

Volume #12: Lower Domestic Energy Prices Areas of Interest

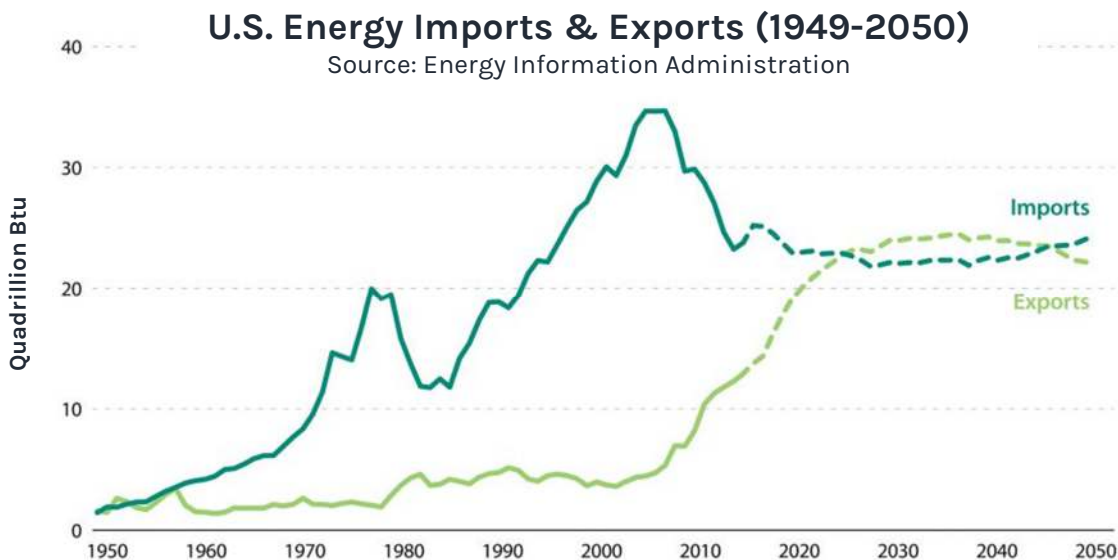
In the previous Strategy Report, 3RC dove into the most relevant areas of interest that arose from the manifestations of *Escalating Conflicts* both domestically and overseas. In this report, 3RC will examine the most promising opportunities surfacing from the manifestations of *Lower Domestic Energy Prices*. Following this investigation, 3RC will be left with an enhanced perspective that will further guide our investment strategy and outbound sourcing efforts.

The table below outlines the key areas of interest that 3RC will discuss in the following pages of this report. 3RC is tracking several sub-verticals that will continue to shape the wider thematic lens and will inform 3RC’s search for the most compelling investment opportunities for our investors.

Factor of Influence	Manifestations	Areas of Interest
Lower Domestic Energy Prices	Increased demand for energy storage in the United States	<ul style="list-style-type: none"> • Energy storage systems <ul style="list-style-type: none"> ○ Renewables and the smart grid ○ Backup power ○ Logistics and maintenance
	Increased energy production domestically	<ul style="list-style-type: none"> • Logistics and handling <ul style="list-style-type: none"> ○ Downstream handling ○ Export logistics • Energy efficiency services

U.S. Energy Independence

Since we published our Strategy Report discussing the Manifestations of Lower Domestic Energy Prices in July 2017, the United States has moved closer toward energy independence. It is now expected that, by the mid-2020’s, the U.S. will be the largest oil and gas producer in the world, primarily through the means of a 34% increase in shale output.¹ This trend has impacted the level of energy imports into the U.S., with oil imports in terms of daily demand likely to fall by 65% from 2005 to 2020.² Coal demand stagnation is also expected to continue, with an additional small decline expected through 2022. The percentage of power generated by coal is expected to drop from 34% in 2015 to less than 15% in 2040.³



The use of alternative or renewable energy sources continues to increase at a high rate, sharing an inverse relationship with coal. Wind energy produced approximately 6% of total U.S. electricity in 2016 and will likely continue its rapid growth, as a new wind turbine was installed every 2.4 hours in the first quarter of 2017.⁴ The demand drivers for wind energy are large U.S. companies, including Home Depot and Microsoft, who prefer wind energy because of its low and stable cost structure.⁵ Solar energy has followed a similar trend, with 2017 production dwarfing 2016 numbers as electricity generation from solar increased 47%.⁶ As wind and solar costs decrease by 71% and 66% respectively by 2040, the two energy sources will continue to account for a larger portion of the U.S. power mix.

The U.S. currently is the leading producer of natural gas, and is likely to retain that position in the near term as U.S. production is expected to grow at 3% during the next five years. During that timeframe, the U.S. will account for 20% of the world's natural gas production. Unlike wind energy, developing nations are the largest demand driver for natural gas, with global usage increasing by 1.6% annually through 2022.⁷ To meet the demands of the developing world, over 50% of the U.S. natural gas produced is expected to be exported in the coming years.

