

# Transmission Line Construction

April 20, 2022

Industrials

Industry Rating

Market Weight

## Investment Thesis

We recommend a market weight rating for the Transmission Line Construction industry. We expect to see enhanced growth over the next couple of years due to the replacement of depreciated infrastructure and a shift toward renewable energy. However, competition is fierce within the industry, and with rising input prices and deviation toward outsourcing capital needs, we expect to see shrinking margins moving forward. We believe that these expectations have already been priced into the market. Therefore, little upside exists for holding an overweight position in the industry.

### Drivers of Thesis

- 5G is expected to be the backbone of the internet of things and will require new and improved infrastructure to meet demand. We expect Mastec and Dycom to benefit from capital outlays in this area.
- Widespread adoption of renewable energy will require more plants and transmission lines to loosen capacity constraints and meet demand.
- Trends in grid fortification will introduce the market to more maintenance work. Therefore, industry operators will be able to reduce margin uncertainty by sourcing master service agreements in this area.

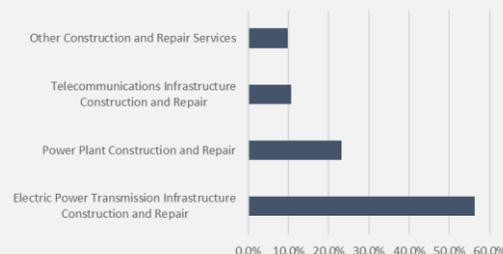
### Risks to Thesis

- A low concentration of firms in the industry results in fierce competition and requires them to underbid the other firms to win contracts.
- Excessive bargaining power of customers and suppliers due to rising input costs, competition, and outsourcing trends has left the industry on poor footing.
- The current low interest rate environment that has allowed for inflated valuations and better returns on capital is coming to an end, with rates expected to rise in 2022.

## Key Items

US Competitors	MKT CAP (\$M)
PWR	\$19,817.1
MTZ	\$6216.5
MYRG	\$1,536
PRIM	\$1,386
Global Industry Leaders	MKT CAP (\$M)
SHA: 601669	\$22,705
SHA: 601868	\$5,233
OTCMKTS: ENGIY	\$39,418
BME: ACS	\$7,162
US Competitor EBIT	% FYE 2020
PWR	5.67%
MTZ	7.09%
MYRG	3.73%
PRIM	4.79%
Price/Earnings (LTM)	
PWR	26.8X
MTZ	17.8X
MYRG	19.2X
PRIM	11.8X
GDP Expectations 2022	%
G7	3.84%
Global Economy	4.40%

Industry Segmented Revenue % of Total



## 12 Month Performance



## Industry Description

The transmission line construction industry consists of firms that perform construction, maintenance, and replacement of various electric power and telecommunications infrastructure. The industry has little concentration making competition fierce. Companies win business by outbidding each other on infrastructure contracts. Customers within the industry tend to be utilities, oil & gas, and telecommunications companies.

## EXECUTIVE SUMMARY

The Transmission Line Construction industry is a mature and capital-intensive industry. The industry has a lot of short-term growth potential through budding trends and replacement needs. Most of the transmission infrastructure in the United States had been built in the late 1950s, and much of it is reaching the end of its useful life. We see this as a primary driving force of the industry’s performance over the next two years. Additionally, renewable energy adoption, grid bulwarking, and 5G penetration are solid opportunities for organic growth. However, we believe some of this growth will be offset by fierce competition, rising capital costs, and higher bargaining power of suppliers and customers. We expect companies that focus on telecommunications infrastructure will benefit from any new construction of 5G towers. Furthermore, we foresee companies with aggressive acquisition strategies to outperform in the market. We expect that acquisition focused companies will be able to benefit from potential pricing synergies.

## INDUSTRY DESCRIPTION

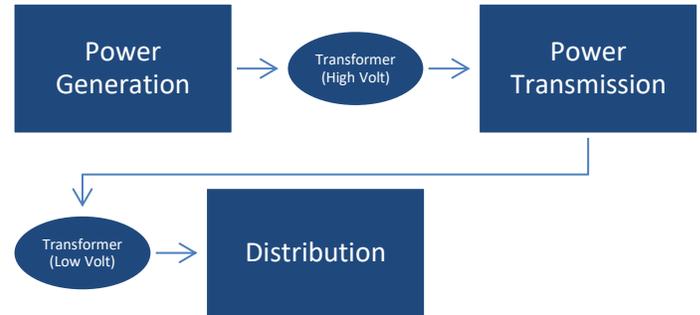
The transmission line construction industry consists of firms that perform construction, maintenance, and rehabilitation of various electric power and telecommunications infrastructure. These infrastructures include power lines, cable, TV/radio towers, and power plants<sup>1</sup>. Industry revenues are broken down into the following segments:

