**	**0.91**	**1.82**		
Median		**20.6%**	**1.15**	**1.5%**	**6.0%**	**5.2%**	**4.7%**	**35.1%**	**1.8x**	**0.5x**	**8.4x**	**5.9x**	**3.7x**	**0.89**	**1.71**		
Low		**14.9%**	**0.86**	**0.0%**	**0.7%**	**0.0%**	**0.4%**	**17.1%**	**1.4x**	**0.0x**	**2.7x**	**1.3x**	**1.2x**	**0.60**	**1.19**		

COMPARABLE BENCHMARKING

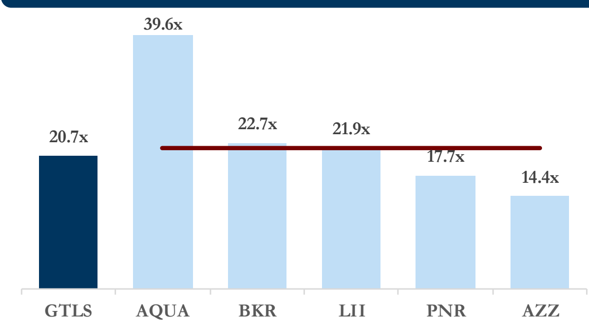
Revenue Growth 2019E



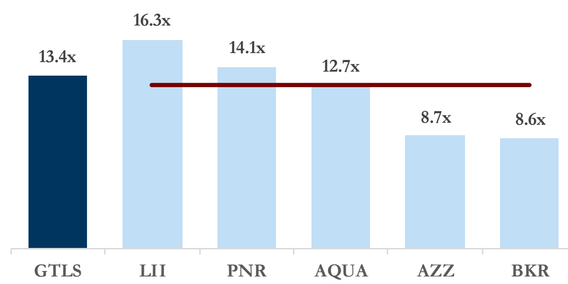
EPS Growth 2019E



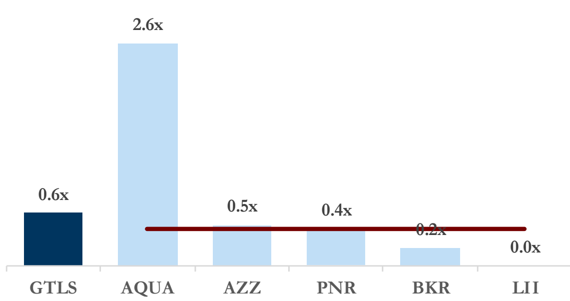
NTM P/E



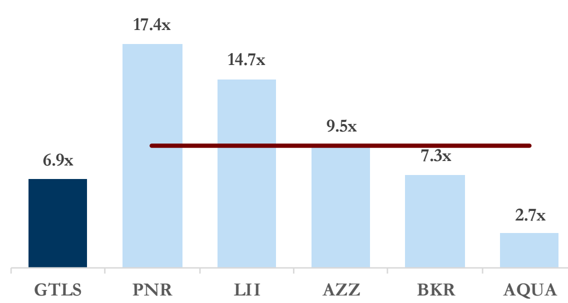
NTM EV/EBITDA



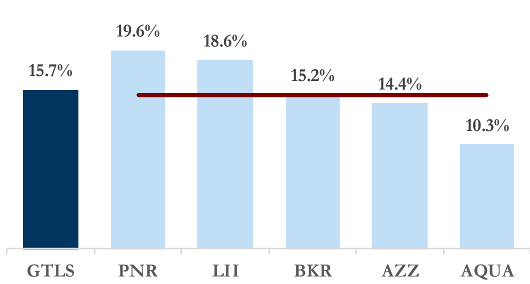
Total Debt/Equity



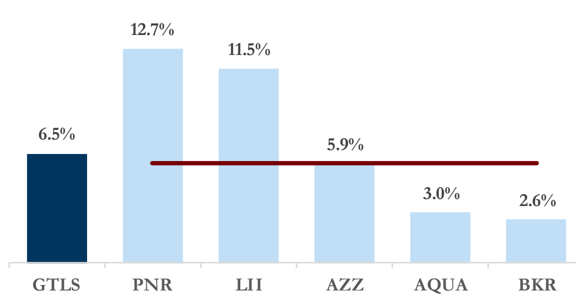
Interest Coverage (EBITDA/Int.)



EBITDA Margin



Profit Margin



MOATS AND RISKS:

Risks to the Investment Thesis:

- **Final Investment Decision Delays:**

  GTLS has the largest content per project opportunity for large-scale LNG projects such as Driftwood LNG and Corpus Christi 3, so as we've seen with the FID delay of Driftwood, the stock may fluctuate with the ongoing LNG build cycle. The process for big LNG project construction, from start to finish, can take upwards of 10 years, given the Federal Energy Regulatory Commission's (FERC) regulatory oversight. The process starts with a feasibility study (~1 year), then to the pre-FEED (front end engineering and design) and FEED phases (~2 years each), followed by the final investment decision, leading to project execution in the Engineering Procurement Construction (EPC) phase (~5 years). GTLS generally books an order between FERC approval and FID, although this is subject to the discretion of the investing company on when to proceed given contracted subscription volumes and other determining factors. These large projects contribute 2-3% of revenue and offer substantial cash flow generation, but the timing of these projects are out of the Company's control.