The macroeconomic reversal in energy leads 3RC to the conclusion that the U.S. is becoming increasingly energy independent and accordingly, will require transportation and consumption logistics companies to substantially grow to meet the industry's need to move energy from extraction to consumption sites. Also appealing is the energy storage and stability market, with many smaller companies surfacing that could be strong acquisition targets for 3RC. Finally, the broader trend of companies focusing more on energy efficiency as a mechanism to improve margins has allowed service and maintenance companies to build out a compelling niche. While 3RC has already demonstrated how our expertise in the energy space can lead to outsized returns through investments in PAT Tank and Deep Well Services, we are keenly aware of the shifting trends that have led to a changing investment framework.

Energy Storage & Stability

In response to the move toward energy independence, demand has grown for better energy storage options. Initially, reduced energy prices caused firms to seek storage solutions as an arbitrage opportunity in anticipation of higher energy prices, though energy storage demand has still increased in light of a projected stable price plateau. This has primarily occurred in the renewable energy market in response to downtime stability for smart grid power, the backup power market to protect bottom-line losses in the case of energy disruption, and the logistics and maintenance services market to create infrastructure that supports the refinement and use of energy sourced and used in the U.S. Each of these three areas are discussed in detail in the following sections with a specific focus on how 3RC plans to capitalize on the opportunities.

Overall, the energy storage market is expected to grow to \$2.5 billion annually by 2020, which is six times the market value in 2015.⁸ Tax credits have also been impacting the market by encouraging investments in clean energy sources. A 30% investment tax credit is given to wind and storage projects, while the credit given to solar and storage projects is relative to the percentage of power provided by grid energy. This has been fueling the growth of the clean energy storage market, and the market is expected to be 32% larger than a scenario without a tax incentive in place.⁹

Three of the most difficult challenges facing the energy storage industry are technological improvement, market and regulatory dynamics, and strategic development.¹⁰ Within technological improvement, firms have been addressing the increased focus on expanding the capabilities and heightening the efficiencies of systems. The wide variety of use cases – from grid storage to residential power systems – has made technological improvement an expansive issue. Additionally, ensuring that adequate product-market fit exists is critical in the product development cycle, and gaining regulatory approval and incentives,

including the investment tax credits mentioned earlier, can be a lengthy process. Finally, the strategic challenge revolves around designing and building systems that are holistic in their approach and limit potential problems.

One company that has utilized energy storage capabilities in an unforeseen application is Wilson Creek Winery. The need to control the temperature of wine during the aging process and massive demand of traditional energy systems led them to seek a more efficient solution. After installing new HVAC systems and new energy storage units, the winery is now saving \$27,000 annually in energy expenses.¹¹ Additionally, Wilson Creek chose to implement technology in the form of smart controllers that “centralize control of the units, with Wi-Fi built into them, which allows [them] to remotely monitor performance of each unit.” While this is a niche application of many new technologies that have been recently developed, it shows the widespread span of potential companies that can take advantage of new solutions. This ultimately leads to a state where energy is utilized in a more efficient manner creating a supply-demand dynamic that will continue to put a ceiling on energy prices.

Energy Storage & Stability: Renewables and the Smart Grid:

One of the primary factors supporting the storage market’s lofty growth expectations (46% CAGR until 2022), is the increasing prominence of the smart grid.¹² Dr. Mark Jacobson of Stanford University claims that the United States will have to fill the gaps of intermittent power supply provided by a solar and wind-powered smart grid by “deploying energy storage at a vast scale.”¹³ He projects that seven weeks of energy consumption capacity will have to be stored to ensure that the grid can rely on renewables, which contrasts with the 43 minutes that the ten largest storage systems account for currently. The sizeable difference between the reality of current capacity and necessity of future storage capabilities will drive a large amount of growth. What will be constructed as a result are systems that store energy that is produced by renewable sources, often consisting of lithium-ion batteries capable of connecting to renewable energy sources and storing power with greater efficiency.

Falling lithium-ion battery prices have made it possible for lithium batteries to compete with “peakers”, or the traditional natural-gas-fired plants.¹⁴ These batteries are critical for renewable adoption, particularly with respect to wind and solar power, as they can store the power that is intermittently generated for use at peak hours. Peaking plants, which fill excess demand when it is highest, burned approximately \$1.1 billion of natural gas in 2016, though this number could increase because of the fact that many large battery construction projects are underway or being approved, most heavily in the Southwest region.¹⁵ Battery projects are becoming more popular due to cost savings – a gas-fired peaking plant costs \$87 per megawatt hour to generate electricity compared to recent solar-plus-storage projects costing just \$36 per megawatt hour.