Segment	%
Electric Power Transmission Infrastructure Construction and Repair	56.3%
Power Plant Construction and Repair	23.2%
Telecommunications Infrastructure Construction and Repair	10.7%
Other Construction and Repair Services	9.8%

Source: IBISWorld

Approximately 79.5% of industry revenue originates from power generation and transmission infrastructure. Getting electricity to our homes and businesses can be explained in three main steps<sup>2</sup>. First, electricity is generated at a power plant and processed through a transformer, which increases the voltage. Subsequently, this high voltage electricity is passed through long-distance transmission

lines and into neighborhood transformers, which decrease the voltage. Lastly, the low voltage electricity is sent through distribution lines which distribute electricity to homes and offices. This process can be seen in the following chart.



Source: EIA

Telecommunication infrastructure involves cable and wired connections as well as radio, TV, and cellular towers. Since 2019, segment growth has primarily originated from increased demand in video streaming services and 5G cellular tower construction<sup>1</sup>. We expect the segment to grow with increased demand and innovation in telecommunications. Other construction and repair services include specialty and earthwork contractors, building construction, and other general construction and repair<sup>1</sup>.

Customers within the industry are communication, power generation, and utility companies. Industry operators usually secure business through competitive contract bidding and other service agreements.

### Industry Life Cycle

#### Mature

The transmission line construction industry exists within the mature stage of the industry life cycle. This is due to market saturation, the small impact of innovation, and little change in the services provided<sup>1</sup>. Today electricity is seen as a necessity, and very few opportunities exist for geographic expansion. In 2019, roughly 90% of the world’s population had electricity<sup>4</sup>, leaving little room for additional infrastructure in developed regions.

Innovation within the industry primarily includes advances in power efficiency. A large amount of power generation

and transmission infrastructure was constructed in the mid to late 20<sup>th</sup> century<sup>1</sup>. Therefore, it can be expected that a significant amount of revenue within the industry has and will come from upgrading or extending the current infrastructure. However, ample opportunity lies with efforts toward renewable energy generation. Renewable energy generators tend to be in rural areas far from where electricity is needed<sup>2</sup>. Therefore, significant investments in transmission lines could be required to reach coverage areas. 2020 energy source segmentation in the US is depicted below.

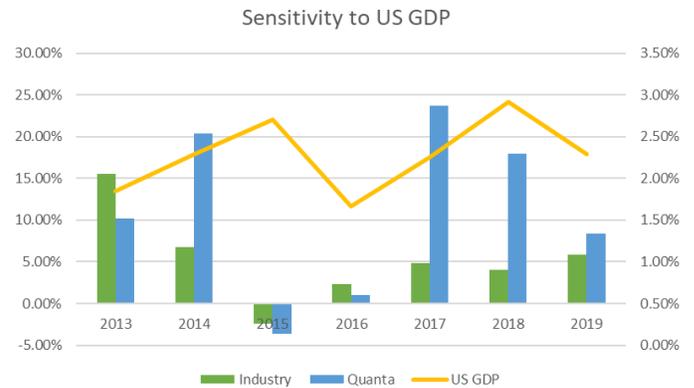
Energy	%
Petroleum	1%
Coal	19%
Nuclear	20%
Renewables	20%
Natural Gas	40%

Source: eia.gov

Natural gas is still the primary source of power in the US, with renewables, nuclear, and coal competing for second place. New federal renewable energy initiatives are expected to cause significant shifts out of coal and natural gas within the next couple of years. It is essential to recognize that the transmission line construction industry does not cover hydrogen energy generation, which accounts for 7.3% of energy production in the US<sup>2</sup>. However, this does not mean that companies that operate in this industry do not also work within hydrogen energy.

Sustainability movements may extend growth for a certain period, but this will level off once more infrastructure has been set in place. Overall, the transmission line construction industry is heavily saturated and has not seen many significant changes over the years. We expect the sector to grow above real GDP over the next couple of years but quickly level off thereafter. Consequently, the industry earns its place in the mature stage of the industry life cycle.