- **Customer Capex:**

  Macroeconomic uncertainty and an increased focus on capital discipline by E&P companies has 2020 E&P capex flat to a slight decline, which means slower investment in upstream directly translates to lower spending by midstream and downstream operators that are GTLS customers. Customer capex has historically been highly cyclical in relation to commodity prices, so the current macro environment is not conducive of excessive spending on GTLS products.

- **Trade War Implications:**

  U.S.-China trade tensions have stifled end-market demand for U.S. LNG, given the U.S. is one of the largest LNG exporters and China is the largest importer. In early 2019, China raised tariffs on U.S. LNG from 10% to 25%, further demotivating contract negotiations. The last long-term contract signed by a Chinese off-taker was in February 2018, when PetroChina signed a 25-year sale and purchase agreement with Cheniere. Since then, reports have surfaced that say Chinese buyers have been hesitant to sign long-term agreements given the ongoing trade disputes, causing trouble for U.S. LNG exporters to fully-subscribe investment projects. GTLS has not seen any direct impact on its supply chain, but management noted on the 2Q'19 call that the Company experienced a few bidding losses in China to local suppliers, directly motivated by trade tensions. Tellurian's Driftwood LNG and other projects that have delayed FIDs have openly stated that the decision does not depend on the resolution of the U.S.-China trade war, with Tellurian saying it is "moving forward with or without China." However, industry experts believe the investment appetite for large-scale LNG is affected by a difficult time subscribing throughput volumes given the Chinese have been reluctant to sign long-term purchase agreements.

Economic Moats:

- **Comprehensive Product Portfolio:**

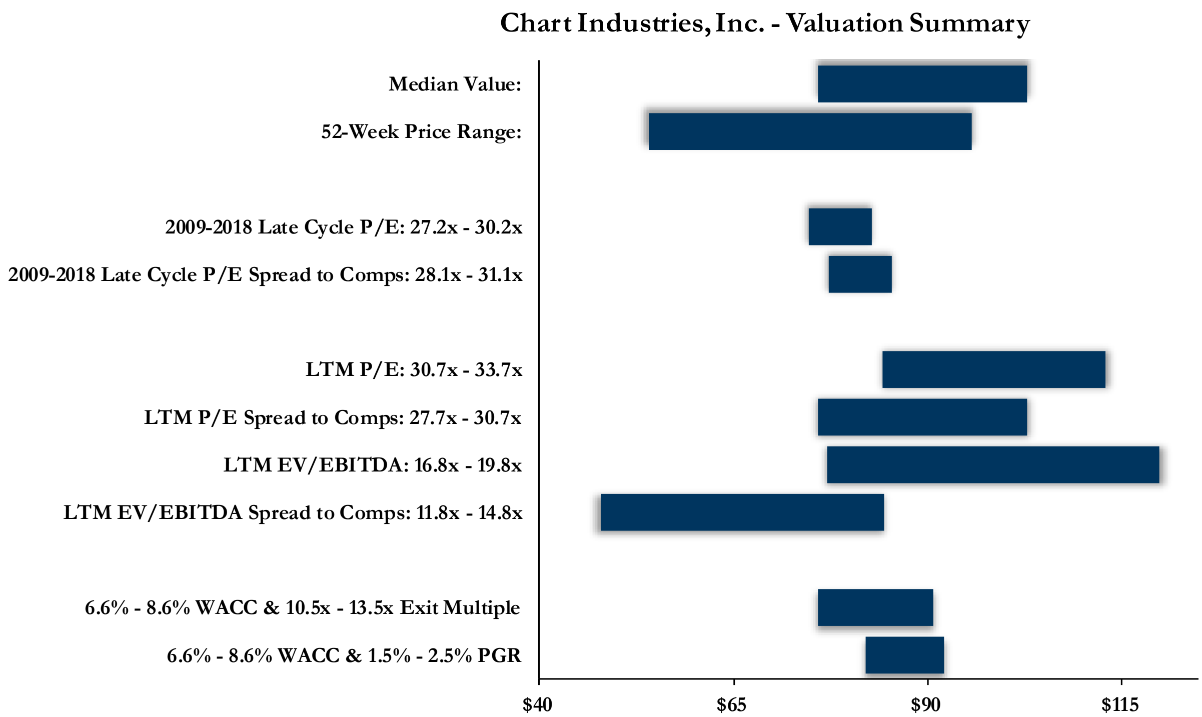
  GTLS is the only provider of an integrated product and solutions portfolio across the entire LNG value chain from production, to liquefaction, distribution, storage, regasification, and end-use applications. As a result, GTLS has the highest amount of content per project out of any of its competitors, allowing the Company to bundle equipment such as its heat exchangers and cold boxes with its liquefaction processing units to drive maximum profitability. Competitors typically only offer solutions for one node of the value chain. GTLS' global manufacturing footprint also helps it provide timely and cost-efficient solutions to its customers across the globe.