Adoption is projected to continue at a steady pace for renewable grid storage, with some estimates claiming that 30% of the market will be filled by energy stored in batteries by 2030.¹⁶ While among the wider market the average cost for battery storage is still 35% higher compared to natural gas peakers, the projected cost reduction for batteries by 2024 indicates that their prevalence as an alternative supply for peak demand electricity will increase.¹⁷ Additionally, geographical location is also a factor as batteries are more adept to replace peakers in warmer climates as the demand peaks during the winter in colder climates often last beyond four hours, stretching the capabilities of battery plants. Another ancillary benefit is the fact that those who live nearby these plants will not be subject to the traditional smoke stacks, but rather something similar to “a big-box store [that] is filled with racks and rows of batteries.”¹⁸

Notably, the off-grid storage market for renewables may provide excellent opportunities to achieve even higher profitability. On-grid systems generate power only in cases when the utility power grid is accessible and must be connected to the grid.¹⁹ Power that is not used when generated is distributed to the grid and

is credited so that it can be utilized later. Off-grid systems, however, provide the ability to store power in batteries so that it can be used when the grid falters or if the power is not connected to the grid. By the end of 2018, the market for integrated solar storage systems will approach \$2.8 billion, with the majority of that coming from smart grid developments. Margins, however, show signs of being larger off the grid due to break-even prices that are up to 300% higher, allowing off-grid storage companies to strategically avoid the competitive bidding for grid-based storage.²⁰ Overall solar storage demand is expected to reach \$19 billion in 2018, compared to a meager \$200 million in 2012.²¹

One segment that will see an increase in demand is power conversion systems, which are expected to grow at 2.2% through 2022 and reach \$17.3 billion.²² Approximately 30% of the industry serves the energy storage market by providing products that are used in power storage equipment, primarily via grid technology, residential construction, and back-up energy storage. This market could provide a greenfield opportunity for 3RC as the top three players currently maintain only a 23% market share, indicating that consolidation can be expected in the coming years. Companies that are most able to capitalize on these trends will have connections with key suppliers, access to high-quality inputs, and achieve economies of scale.

New advancements in efficiency will allow companies to separate themselves from their competition via proprietary technology. Smaller companies have arisen in recent years with an emphasis on technological development and advancement, resulting in the average industry-wide EBITDA margin of a meager 5%. But as these developments begin to enter the wider market and companies mature, wider margins will become more prevalent and profitability should steadily increase.

The youthful state of this industry is reflected in its method of fundraising, as its primary source is venture capital. M&A occurs in the production and development vertical, though primarily via larger companies in the space that aim to expand their portfolios and technological moats. In 2017, \$1.5 billion was raised by battery storage, smart grid, and efficiency companies, representing 15% growth over the \$1.3 billion raised in 2016.²³ Markedly, the funding for battery storage firms nearly doubled from \$365 million in 2016 to \$714 million in 2017, with downstream energy storage companies receiving the largest portion at \$68 million.

3RC recognizes the potentially negative implications of speculatively investing in a small company with success predicated on the development of novel technology and has shaped their investment lens with respect to the smart grid and energy storage as a result. Instead, 3RC will investigate the logistics and maintenance components of the industry, as the risk is diversified through the integration of a portfolio of several smaller companies' technological advancements. These areas are further examined in the "Logistics and Maintenance" segment of the report.

Energy Storage & Stability: Backup Power:

There are several different forms of backup power available in the market, with backup generators, uninterruptible power supply, and redundancy being three of the primary methods.²⁴ Backup generators supply power with a fuel-burning engine that creates electricity. The fuel most often used is diesel due to its stability when stored, though gasoline or liquid petroleum generators are also relatively common. Uninterruptible power supply is an electrical mechanism that is directly linked to the power system and provides instantaneous power when a system falters. The power is stored in a flywheel or battery, although commercial applications typically only store a small amount of power that is available as a short-term alternative backup power to supply the system. Redundancy is a term used for systems that spread backup power among multiple different sources to ensure power stability in the case of failure. These redundant systems are most commonly used when any failure in power would be catastrophic, like in a data center.

Backup Generator



Uninterruptible Power Supply



Redundancy



A highly visible case study that shows the importance of a redundant power supply, comes from the Hartsfield-Jackson Atlanta International Airport blackout in December 2017. A fire occurred underground that prevented the delivery of power from the original source as well as the single redundant power supply that was attached to the system. As a result, Delta Air Lines cancelled over 1,400 flights, costing the company millions on the bottom-line.

The blackout, even in the case of a fire, would have been prevented if alternative sources of backup power were present. Nam Paik, VP of sales for TSi Power, which handles production of backup power supply, noted that “major airports should have at least three redundant power systems,” that cost several million dollars each.²⁵ Moreover, the Atlanta airport operates in a similar way as many major power networks, showing how the demand for backup power will not be limited to airports as vulnerability in these systems becomes exposed.