## Business Cycle Reaction



Source: FactSet, IMF, IBISWorld

The graph above contains YoY % change rates of the US transmission line construction revenues, Quanta Services revenues, and YoY % changes in US real GDP. The industrial sector is usually deemed a cyclical industry, and therefore, revenues tend to follow the overall economy. Analyzing the graph above shows a slight correlation between US GDP growth and industry revenue growth. Generally, as GDP rises, so do industry revenues and vice versa. Hence, the industry is sensitive to changes in GDP, otherwise known as being cyclical.

## MARKETS AND COMPETITION

Detailing Porter's Five Forces suffices to summarize industrial markets and competition. However, in greater detail, we will only mention competition and rivalry, customers' bargaining power, suppliers' bargaining power, and the threat of new entrants. The transmission line construction industry has changed very little over the years regarding service offerings. We expect transmission infrastructure to continue to be required with any innovation in the related markets.

### Competition and Rivalry

Competition within the transmission line construction industry is cutthroat. Industry concentration is deficient in the US, with only a couple of large national companies holding less than 15% market share<sup>1</sup>. The rest of the US industry is host to numerous large infrastructure contractors that operate locally and/or nationally<sup>1</sup>. The high level of fragmentation allows for competitive pricing and contract bidding. The global market's top five players

hold 36.19% market share<sup>5</sup>. The market share of global industry leaders is depicted below.

Company	Revenue From Industry \$m	% Market Share
Power Construction Corporation of China	51,502.81	16.07%
China Energy Engineering Corp. Ltd.	29,093.84	9.08%
ENGIE SA	20,955.39	6.54%
Quanta Services, Inc.	7,773.34	2.43%
ACS Actividades de Construccion y Servicios SA	6,646.46	2.07%
<b>Total</b>	<b>115,971.84</b>	<b>36.19%</b>

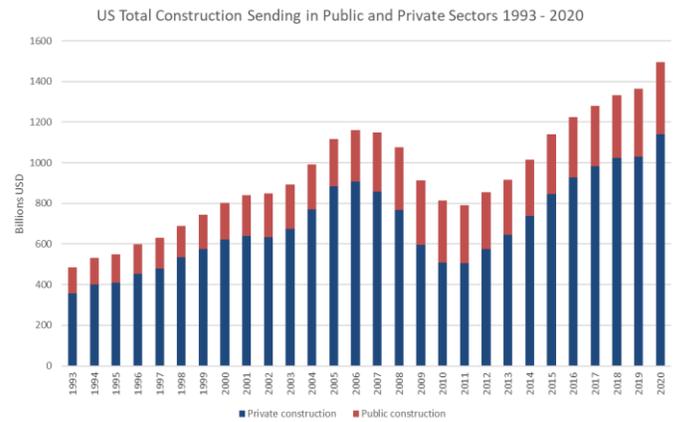
Source: FactSet

Quanta Services is the only US company within the top five major players. Interestingly, Quanta Services receives ~85 percent of revenue from US operations while China Energy Engineering receives ~85% of revenue from Mainland China<sup>5</sup>. This implies that although competition is fierce locally, the industry may not compete globally. This is with the exception of some European contractors who operate in many surrounding countries.

## Power of Buyers

A competitive bidding process secures industry revenues. Companies will submit bids on contracts marketed via auction process. This enhances price competition and ultimately rewards companies that can afford a lower bid on infrastructure contracts.

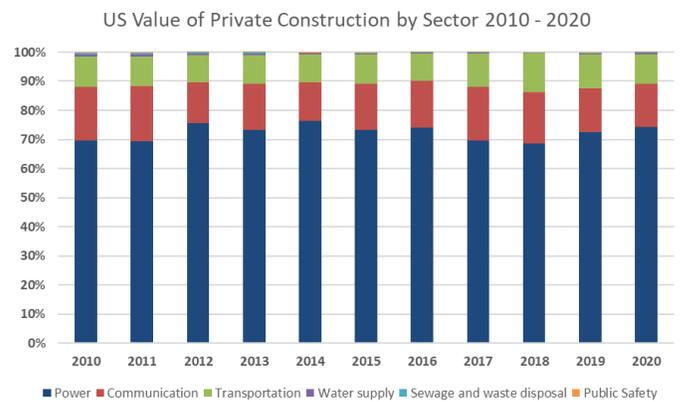
Contracts are auctioned in private power infrastructure, private telecommunications, and government markets<sup>1</sup>. Private investment accounts for the larger portion of total construction spending in the US, and this has been a consistent pattern over the last 27 years<sup>3</sup>. Private and public construction spending from 1993 to 2020 is shown in the chart below.