VALUATION ANALYSIS

DCF	2016	2017	2018	1Q19	2Q19	3Q19	4Q19e	2019e	2020e	2021e	2022e	2023e
Revenue	**$859.1**	**$988.8**	**$1,084.3**	**$289.3**	**$309.6**	**$357.8**	**$367.9**	**$1,324.6**	**$1,632.0**	**$1,760.3**	**$1,826.1**	**$1,890.2**
EBITDA	84.5	70.7	148.0	23.5	41.5	50.7	53.7	169.4	277.4	306.0	325.4	343.0
EBIT	57.4	42.0	92.1	4.6	25.3	29.9	46.2	106.0	198.9	220.4	229.5	238.4
Income Tax Benefit (Expense)	(13.7)	15.9	(13.4)	2.0	(4.9)	(6.4)	(8.3)	(17.6)	(36.2)	(41.1)	(43.8)	(46.6)
NOPAT (EBIAT)	**$43.7**	**$57.9**	**$78.7**	**$6.6**	**$20.4**	**$23.5**	**$37.9**	**$88.4**	**$162.7**	**$179.3**	**$185.7**	**$191.7**
Depreciation & Ammortization				16.0	16.0	24.1	7.5	63.6	78.5	85.6	95.9	104.6
Stock-Based Compensation				2.4	1.9	2.1	2.2	8.6	9.6	10.3	10.7	11.1
Capital Expenditures				(5.9)	(9.2)	(11.6)	(12.0)	(38.7)	(53.0)	(57.2)	(59.3)	(61.4)
Goodwill Impairment				-	-	-	-	-	-	-	-	-
(Increase)/Decrease in Working Capital				(43.3)	7.9	11.1	0.9	(23.4)	(114.2)	(2.0)	(13.6)	(13.2)
(Increase)/Decrease in LT Items				(13.7)	(12.8)	0.3	(0.4)	(26.6)	(1.6)	(0.4)	(0.4)	(0.4)
Unlevered Free Cash Flow				**$0.0**	**$0.0**	**$0.0**	**$36.1**	**$36.1**	**$81.9**	**$215.5**	**$219.0**	**$232.4**
Full-Year Discount								*0.17*	*1.17*	*2.17*	*3.17*	*4.17*
Mid-Year Discount								*0.08*	*0.67*	*1.67*	*2.67*	*3.67*
Discount Factor								*0.99*	*0.95*	*0.89*	*0.82*	*0.77*
Present Value of Future Free Cash Flow								**$35.9**	**$78.0**	**$190.9**	**$180.3**	**$177.8**
% Growth									*117.3%*	*144.8%*	*(5.6%)*	*(1.4%)*

Exit Multiple Method:	
Terminal Year EBITDA:	$343.0
Exit Multiple:	12.0 x
Terminal Value:	4,116
PV of Terminal Value:	3,149
PV of Stage 1 Cash Flows:	663
Implied Enterprise Value:	**$3,812**
(+) Cash & Equivalents:	81
(-) Preferred Stock:	0
(-) Total Debt:	(808)
(-) Pension Obligations:	(11)
(-) Non-Controlling Interests:	(5)
(-) Capital Leases:	0
Implied Equity Value:	**$3,069**
Diluted Shares O/S:	36.7
Implied Share Price:	**$83.56**
% Return:	*40.5%*

Perpetuity Growth (PGR) Method	
Terminal Year FCF:	$232
PGR:	2.0%
Terminal Value:	4,255
PV of Terminal Value:	3,256
PV of Stage 1 Cash Flows:	663
Implied Enterprise Value:	**$3,919**
(+) Cash & Equivalents:	81
(-) Preferred Stock:	0
(-) Total Debt:	(808)
(-) Pension Obligations:	(11)
(-) Non-Controlling Interests:	(5)
(-) Capital Leases:	0
Implied Equity Value:	**$3,176**
Diluted Shares O/S:	36.7
Implied Share Price:	**$86.46**
% Return:	*45.4%*



Price Calculation: Median LTM P/E Multiple

LTM EPS	Med. 1-Yr LTM P/E		Target Price		% Upside
$2.33	32.0x	=	$74.59	=	~26%

Price Calculation: Median LTM EV/EBITDA Multiple

LTM EBITDA		EV/EBITDA		Enterprise Value
$163	X	19.7x	=	$3,209
(-) Net Debt		**Equity Value / Shares**		**Target Price | Upside**
$727	=	$2,482 / 36.7	=	$67.63 | ~14%