Projections for the wider market show increased demand, with an anticipated growth rate of 5.2% through 2022 with revenue in 2022 of \$1.8 billion.²⁶ The need to have continuous power without the possibility of an outage is heavily implicated in industries that cannot afford a disruption. Those industries include, airports, data centers, hospitals, financial institutions, governmental entities, and telecommunication firms. The telecommunications industry alone is expected to account for over \$2 billion in annual expenditure on energy storage products and services.²⁷

Currently, there are approximately 50 companies in the uninterrupted power supply industry, around 200 battery manufacturers, and an estimated 2,000 that produce ancillary equipment. The diversity in this market will allow 3RC to strategically investigate potential companies during the investment search process and create the opportunity to acquire a platform. With particularly sizeable growth expectations and an array of companies seeking financing, 3RC should discover a range of opportunities and can carefully filter through to find the companies with the most potential. The trends within the backup power market are advantageous and 3RC will continue to closely monitor these trends to ensure that the companies they focus on are exposed in a way that will be beneficial for investment returns.

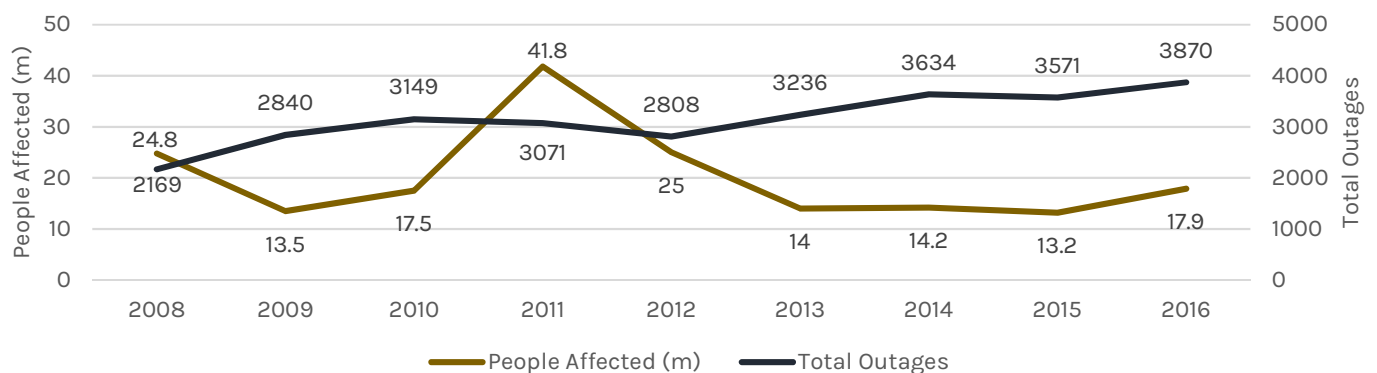
Energy Storage & Stability: Logistics and Maintenance:

While 3RC is intent on maintaining exposure to deal flow from energy storage companies, we believe that the logistics and maintenance verticals necessary to supply energy and maintain equipment may provide equally good returns but with a lower risk profile. 3RC has recognized that this segment offers a unique juxtaposition of strong industry growth and an ability to tangibly impact acquired businesses through increased efficiencies.

One notable factor necessary for success will be the ability to retain a strong, knowledgeable employee base, as approximately “40% of the workforce at America’s electric and gas utilities are eligible to retire in the next five years.”²⁸ Additionally, these rates are similar in most industries that require a large amount of infrastructure, including telecommunications, and the battery industry.

Another success factor that could provide a point of differentiation for ambitious firms is the integration of automation and technology. This application could enable service companies that maintain redundant power supply systems to resolve potential problems before they cause outages, saving firms billions in lost profits. The demand for predictive maintenance should be well-received, as in 2016 there were 3,879 outages impacting 17.9 million people in the United States. In addition to residential outages, roughly 90% of large organizations experienced one or more outages, costing them more than \$26.5 billion in lost productivity.²⁹ For every minute that a power outage occurs, firms incur a \$9,000 downtime cost.