Source: Statista

We expect this imbalance to change in the next few years due to President Biden’s Infrastructure Investment and Jobs Act. The bill budgets \$1.2 trillion to infrastructure, of which \$130 billion will be split between broadband and power grid infrastructure<sup>6</sup>.

Most construction spending comes from utility, communication, and power generation companies. Private investment in power has remained around 70% of total private construction spending for the past ten years<sup>3</sup>. Communication and transportation hold second and third place respectively as seen in the following chart.



Source: FactSet

The high concentration of private customers paired with the low concentration of industry operators has constructed a very uneven downstream market. Buyers have enormous bargaining power as they essentially get to choose which companies are let into their private auctions. Additionally, many companies within the industry have caused a very aggressive bid environment.

## Power of Suppliers

The transmission line construction companies’ suppliers are construction material companies, engineering contractors, and specialized construction contractors<sup>1</sup>. Construction material for this industry consists of copper, aluminum, metal tubing, and concrete<sup>1</sup>. Engineering and construction service companies are the largest suppliers to companies within the industry. These subcontractors will occasionally supply materials and human capital to finish pieces of an industry operator’s contract. This tends to be the most significant expenditure for companies in the industry and could be scarce by geography; therefore, the power of these suppliers is high. With current employment, wage, and commodity price conditions, we expect that the bargaining power of suppliers will increase.

### Threat of New Entrants

Transmission line construction is a capital-intensive industry; therefore, it has high entry barriers. However, we believe that the high level of capital requirement has decreased and will continue to decrease in the coming years. Companies within the industry forgo the need to carry a large amount of PPE on their balance sheets by outsourcing the capital-intensive work and signing short-term leases on heavy equipment<sup>1</sup>. Additionally, some contracts stipulate that the customer will provide all material and equipment<sup>7</sup>, thus relieving the contractor of any depreciation expense associated. Regardless, it seems that these industry operators pay for the capital by sacrificing margins. Additionally, operators provide large amounts of human capital to fulfill their contracts, which has recently become scarce and quite expensive.

Consistent with the above porter’s analysis, it seems that the industry maintains poor positioning. Competition is fierce as many similar firms place competitive bids for business. Furthermore, both buyers and suppliers have excessive bargaining power due to the low concentration of companies. Altogether, we see an industry with short-lived growth potential, high competition, and cost and revenue insecurity.

### PEER COMPARISONS

The following sections will only analyze comparable companies within the transmission line construction industry for the US market. This is useful as companies within this industry generally do not compete globally. Comparable companies have been selected by analyzing company releases and comparing operating segments.

Below is a table depicting the industry-specific revenue of the established competitors.

Company	2020		2019		2018	
	\$M	% of Total	\$M	% of Total	\$M	% of Total
Quanta Services	7,773	52.8%	7,122	31.2%	6,416	53.9%
Mastec, Inc.	4,546	30.9%	13,376	58.5%	3,619	30.4%
MYR Group	1,154	7.8%	1,134	5.0%	893	7.5%
Primoris Services Corporation	1,254	8.5%	1,226	5.4%	981	8.2%
Total	14,727	100.0%	22,858	100.0%	11,909	100.0%

Source: MergentOnline

### Quanta Services (PWR)

Quanta Services is an industry leader in electric and power infrastructure. 69% of the company’s 2020 revenues were attributable to its electric power infrastructure segment<sup>5</sup>. This is up over 10% from the previous period. Quanta’s top three customers consist of the following<sup>5</sup>:

- NextEra Energy
- Dominion Energy
- Exelon

Quanta prides itself on its ability to forgo most outsourcing needs. The company performs over 80% of its work<sup>15</sup>. This is unique as most large industry operators outsource a significant portion of their contract obligations.

### Mastec, Inc. (MTZ)

Mastec operates through four main segments: electrical transmission, oil and gas, clean energy and industrial, and communications. Industry-specific revenue accounted for nearly 72% of its revenue in 2020<sup>5</sup>. The company receives most of its revenue through the communications segment and is a cell tower and transmission construction leader. Mastec’s top three customers include<sup>5</sup>:

- Equitrans Midstream
- AT&T
- Avangrid

The company has made some recent acquisitions, including Henkels & McCoy, to enhance its clean energy offerings further. The company is unique in that it is the only company of the four selected with a telecommunications company as one of its top three

customers. This indicates Mastec’s heavy investment into the telecommunications infrastructure space.