FINANCIAL ANALYSIS

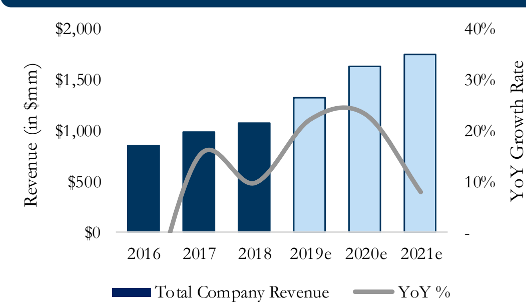
GTLS Segment Revenue Model

Summary	2016	2017	2018	2019e	2020e	2021e	2022e	2023e
Total Company Revenue	**$859.1**	**$988.8**	**$1,084.3**	**$1,324.6**	**$1,632.0**	**$1,809.4**	**$1,852.2**	**$1,917.2**
% Growth		*15.1%*	*9.7%*	*22.2%*	*23.2%*	*10.9%*	*2.4%*	*3.5%*
Energy & Chemicals FinFans Revenue	**$154.2**	**$225.7**	**$390.5**	**$457.3**	**$467.8**	**$502.9**	**$528.0**	**$554.4**
% Growth		*46.3%*	*73.0%*	*17.1%*	*2.3%*	*7.5%*	*5.0%*	*5.0%*
% of Total Revenue	*18.0%*	*22.8%*	*36.0%*	*34.5%*	*28.7%*	*27.8%*	*28.5%*	*28.9%*
Distribution & Storage West Revenue	**$497.1**	**$540.3**	**$455.5**	**$465.8**	**$491.3**	**$564.9**	**$587.5**	**$608.1**
% Growth		*8.7%*	*(15.7%)*	*2.3%*	*5.5%*	*15.0%*	*4.0%*	*3.5%*
% of Total Revenue	*57.9%*	*54.6%*	*42.0%*	*35.2%*	*30.1%*	*31.2%*	*31.7%*	*31.7%*
Distribution & Storage East Revenue	**$0.0**	**$0.0**	**$246.3**	**$299.9**	**$323.0**	**$339.1**	**$354.4**	**$368.6**
% Growth		*N/A*	*N/A*	*21.8%*	*7.7%*	*5.0%*	*4.5%*	*4.0%*
% of Total Revenue	*0.0%*	*0.0%*	*22.7%*	*22.6%*	*19.8%*	*18.7%*	*19.1%*	*19.2%*
Energy & Chemicals Cryogenics Revenue	**$0.0**	**$0.0**	**$0.0**	**$113.7**	**$349.9**	**$402.4**	**$382.3**	**$386.1**
% Growth		*N/A*	*N/A*	--	*207.8%*	*15.0%*	*(5.0%)*	*1.0%*
% of Total Revenue	*0.0%*	*0.0%*	*0.0%*	*8.6%*	*21.4%*	*22.2%*	*20.6%*	*20.1%*
Intersegment Eliminations Revenue	**$0.0**	**$0.0**	**($8.0)**	**($12.0)**	**$0.0**	**$0.0**	**$0.0**	**$0.0**
% Growth		*N/A*	*N/A*	*50.0%*	*(100.0%)*	--	--	--
% of Total Revenue	*0.0%*	*0.0%*	*(0.7%)*	*(0.9%)*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
BioMedical Revenue	**$207.8**	**$222.9**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**
% Growth		*7.3%*	*(100.0%)*	--	--	--	--	--
% of Total Revenue	*24.2%*	*22.5%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Our FY'19 and FY'20 revenue estimates currently sit at $1.33B (low-end of management's guidance and below consensus) and $1.62B (low-end of management's guidance and below consensus), representing growth of 22.0% and 22.8% YoY, respectively. Our estimates, exclusive of additional big LNG orders, reflect expectations for continued strong demand for GTLS' entire product portfolio in a variety of end-markets. We expect continued strong orders and bookings trends supportive of such growth, particularly in downstream, cryogenics, petrochemicals, and small-scale LNG. We anticipate GTLS to grow top-line at a 12.0% CAGR through 2023, accelerating above historical growth rates as the LNG build-out cycle ramps up because of favorable industry trends.

Total Revenue:

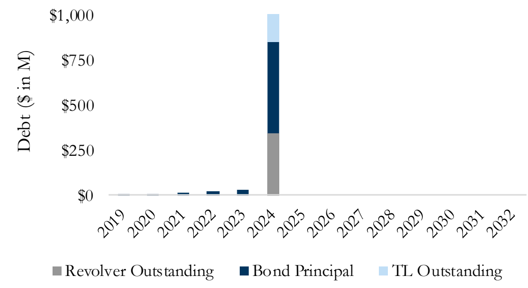
Total Revenue & Growth



- $1.8B in FY'18 (+28.6% YoY reported), driven by positive trends in the E&C and D&S West segments.
- $357.8mm in 3Q'19 (+31.4% YoY reported, -0.1% organically, 6.3% below consensus), driven inorganically.
- Management guided full-year 2019 revenue down to $1.33B-$1.35B (from $1.41-$1.46B) due to timeline slippage that should directly translate to 2020 sales.
- FY'20 guidance of $1.61B-$1.68B, excluding additional big LNG projects, representing 21-24% total revenue growth (13-15% organic). Consensus estimates at the high-end of management's range, although the Street's willingness to model big LNG project effects varies widely. Management's second scenario of $1.72-$1.79B includes additional big LNG orders based on FID timelines.
- Management incorporates revenue contributions from the following big LNG projects (already booked): Calcasieu Pass, Black & Veatch's Gimi, and Magnolia. Other big LNG opportunities include Driftwood, Cheniere CC3, Plaquemines, Pointe LNG, CCIV, Pluto LNG, Ghandria, and Freeport.
- We project top-line to grow at a 12.0% CAGR through 2023, (more conservative than consensus) as we believe in the Company's position within the global LNG infrastructure build-out with capabilities across the entire value chain. Positive backlog and order trends support such growth across all end-markets, including liquefaction, transportation, fueling stations, marine, and power. Specialty applications in areas such as food & beverage, cannabis, space, hydrogen, and water treatment also sport longer-term growth prospects.

Debt:

Debt Analysis

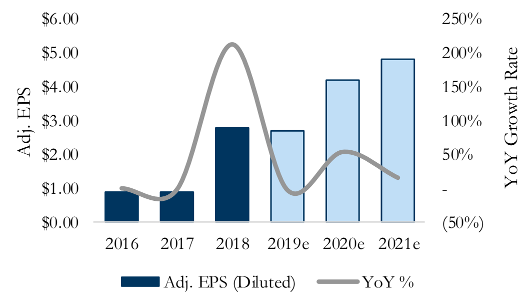


- Held $843.9mm in total debt as of 3Q'19, up from $544.4mm at year-end 2018. Added debt to finance the AXC acquisition in July 2019.
- No significant near-term debt repayments until 2024, of which $510mm in loans and $259mm in corporate loans mature.
- Leverage ratio of 3.2x as of 3Q'19, with goals to reduce to 2.5x by mid-year 2020. Expect the Company to de-lever in the ensuing years as big LNG cash flows come in.