Total Power Outages & People Affected



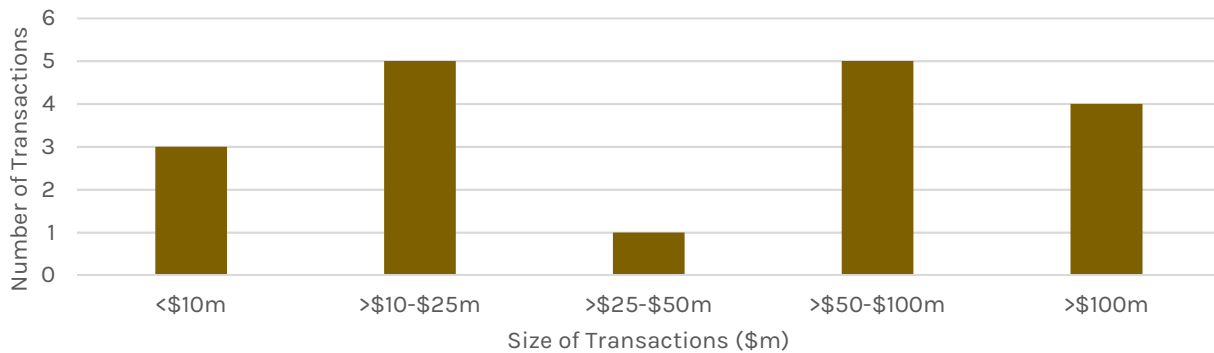
In addition to preventing power outages, companies can receive advantageous credit ratings. The sophisticated and complicated web of technology combined with outside infrastructure is prone to consistency problems. Predictive or improved maintenance would lower both the frequency and magnitude of problems that arise. Michael Wilkins from Standard & Poor’s notes that they are likely to initially give high-risk scores to energy storage projects “until a track record of operational stability is

established.”³⁰ Maintenance service companies with the correct technology in place can shorten the timeline to recognition of lower risk scores for their customers.

Additionally, the ability to build relationships with suppliers is a success factor for these firms. By partnering with the developers of key technologies, service-based firms will not only diversify away their exposure to potential failures in development and mitigate risk, but will also be able to choose from a broad portfolio of options when installing and maintaining systems, ensuring that their customers receive the most optimal solutions.

One issue that arises within the energy storage market is the large upfront capital expenditure to install an energy storage solution. As a result, the payback period for these systems is rather extensive, making the reliability and durability of systems essential. To mitigate downtime risks firms have and will invest in preventive maintenance contracts to assure systems are able to be utilized at all times.

Select M&A Transactions - Energy Storage
Source: Cogent Valuation



Changing Energy Sources

In the first quarter of 2017, renewable energy sources accounted for 19.4% of total electricity generation, which was beyond the most ambitious projections of various firms.³¹ The rise to this rate is not indicative of a plateau, as wind and solar energy costs are projected to fall by 71% and 66% respectively by 2040. Solar energy is already comparable in price to coal in the United States, and the additional expected cost efficiencies should propel the use of solar going forward.

Even oil companies are participating in this trend through unique M&A transactions in the past months. In December 2017, BP announced that it would acquire a portion of Lightsource for \$200 million, which focuses on solar power development.³² Companies like BP have recognized that there is a 7-10% return on capital invested for renewable energy projects, making these acquisitions beneficial in both the short and long-term.³³ Moreover, BP’s strategy parallels that of 3RC, as Lightsource primarily operates on the installation and management side instead of new technology development.

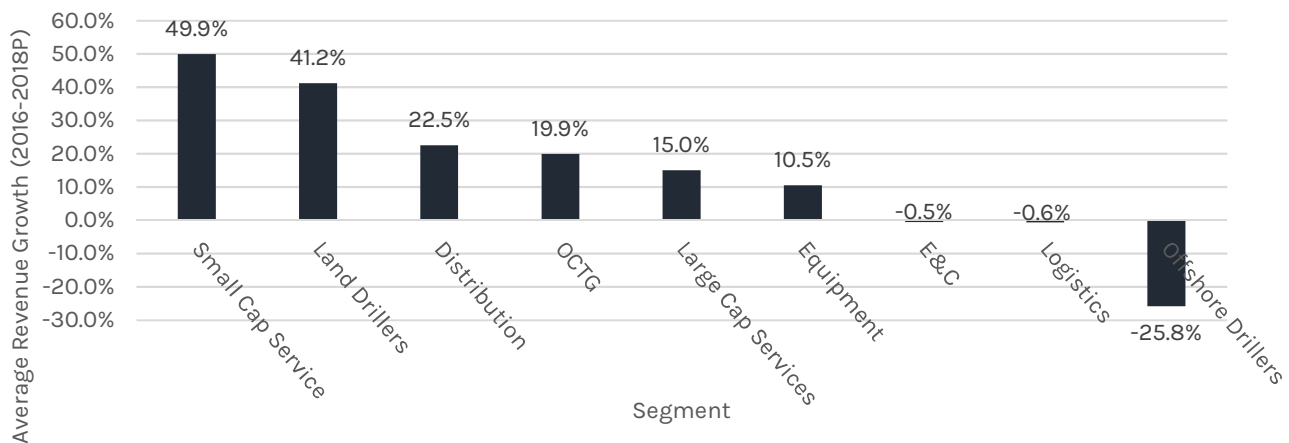
Initially, natural gas development appeared to be a promising investment area for 3RC, though the market sentiment appears to be changing. Many companies that provide the construction services for natural gas projects recognize that the market is oversupplied and that many of the “planned projects are falling by the wayside.”³⁴ As a result, these firms are shifting to provide services to renewable-energy projects, as that market is significantly less saturated and provides room for top-line growth and margin enhancement. The volatility of the market being directly tied to the price at which gas is produced has made us cautious about entering the market unless the company is creating significant disruption or

value-add. 3RC capitalized on the front end of the shale boom trend by investing in Deep Well Services, a company performing a unique service in the marketplace. The market has changed since that investment, however, and 3RC is evaluating these trends to identify investment opportunities with lower downside risk but similar upside potential as Deep Well.