## MYR Group (MYRG)

MYR Group is a holding company that operates through its transmission & distribution and commercial & industrial segments. MYR Group’s revenues are quite evenly split between both segments with 51.37% attributable to industry-specific revenue in 2020<sup>5</sup>. The group’s top customers include:

- Exelon
- FirstEnergy Corp
- Avangrid

MYR Group separates itself from the other listed competitors by allocating its attention to local energy distribution. Instead of competing for high voltage long-distance transmission, the company has focused on low voltage and more localized distribution.

## Primoris Services Corporation (PRIM)

Primoris Services is a holding company that provides construction, maintenance, replacement, and engineering services through the following segments: Utilities, Pipeline, Power, Transmission, and Civil. The company’s revenues are spread relatively evenly among utilities, pipeline, and power at around 25% of revenue<sup>5</sup>. Civil and transmission each accounted for around 13% of revenue in 2020<sup>5</sup>. Primoris’ top three customers are listed as follows:

- Enterprise Prods Partners
- Kinder Morgan
- Duke Energy

Primoris seems to be a jack of all trades within the industry. It operates through broad segments and works with a more diverse customer base than comparable companies.

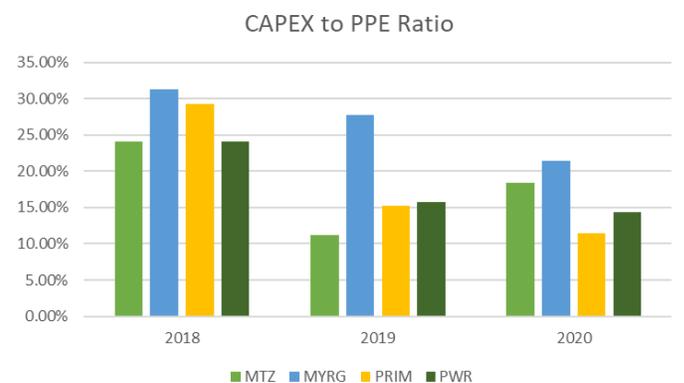
## Operating Margin



Source: FactSet

By comparing EBIT margin across companies, we can see that Mastec has held the highest margin over the three years. Mastec’s larger margins may be attributable to its extensive exposure to the telecommunications industry. The demand for 5G infrastructure starting in 2019 may have allowed the company to secure higher margins. EBIT is a useful metric to compare across industries, but it is sensitive to differing depreciation and amortization schedules. However, the depreciation and amortization schedule for these companies tend to follow the same pattern and have no effect on rankings in the above chart.

## CAPEX to PPE Ratio

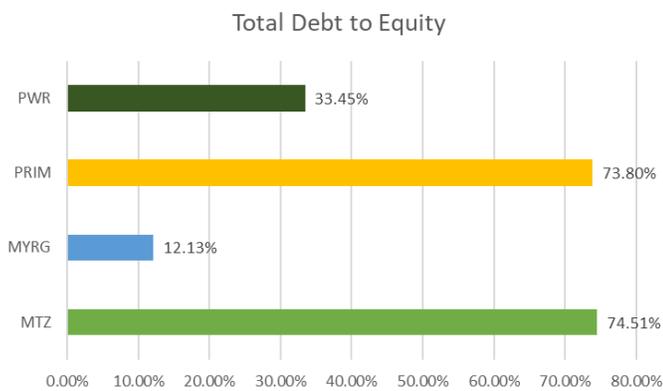


Source: FactSet

Looking at capital expenditures as a percentage of PPE is a good indicator of how capital intensive and capital reliant a company is. The higher the ratio of capital expenditure to PPE, the more sensitive it may be to interest rate changes and commodity price fluctuations. The bar chart above compares each competitor’s CAPEX to PPE ratios

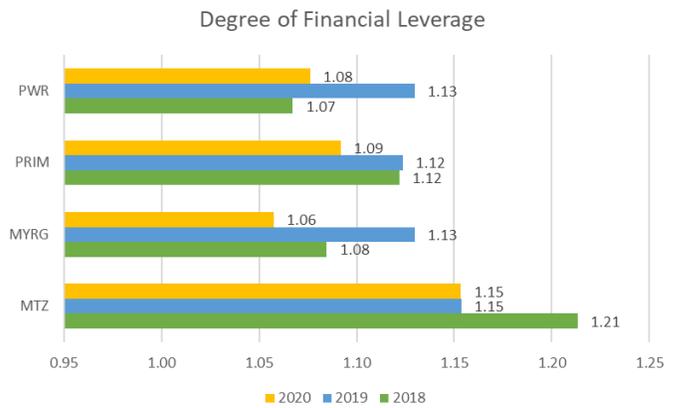
across 2018 to 2020. MYR Group has had the highest ratio for each period while the other companies have decreased their ratios. This could be indicative of outsourcing adoption within the industry. Surprisingly, Quanta's ratio has decreased while performing 85% of projects by themselves. One would think this would require more capital than some other competitors who may outsource large portions of their contracts. Additionally, these companies might depreciate assets differently. Therefore, significant changes in this ratio may result from large amounts of accumulated depreciation and not a reduction in capital expenditures.