Egan Jones: BBB- (Senior Unsecured), A1 (Commercial Paper)

Earnings:

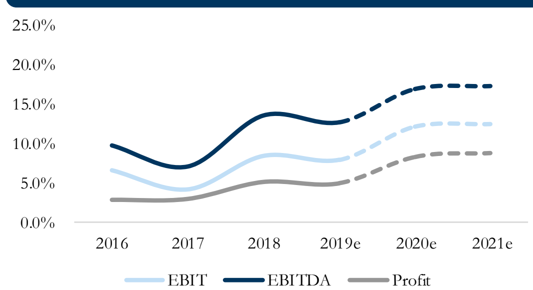
Earnings & Growth



- Surpassed analyst expectations in nine of the last ten quarters, with an average surprise of 20.1% and price change of +4.9%.
- 3Q'19 adjusted EPS of $0.77, beating consensus by $0.01.
- We estimate 4Q'19 EPS of $0.88, below consensus estimates of $0.95.
- We estimate full-year adj. EPS of $2.72, at the low-end of management's guidance ($2.70-$2.90) and below consensus estimates of $2.81.
- Full-year 2020 adj. EPS guidance of $4.75-$5.25, with consensus estimates at the low-end of guidance at $4.83.

Margins:

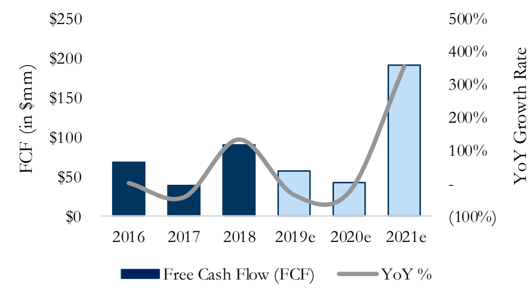
Margins Analysis



- We project gross margins to remain relatively steady at ~28.0% from FY'20 to FY'23, while management outlines FY'20 base case gross margins of 30.0%.
- 3Q'19 gross margins were 28.3%, an increase of 150bps over 2Q'19.
- We project EBITDA margins to slightly improve above 17.0% from FY'20 to 18.1% in FY'23.
- Products like IPSMR in conjunction with other equipment have the ability to improve margins on a project-by-project basis around 40% gross margin. Some projects, like D&S West cryogenic orders, for example, have gross margins of 50%, according to management.
- Furthermore, the margin expansion moves have reduced overlapping in many areas of the business, streamlining operations, enabling our higher projected gross margin in 4Q'19 of 28.7%.
- The business' margins also benefit from the diverse mix of offerings, as big LNG margins tend to be 30-40%.

Cash Flow & Shareholder Returns:

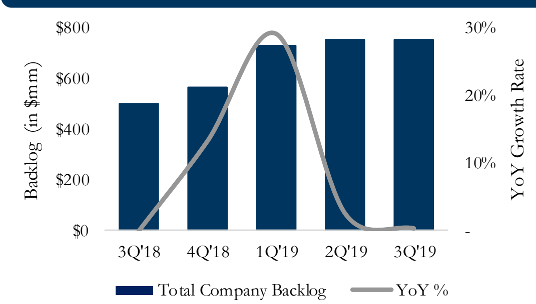
Free Cash Flow



- FY'18 FCF was ~$53.2mm, up ~280.0% YoY largely due to a 15% decline in SG&A, as well as the additional revenue stream from the Hudson Products acquisition; we project FCF to total ~$640.9mm over the five-year period to 2023.
- Management has not guided FCF growth; however, with the revenue synergies from the AXC acquisition, we expect FCF to continue to grow as the Company continues to expand its product portfolio.
- FY'18 capital expenditures were ~$35.6mm, increasing 7.9% YoY; we project $38.7mm, an 8.7% YoY increase, in capex for FY'19.
- Since the change of management in 2017, the Company has embarked on a series of acquisitions to further diversify its portfolio across different products and regions. Over the past few years, M&A has been a driver of top-line growth, market expansion, and FCF growth. Following its acquisitions, management focuses on deleveraging as its capital deployment strategy. As of 3Q'19, GTLS had a leverage of 3.2x with a target of 2.5x by mid-year 2020. Post mid-2020, management predicts leverage to quickly decline as it expects significant cash flows from big LNG developments.
- GTLS does not pay a dividend unlike many of its peers, mainly due to management's intent on sourcing accretive acquisitions.