Falling oil prices have impacted oilfield service companies, who are now forced to change their business strategy to emphasize flexibility in their operations and offerings.³⁵ As the market prices have softened, operators have turned to cost reduction, leading to smaller margins for service companies. The companies that survive the downturn in oil prices and grow throughout the process are the companies that can provide niche and adaptable services. Energy storage companies are one such example given where we believe the market is headed. If every building required underground storage to meet its backup power needs, then the firms that provided those services would experience massive growth. Companies exposed to these positive trends are able to offer strong value-add to their customers and are experiencing growing demand. These are the companies 3RC plans to target.

Energy Equipment & Services

Source: Harris Williams



Falling margins have impacted the M&A market for oilfield service companies, reducing overall transaction count. The extremely fragmented industry marked by firms pursuing new service opportunities to recapture lost revenue has made it difficult to strategically pursue acquisitions in the space. 3RC will focus on companies that have a strategic advantage or service offering that will enable them to not only grow during the market’s adjustment to low oil prices, but also position themselves as strong acquisition targets for larger oilfield service players once credit conditions materially improve. Many of these opportunities will “be specialty plays around technology, geography, and innovative service offerings,” that differentiate themselves via the product life cycle, region and resource emphasis, and customers they serve.³⁶ 3RC has incorporated this concept, as well as a focus on companies that provide unique value-added products and services, in their search process for the most impactful investment candidates.

Changing Energy Sources: Logistics & Handling:

In recent years, OPEC has placed significant price pressure on energy prices by flooding the market with production. Particularly during 2016, when OPEC hypothesized that the substantial production increase would reduce worldwide energy prices and thereby negatively affect the U.S. energy producer’s ability to compete. Despite its attempts, OPEC’s plan may have backfired as the U.S. hydraulic fracking industry

responded by increasing efficiency, with companies like ExxonMobil and Royal Dutch Shell investing \$20 billion into fracking technology.³⁷ This led to a steep fall in the average break-even price for fracking to roughly \$40 per barrel overall.³⁸ While total rig count decreased in specific regions by up to 64%, the total production decline was only 8%.

Continued research and development will allow energy producers to continue being profitable at lower price levels. Moreover, as production becomes more efficient, supply should increase and cap the price that might otherwise be reached. Additionally, the efficiency gains will allow the U.S. to continue exporting energy products even at lower prices, creating an opportunity for the companies that support the export process.

Downstream Handling:

The outlook for the downstream handling market is mixed, with certain sub-segments of the industry having more favorable projections than others. In general, capital expenditures are expected to continue to stabilize but maintenance expenditures will account for a larger portion of Capex, increasing up to 50%. Despite this, one area where companies will invest in new assets is transmission infrastructure, as it will start to open “regional bottlenecks” between saturated and demand-heavy markets.³⁹ Publicly-traded valuations in this segment are slightly higher than 3RC prefers, though the lower end of the market tends to transact at lower multiples. In the third quarter of 2017, “transmission and distribution assets traded at a two-year forward EV/EBITDA ratio of 9.6x,” which is within their historical range.⁴⁰ While this multiple is rather rich, and beyond the level at which 3RC would expect to acquire a company, these metrics are for public companies that generally will trade at a higher multiple than private companies within the \$3-10 million EBITDA range that 3RC considers. In turn, this higher multiple creates an opportunity as 3RC can purchase smaller companies in this industry, remove inefficiencies in the segment while growing the business, and sell these companies at a higher multiple.

Many companies that operate in the energy handling industry are emphasizing gas-oriented long-haul pipes which help reallocate energy to different regions. Lower margins in the downstream industry have led to more maintenance projects for service companies, specifically “continuing the re-fitting process [moving] away from imported heavy sour crude slates and toward light sweet domestic crude,” alongside “compliance with new EPA gasoline guidelines.”⁴¹ Additionally, producers will be investing less in intra-play assets. In 3RC’s search for viable investment opportunities in this space, specific emphasis will be placed on service companies that can handle a wide variety of flexible projects.