## Capital Structure



Source: FactSet

A company's capital structure represents how it finances its operations. Both debt and equity financing have their advantages and disadvantages, and it is essential to look at how the ratio of debt-to-equity financing differs between comparable companies. From the chart above, Mastec has the highest debt to equity ratio. The company may finance this way to reduce its WACC and boost its EV. Additionally, the company may want to reduce its WACC to undertake more profitable projects. Primoris has a similar ratio and could have similar incentives. These companies also have a higher degree of financial leverage and are more sensitive to down years. The chart below shows how DFL has changed from 2018 to 2020.

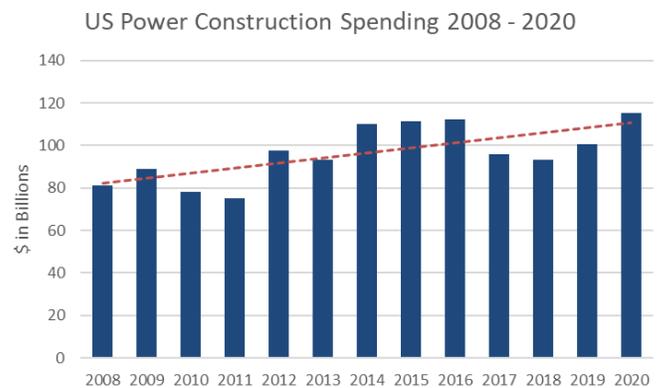


With the exception of PWR, each company had decreased its DFL from 2018 to 2020. This could also be a function of the cheap cost of debt experienced in the 2020 period.

## EXTERNAL DRIVERS

### Electric Power Consumption

Energy consumption per capita has been declining for over 20 years<sup>2</sup> and is anticipated to decrease well into the future. This is indicative of large-scale innovation within the energy sector. Improvement in energy efficiency should increase existing structure enhancement and replacement of depreciated transmission lines. The graph below displays an upward trend in US power construction spending from 2008 to 2020.

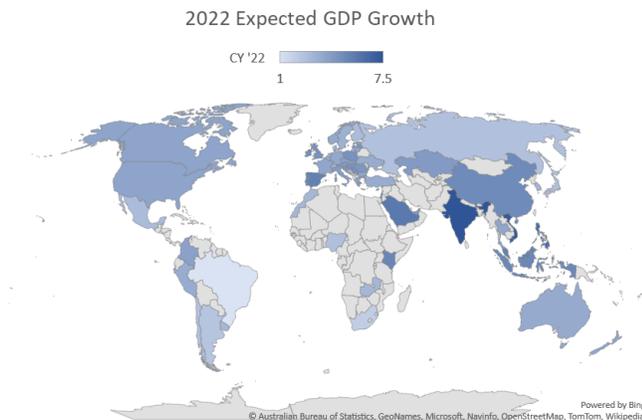


Source: Statista

Total energy consumption in the US has grown with population and the general economy<sup>2</sup>. This is expected to continue with increased demand from households and businesses. Additionally, the increased popularity of electric vehicles may lead to increased energy demand by households. Growth in power infrastructure construction,

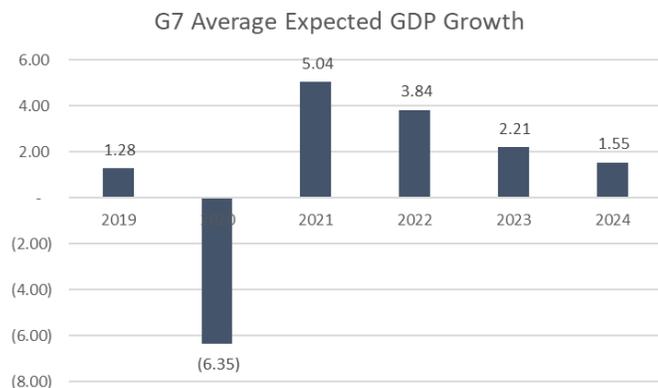
maintenance, and upgrade is expected to continue in the future.