Orders & Backlog

Total Backlog



- 3Q'19 orders of $286.2mm (+8.5% YoY), with 33 orders greater than $1mm; $35.1mm in E&C Cryogenics, $63.0mm in E&C FinFans, $111.6mm in D&S West, and $76.5mm in D&S East.
- Featured orders: $9.2mm hydrogen recovery system in an ammonia plant, $7.5mm for VRV heat exchangers, $6.6mm air cooler for Calcasieu Pass, $5.0mm for hydrogen application, and $2.7mm for space application.
- Packaged gas orders of $65.6mm (+7.8% YoY, +12.4% QoQ); expect long-term industrial gas growth of +3.0%.
- Specialty market orders of $46.0mm (+56.0% YoY, +54.0% QoQ), driven by lasers and hydrogen demand.
- Nineteen LNG fueling stations booked in 3Q'19, compared to 3 in 3Q'18; 41 total LNG fueling station orders.
- LNG vehicle tank orders +87.0% QoQ, driven by EU emissions regulations.
- Line of sight into three additional +$20mm orders for 2020, as well as the $9.0mm Caribbean power plant project verbally agreed to in 3Q'19.
- Historical order-to-completion time for big LNG projects of 12-16 months; historical order-to-completion time for small-scale LNG projects of nine months.
- Total record backlog of $755.6mm (+50.9% YoY); $288.3mm in E&C Cryogenics, $136.4mm in E&C FinFans, $127.1mm in D&S West, and $203.8mm in D&S East.

APPENDIX

Exhibit I: Consolidated Financial Statements

	Historical								CAGR	CAGR
Consolidated Income Statement	**2016**	**2017**	**2018**	**2019e**	**2020e**	**2021e**	**2022e**	**2023e**	**Historical**	**Projected**
Revenue	**$859**	**$989**	**$1,084**	**$1,325**	**$1,632**	**$1,760**	**$1,826**	**$1,890**	*12.3%*	*11.8%*
% Growth YoY		*15.1%*	*9.7%*	*22.2%*	*23.2%*	*7.9%*	*3.7%*	*3.5%*		
Gross Profit	**$266**	**$272**	**$296**	**$343**	**$457**	**$493**	**$513**	**$531**	*5.4%*	*12.4%*
% Margin	*31.0%*	*27.5%*	*27.3%*	*25.9%*	*28.0%*	*28.0%*	*28.1%*	*28.1%*		
EBIT	**$57**	**$42**	**$92**	**$106**	**$199**	**$220**	**$230**	**$238**	*26.7%*	*20.9%*
% Growth YoY		*(26.7%)*	*119.1%*	*15.1%*	*87.6%*	*10.8%*	*4.1%*	*3.9%*		
Margin	*6.7%*	*4.3%*	*8.5%*	*8.0%*	*12.2%*	*12.5%*	*12.6%*	*12.6%*		
Net Income (Loss)	**$25**	**$30**	**$56**	**$66**	**$136**	**$155**	**$165**	**$175**	*50.0%*	*25.8%*
% Growth YoY		*19.6%*	*88.2%*	*17.9%*	*107.9%*	*13.5%*	*6.5%*	*6.4%*		
Margin	*2.9%*	*3.0%*	*5.1%*	*4.9%*	*8.4%*	*8.8%*	*9.0%*	*9.3%*		
Adj. EPS (Diluted)	**$1.29**	**$1.38**	**$2.78**	**$2.62**	**$3.71**	**$4.21**	**$4.48**	**$4.77**	*46.8%*	*11.4%*
% Growth YoY		*6.9%*	*101.7%*	*(5.8%)*	*41.3%*	*13.5%*	*6.5%*	*6.4%*		
EBITDA	**$85**	**$71**	**$148**	**$169**	**$277**	**$306**	**$325**	**$343**	*32.3%*	*18.3%*
% Growth YoY		*(16.3%)*	*109.2%*	*14.4%*	*63.8%*	*10.3%*	*6.3%*	*5.4%*		
Margin	*9.8%*	*7.2%*	*13.6%*	*12.8%*	*17.0%*	*17.4%*	*17.8%*	*18.1%*		

	Historical							
Consolidated Balance Sheet	**2016**	**2017**	**2018**	**2019e**	**2020e**	**2021e**	**2022e**	**2023e**
Cash & Cash Equivalents	$282	$123	$118	$107	$102	$113	$106	$92
Accounts Receivable	143	223	195	230	325	326	338	350
Inventory	170	209	233	250	312	312	324	335
Prepaid & Other Current Assets	59	80	116	147	177	176	183	189
Total Current Assets	**653**	**634**	**662**	**734**	**915**	**927**	**950**	**966**
PP&E, Net	$251	$298	$361	$403	$428	$480	$523	$560
Intangible Assets, Net	93	303	521	578	578	578	578	578
Goodwill	218	469	330	798	798	798	798	798
Other Non-Current Assets	18	22	24	40	41	42	42	42
Total Non-Current Assets	**580**	**1,091**	**1,236**	**1,819**	**1,845**	**1,897**	**1,941**	**1,978**
Total Assets	**1,233**	**1,725**	**1,898**	**2,553**	**2,760**	**2,824**	**2,891**	**2,944**
Accounts Payable	80	114	126	128	156	156	162	168
Accrued Liabilities	42	49	47	45	45	44	46	48
Other Current Liabilities	133	166	183	210	255	253	263	272
Total Current Liabilities (Excl. Debt)	**255**	**329**	**355**	**383**	**455**	**454**	**471**	**487**
Revolver	$0	$0	$0	$0	$0	$0	$0	$0
LT Debt (Incl. Current Portion)	240	498	544	805	794	694	569	419
Deferred Income Taxes	4	63	76	68	68	68	68	68
Other Non-Current Liabilities	35	30	33	60	60	60	60	60
Total Non-Current Liabilities	**279**	**591**	**653**	**933**	**922**	**822**	**697**	**547**
Total Liabilities	**534**	**920**	**1,009**	**1,316**	**1,377**	**1,276**	**1,168**	**1,034**
Common Stock & APIC	$396	$446	$461	$762	$772	$782	$793	$804
Retained Earnings	336	364	454	519	656	810	975	1,151
Treasury Stock	0	0	0	0	0	0	0	0
Accumulated Other Comprehensive Income (AOCI)	(35)	(8)	(30)	(49)	(49)	(49)	(49)	(49)
Total Shareholder's Equity	**697**	**802**	**885**	**1,232**	**1,378**	**1,543**	**1,719**	**1,905**
Noncontrolling Interests	1	3	5	5	5	5	5	5
Total Equity	**699**	**805**	**889**	**1,237**	**1,382**	**1,548**	**1,723**	**1,910**
Total Liabilities & Shareholder's Equity	**1,233**	**1,725**	**1,898**	**2,553**	**2,760**	**2,824**	**2,891**	**2,944**