Due to the increased need for transmission infrastructure, companies that produce and install this infrastructure will stand out to 3RC. Notably, the production of these assets is shifting toward the United States and away from foreign companies, primarily due to oil prices, geographic location, and improvements in manufacturing which has provided increased speed of delivery. Additionally, tariffs by the United States have raised prices for foreign steel products that are fed into downstream infrastructure, allowing manufacturers in the United States to put pressure on imports which “make up about 70% of the U.S. well-pipe market.”⁴² Steel shipments in the U.S were up 5% through October 2017, highlighting this trend.⁴³ While 3RC is not speculating on the direction of United States tariff policy, we recognize that the shift to domestic producers will make these companies strong acquisition targets.

Export Logistics:

As the United States grows its energy production energy exports should also increase. This has already happened with natural gas. As the United States’ natural gas production skyrocketed through 2017, shipments to Mexico grew 13%, increasing up to 2.2 billion cubic feet daily.⁴⁴ Total exports should continue to rise, with many producers expected to increase supply of natural gas to meet rising demand for cheap energy both domestically, via the power sector, and abroad, through exports.⁴⁵

Pipeline infrastructure is also seeing a boost due to increased exports, particularly to Mexico as the United States helps Mexico “turn to cleaner-burning natural gas for its electricity generation.”⁴⁶ Moreover, the quantity and quality of refineries in the United States for oil has drawn Canada and Mexico toward those services, requiring additional pipeline and transportation infrastructure. A key success factor in this segment is ensuring that the refineries, pipeline producers, and services companies that 3RC examines have a strategic geographic advantage that allows for a cost-effective and flexible relationship with various parties.

Within many geographies, refineries are located near the tankers that will eventually ship the oil to their end markets. Trucks that transport oil from the production site to the refineries, and then from the refineries to the tankers, fill a critical piece in logistics.⁴⁷ These shipping companies are strained from the increased demand and 3RC will take a close look at opportunities within the export transportation space. It is important to note that 3RC will avoid investing in trucking companies directly due to their high capital expenditure requirements, although other firms like the tank producers and servicers appear to be attractive. Additionally, the companies that retrofit, manufacture, or implement any specialized components that need to be placed on the trailers should be able to capitalize on this growth without the burden of large capital expenditures. While many companies that 3RC considers may own a small number of trucks, investments will not be placed in firms that are solely trucking.

As the export market continues to grow, the infrastructure supporting energy shipment will need to expand. Tangential support infrastructure, including pipelines, docks, and port services have all now been strained due to the heavy demand for U.S. energy exports. Carlin Conner, CEO of export operator SemGroup, notes that “there aren’t very many terminals with the needed pipeline capabilities, tank farm capacity, and proper docks to load the ships . . . adding this is expensive and not done easily.” Companies capable of constructing and servicing these projects will be notable to 3RC.⁴⁸ This tangential support infrastructure is critical to 3RC’s investment thesis moving forward. While 3RC will not invest in companies that build pipes, they will be monitoring the companies that install and service those pipes. Logistical support services around ports, docks, and other logistical bottlenecks are areas that are bright for investment.

Changing Energy Sources: Energy Efficiency Services:

Large corporations in the U.S. have shifted to increase their focus on energy efficiency as they have recognized the major cost saving potential of updating their own energy infrastructure. General Mills, a large cereal and snack food manufacturer, initially began their implementation of an energy efficiency program in 2005. They implemented a sub-metering system, which monitors energy expenditure from individual equipment and processes in the plant, giving plant operators “extensive visibility into the energy-use situation at the plant.”⁴⁹ The positive benefits are exemplified by one of General Mills’ plants in Georgia, where energy expenditures were reduced “from \$13 million to \$7.5 million over a 4-year period.” Through the entire company, notably, the energy efficiency program decreased “energy use per ton of product” by 10% even while shifting “the product mix toward more energy-intensive products,” meaning that General Mills was able to reduce energy consumption while its operations suggest that it should have been increasing. The benefits of energy efficiency programs are substantial and 3RC will focus on companies that are able to implement these changes.

The energy efficiency services industry is composed of companies that offer sustainability services, asset management, customer engagement, analytics, and performance financing. Growth in the past few years has been driven by government incentives for firms that employ energy efficiency service companies and implement unique energy solutions.⁵⁰ The market, specifically within commercial and industrial customers, is expected to achieve a level of \$220 billion in the next ten years.⁵¹

Within this market, gross profit margins average 30% but oscillate between 10% and 50%. This signals to 3RC that there is a strong ability to differentiate within the competitive market through the services offered and data gathered. Valuations appear high initially, as public companies currently trade at 15x EBITDA, though M&A transactions for smaller companies have less ambitious multiples.⁵²

Many third-party vendors, utility services companies, and niche businesses operate in the space that focus on specific sub-segments of the energy management landscape. Notably, when the market “matures, it is expected to give rise to the outsourcing of energy portfolios and turnkey vendors equipped with a comprehensive set of technical, financing, and deployment model options.”⁵³

One of these areas is time-of-use shifting, which creates significant value to residential and commercial customers by lowering overall cost of energy use through optimization of demand and sources. In fact, “solar-plus-storage systems can provide electricity bill savings of over 20% to a typical commercial end-customer,” amounting to a significant cost-reduction initiative.⁵⁴ Companies that provide these services by maintaining facilities, supplying inputs, and performing analytics, will be of interest to 3RC due to the strong moat they have created.