## Real GDP Growth



Source: FactSet

Real GDP is an important metric to analyze when looking at companies within the industry as they tend to follow the business cycle. Global real GDP grew at an estimated 5.9% over 2021 and is expected to grow at 4.4% in 2022<sup>12</sup>. The International Monetary Fund lowered their expectations of 2022 GDP growth due to supply chain issues and revisions to President Biden's Build Back Better plan.



Source: FactSet

The figure above states G7 expectations for real GDP growth from 2022 to 2024. There is an apparent downward trend in real GDP expectations moving forward. This is mainly due to supply chain constraints and ongoing COVID troubles. We expect the industry to outpace G7 GDP in 2022 and 2023 and subsequently track closer in the following years.

## Interest Rates

Interest rates are an incredibly significant driver for the transmission line construction industry. Interest rates affect the profitability of companies within the industry due to high capital intensity. Companies tend to issue debt to finance capital needs, and higher rates would increase the interest payments on said capital. Additionally, a higher cost of debt will increase WACC and reduce valuations within the industry. We expect up to five rate hikes in 2022, with a 25-bps increase starting in March.

## Public Investment

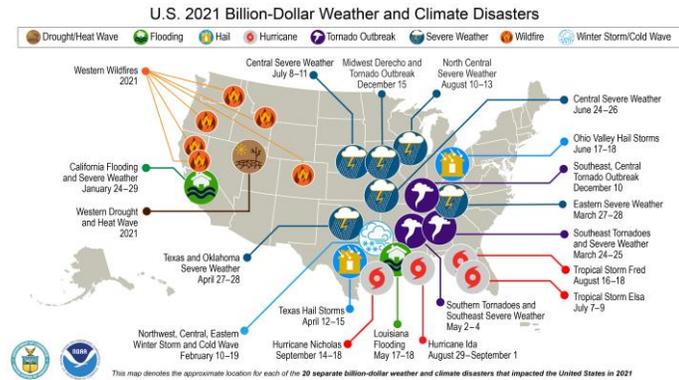
Public investment drives revenue within the industry as it increases demand and adds to the industry backlog. President Biden's Infrastructure Investment and Jobs ACT allocated \$1.2 trillion to infrastructure spending within the United States. Nearly 11% of the bill was assigned to infrastructure within the transmission line construction industry<sup>6</sup>. We believe this will increase industry revenues concisely and then return to normal levels. Public investment has consistently fallen far below private investment within the industry. Even with the significant government infrastructure expenditure, we do not believe that sizeable public transmission line outlays will frequent in the future.

## Natural Disasters

Natural disasters are a sinister driver of revenue for the industry. Disasters can boost revenues and after-tax profits for utility and transmission line construction companies. When a natural disaster occurs, state governments will usually employ a disaster relief bill/plan to rehabilitate the necessary infrastructure swiftly. State and local governments may need to source companies from around the country to aid in the effort. Companies that come to help are usually given state income tax immunity<sup>10</sup>. Therefore, companies will increase their return by the amount of tax in which they are immune. Hence, natural disasters can be very lucrative to players within the industry.

Since 1980 there have been 310 notable weather events, totaling over 2.15 trillion in damages<sup>10</sup>. Although extremely difficult to predict, we see a clear pattern in the frequency of natural disasters that have resulted in greater than one billion dollars in damages. The average number of disasters over one billion dollars from 1980 to 2021 is

7.4. However, in the most recent five-year period, this number rose over 130% to an average of 17.2 per year<sup>10</sup>. We remain unsure as to the cause of the increase, but we expect to see similar numbers in 2022 and into 2023. The image below shows the geography of different natural disasters within the US.



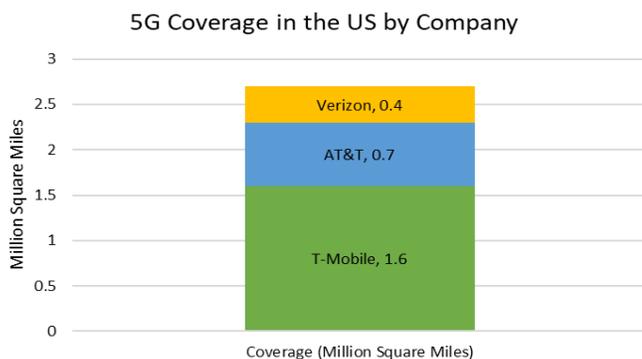
Source: NCSL

## Grid Depreciation

The need to replace or repair energy generation or transmission infrastructure will enhance revenues. Most of the current transmission infrastructure was set in place in the 1950s with a useful life of around 50 years<sup>14</sup>. As these infrastructures approach the end of their useful lives, we could see a significant need for industry services to keep energy capacity above energy demand. We expect to see growth in depreciated transmission lines in 2022 and 2023; however, we expect growth in new placements to outpace replacements with increases in renewable energy demand.