Exhibit I (Cont'd): Consolidated Financial Statements

Ratio Analysis	Historical							
	2016	2017	2018	2019e	2020e	2021e	2022e	2023e
Profitability:								
Gross Margin:	31.0%	27.5%	27.3%	25.9%	28.0%	28.0%	28.1%	28.1%
EBITDA Margin:	9.8%	7.2%	13.6%	12.8%	17.0%	17.4%	17.8%	18.1%
EBIT Margin:	6.7%	4.3%	8.5%	8.0%	12.2%	12.5%	12.6%	12.6%
Net Profit Margin:	2.9%	3.0%	5.1%	4.9%	8.4%	8.8%	9.0%	9.3%
Return on Assets (ROA):	2.0%	1.7%	2.9%	2.6%	4.9%	5.5%	5.7%	6.0%
Return on Equity (ROE):	3.5%	3.7%	6.3%	5.3%	9.9%	10.0%	9.6%	9.2%
Return on Invested Capital (ROIC):	2.6%	2.3%	3.9%	3.2%	6.3%	6.9%	7.2%	7.5%
Coverage:								
EBIT / Interest Expense:	3.3x	2.2x	4.3x	4.2x	7.6x	9.0x	11.0x	14.7x
EBITDA / Interest Expense:	4.9x	3.6x	6.9x	6.7x	10.5x	12.5x	15.7x	21.1x
(EBITDA - Capex) / Interest Expense:	3.8x	1.8x	5.3x	5.2x	8.5x	10.2x	12.8x	17.3x
Leverage:								
Total Debt / EBITDA:	2.8x	7.0x	3.7x	4.8x	2.9x	2.3x	1.7x	1.2x
Total Debt / Equity:	34.4%	61.9%	61.2%	65.1%	57.5%	44.9%	33.0%	22.0%
Total Debt / Total Assets:	19.5%	28.9%	28.7%	31.6%	28.8%	24.6%	19.7%	14.2%
Efficiency:								
Asset Turnover:	0.7x	0.6x	0.6x	0.5x	0.6x	0.6x	0.6x	0.6x
Days Sales Outstanding	60.4	67.4	70.3	58.5	62.2	67.5	67.5	67.5
Days Inventory Outstanding	115.4	96.4	102.3	91.0	87.4	90.0	90.0	90.0
Days Payables Outstanding	43.2	49.4	55.4	47.9	44.3	45.0	45.0	45.0
Liquidity:								
Current Ratio:	2.6x	1.9x	1.9x	1.9x	2.0x	2.0x	2.0x	2.0x
Quick Ratio:	1.7x	1.1x	0.9x	0.9x	0.9x	1.0x	0.9x	0.9x
Cash Ratio:	1.1x	0.4x	0.3x	0.3x	0.2x	0.2x	0.2x	0.2x