One example of this application is Burton D. Morgan Hall, a building that sits within Ohio’s Denison University. Although it was originally built in 2003, the university decided to invest “\$108,000 to install new sensor-controlled heating and cooling systems and energy efficient lighting throughout the facility.”⁵⁵ Following this investment, the university has saved approximately \$28,000 each year, making the payback period less than four years. Similar improvements throughout the United States have the potential to save companies over \$1 trillion throughout the next ten years while shrinking greenhouse gas emissions by 10%.⁵⁶ The cost savings, as illustrated in this case study, are noteworthy and create an opportunity for companies that provide retrofitting services.

A company that has taken advantage of the analytics trend is Pioneer Power Solutions, Inc., which is a publicly-traded manufacturer and service provider of “specialty electrical transmission, distribution, and on-site power generation equipment for applications in the utility, industrial, commercial and backup power markets.”⁵⁷ One of their unique service offerings is a “proprietary real-time remote monitoring, metering, and control system for onsite power sources and associated equipment.”⁵⁸ As a result of this, Pioneer has been able to expand into the asset management side while also improving their own operations via automated inventory tracking and reporting services. Most notably, Pioneer claims that this part of their business was the success factor that has allowed them to differentiate themselves and win contracts over other companies that have not placed an emphasis on technology, leading to higher margins and stronger revenue growth as well.

While companies like Pioneer have shown promise in integrating performance and monitoring analytics as part of a wider offering, similar solutions have yet to penetrate the entire market. 3RC wants to ensure that it invests in companies that are able to establish a strong foothold before the remainder of the market catches up with these developments. The lack of full penetration also implies that there are many smaller companies competing for this growth, making it a unique place to invest for 3RC. 3RC will continue to monitor this space as they consider where to invest for the best returns.

Our belief that the near to medium term will be marked by lower domestic energy prices has led 3RC to focus on three specific industries of interest: (1) energy storage, (2) energy-related logistics and handling, and (3) energy efficiency services. 3RC is prepared to uncover the most promising investments that relate to the trends discussed in this report. In the next volume of the Strategy Report series, 3RC will examine and discuss the most relevant Areas of Interest related to the *Modernization of Things*.

SOURCES:

- ¹ The International Energy Agency
- ² Raymond James
- ³ Bloomberg, International Energy Agency
- ⁴ American Wind Energy Association
- ⁵ Inside Climate News
- ⁶ Energy Information Agency
- ⁷ International Energy Agency
- ⁸ Headwaters MB
- ⁹ GTM Research
- ¹⁰ European Commission: Directorate-General for Energy
- ¹¹ Electric Light & Power
- ¹² IBISWorld
- ¹³ Wall Street Journal
- ¹⁴ Wall Street Journal
- ¹⁵ Federal Data
- ¹⁶ Ben Fowke, Xcel Energy
- ¹⁷ SSR LLC
- ¹⁸ John Zahurancik, COO of Fluence
- ¹⁹ Anapode Solar
- ²⁰ Energy Storage World Forum
- ²¹ IMS Research
- ²² IBISWorld
- ²³ Mercom Capital Group
- ²⁴ Archtoolbox
- ²⁵ Wall Street Journal
- ²⁶ IBISWorld
- ²⁷ IBISWorld
- ²⁸ Servato
- ²⁹ Eaton
- ³⁰ Batteries International
- ³¹ Energy Information Administration
- ³² Wall Street Journal
- ³³ Wood Mackenzie
- ³⁴ Wall Street Journal
- ³⁵ PwC
- ³⁶ PwC
- ³⁷ Daily Caller
- ³⁸ The Atlantic
- ³⁹ Headwaters MB
- ⁴⁰ E&Y
- ⁴¹ Headwaters MB
- ⁴² Wall Street Journal
- ⁴³ American Iron and Steel Institute
- ⁴⁴ S&P Global Platts Analytics
- ⁴⁵ Wall Street Journal
- ⁴⁶ Wall Street Journal
- ⁴⁷ Oil & Gas Financial Journal
- ⁴⁸ Reuters
- ⁴⁹ SEA Action
- ⁵⁰ 7 Mile Advisors
- ⁵¹ Navigant Research
- ⁵² 7 Mile Advisors
- ⁵³ Navigant Research
- ⁵⁴ Headwaters MB
- ⁵⁵ New York Times
- ⁵⁶ Deutsche Bank
- ⁵⁷ PR Newswire
- ⁵⁸ PPSI 2016 10-K