## INDUSTRY TRENDS

### 5G Wireless



Source: Statista

The communications portion of industry revenue accounts for roughly 10.7% of industry revenue<sup>1</sup>. We expect this number to grow with the swift adoption of 5G wireless networks. 5G subscription penetration is expected to be over 46% and 68% in 2022 and 2023, respectively<sup>11</sup>. The swift adoption of these networks will create organic growth opportunities for the industry.

## Renewables Generation and Integration

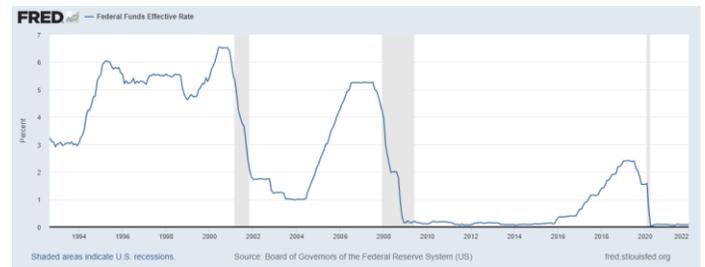
The widespread adoption of renewable energy has created strong organic growth opportunities within the industry. Renewable energy plants are usually located far from where energy needs to be delivered. Therefore, more transmission lines will be needed to reach consumers<sup>2</sup>. Additionally, the current energy capacity may not be able to supply potential demand from increasing electric vehicle sales. We expect this to be a major growth area for the industry and expect it to outpace any other forms of revenue growth within the industry.

## Grid Bulwarking

Grid bulwarking is the act of fortifying current transmission line infrastructure against inclement weather and natural disasters. Natural disasters can result in billions of dollars in damage to standing infrastructure. Utilities and governments are now attempting to fortify this infrastructure to prevent outages and other adverse events that cost them significant sums of money. This is an additional opportunity for organic growth within the industry and we expect it to outpace GDP growth in 2022.

## ECONOMIC OUTLOOK

### Interest Rates and Real GDP



As previously mentioned, we expect the federal reserve to implement five rate hikes this year. We expect the first-rate hike to happen in March and we anticipate that many industrial firms will try to rush to issue debt in February. Rising interest rates will have large negative effects on the

industry as financing will become more expensive and returns will fall. Also previously mentioned, GDP is expected to fall as COVID is still running rampant around the globe. G7 GDP is expected to grow at 3.84% in 2022 and global real GDP is expected to grow at 4.4%<sup>12</sup>. Supply chain issues have stunted economic growth in all countries and this is expected to continue into 2023.

## Non-Farm Payrolls

Non-farm payroll is the number of employed persons in the US less any farm or unincorporated self-employed persons<sup>13</sup>. Changes in non-farm payroll numbers are released monthly and are a good measure of overall unemployment and economic health. Non-farm payrolls have been extremely volatile over the last couple of years due to pandemic influences. Recently the numbers beat expectations by over 300 thousand<sup>11</sup>. This could be a sign of economic recovery, but we are hesitant to believe so.

## Construction Spending

Construction spending did not meet expectations in the December 2021 release. Spending was up only .2% and expectations were at .6%<sup>11</sup>. Private nonresidential construction remained relatively level while public nonresidential spending fell 1.6%<sup>11</sup>. We expect public non-residential spending to rise in the next release once President Biden's infrastructure plans start to pick up speed.

## SUMMARY OF KEY ITEMS

The Transmission Line Construction industry has seen very little change over the last 50 years, yet innovation is starting to creep its way into the industry. However, this innovation does not change the services offered, it only changes the amount of service demanded. Full depreciation of industry infrastructure is expected to be happening and continue to develop in the next couple of years. This will require a large number of replacement lines and generators. Additionally, renewable energy leaves a large amount of opportunity for organic growth, but this should be watched carefully as energy efficiency might forgo the need for additional infrastructure.

Competition and bargaining power of suppliers and customers is a major issue for existing industry operators.

The competitive bidding that results from the low concentration of firms reduces margins for contract winners. However, new renewable energy demand coupled with fully depreciated infrastructure could reduce competition within the industry. A supply shock of contracts could ease competition and raise prices. Additionally, the industry has seen an increase in M&A activity among larger firms. If this trend continues, it could increase concentration and therefore reduce competition.

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