Exhibit II: GTLS 3-Year Price Graph

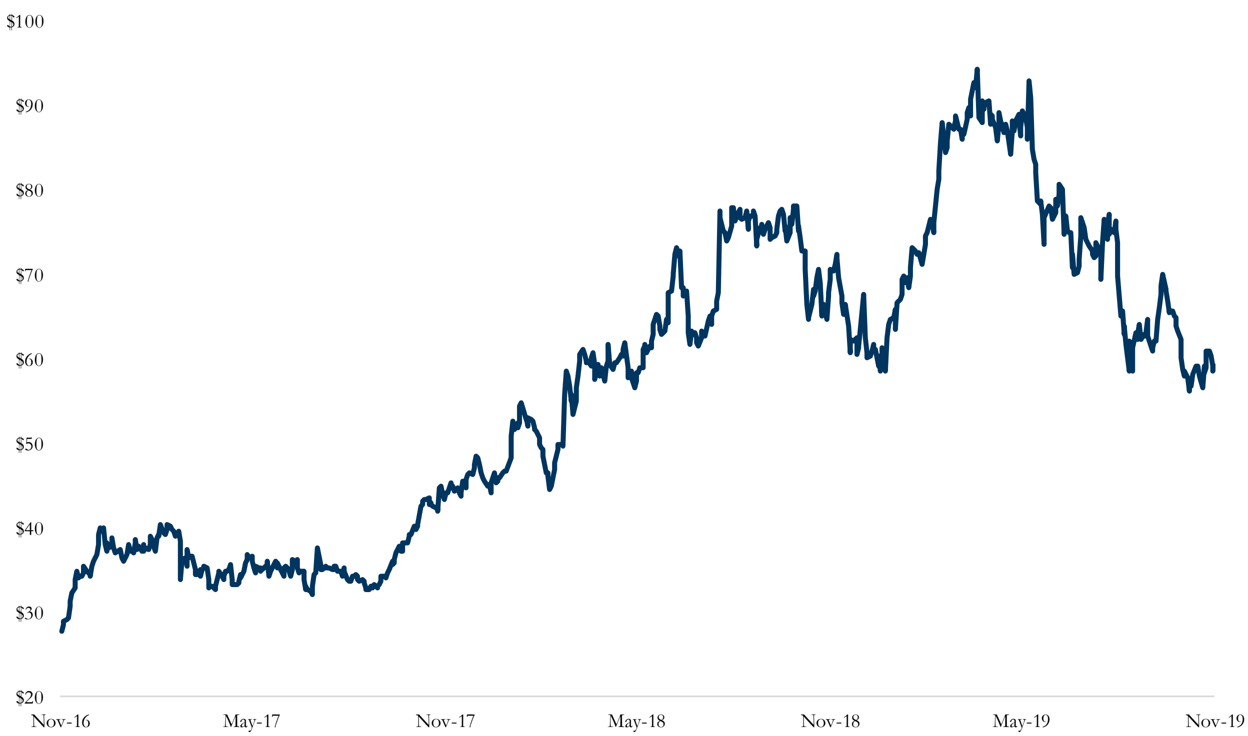


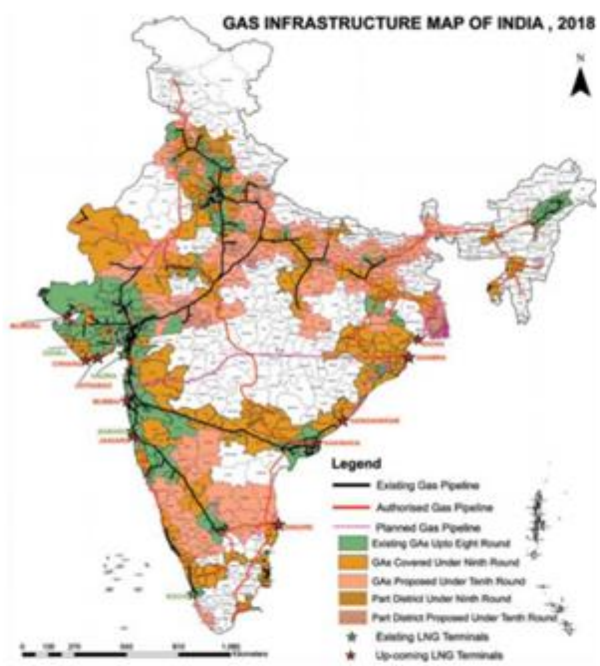
Exhibit III: GTLS 10-Year Price Graph

Exhibit IV: GTLS 2-Year Median LTM EV/EBITDA Graph

Exhibit V: Air-Cooled Heat Exchangers Portfolio

		HUDSON		SMITHCO.	
Natural Gas Processing	✓		✓	✓	✓
Natural Gas Compression	✓		✓		
Natural Gas Transmission	✓		✓	✓	✓
LNG		✓			✓
Refinery		✓			✓
Petrochemical		✓			✓
Power	✓	✓		✓	
Engine Radiator Cooling				✓	
Bitumen Extraction & Upgrading		✓		✓	
Industrial Process Applications			✓		

Exhibit VI: India LNG Infrastructure Buildout



Source: PNGRB Annual Report

Exhibit VII: International Big LNG Opportunities

Project Name	State/Country	Capacity (MMTPA)
Qatar LNG	Qatar	31.2
Kwispaa LNG	BC, Canada	24
Artic 2	Russia	19.8
Mozambique Rovuma	Mozambique	15.2
Mozambique LNG	Mozambique	12
Baltic LNG	Russia	10
Goldboro LNG	NS, Canada	10
PNG Expansion	Papau New Guinea	8.1
Nigeria Train 7	Nigeria	8
LNG Canada 1	BC, Canada	6.5
LNG Canada 2	BC, Canada	6.5
Yamal LNG 3	Russia	5.5
Ichthys 2	Australia	4.5
Tangguh 3	Indonesia	3.8
Prelude FLNG	Australia	3.6
Coral FLNG	Mozambique	3.4
Tortue	Senegal	2.5
Fortuna FLNG	Equatorial Guinea	2.2
Woodfiber LNG	BC, Canada	2.1

Note: Light blue indicates projects that GTLS management has outlined as potential international LNG opportunities.

Exhibit VIII: Geographic Breakdown by Segments

DISCLAIMER

This report is prepared strictly for educational purposes and should not be used as an actual investment guide. The forward-looking statements contained herein are simply the author's opinions. The writer does not own any Chart Industries, Inc. (GTLS) stock.

TUIA STATEMENT

Established in honor of Professor William C. Dunkelberg, former Dean of the Fox School of Business, for his tireless dedication to educating students in "real-world" principles of economics and business, the William C. Dunkelberg (WCD) Owl Fund will ensure that future generations of students have exposure to a challenging, practical learning experience. Managed by Fox School of Business graduate and undergraduate students with oversight from its Board of Directors, the WCD Owl Fund's goals are threefold:

- Provide students with hands-on investment management experience
- Enable students to work in a team-based setting in consultation with investment professionals.
- Connect student participants with nationally recognized money managers and financial institutions

Earnings from the fund will be reinvested net of fund expenses, which are primarily trading and auditing costs and partial scholarships for student participants.