EQUIPMENT Insight
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How Industry Moves | Railcar Financing

In This Issue

In this issue of Equipment Insight, we explore the railway industry and the environmental and economic drivers affecting demand for rail transport. We also examine various railcar types, their primary use and expectations for their current and future demand. Both the rail industry and the demand for railcars have been directly impacted by the recession, increased demand for domestic oil production and changes to federal rail regulations and railcar standards.

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THE HISTORY OF THE US RAILWAY

The US railway has been around for more than 150 years, and it has grown and developed alongside the nation. Although the railway has always carried goods and people across the country, today it primarily serves industrial and commercial needs. Historically, railway demands have been closely tied to the country's economic cycles. While the rail industry was affected by the economic recession that began in 2007, the industry didn't hit bottom until 2009, and it continues to recover today, in what is known as the "Rail Renaissance." According to Railinc, in 2009, one-third of freight railcar fleets, or more than 500,000 cars, operating in the US were idle or in long-term storage. As of January 2015, Railinc notes that there were fewer than 100,000 railcars idle or in long-term storage. The majority of railcars that are idle today are older open-top hopper and gondola railcars, designed to carry coal, and center beam flatcars, designed to carry raw and finished lumber.

One of the driving factors contributing to the recovery of the industry is the resurgence in oil production. There is increased rail activity and demand as a result of shale fracturing in the Bakken oil fields in North Dakota and the Eagle Ford oil fields in Texas. The increase in oil production has resulted in a greater demand for covered hopper cars, which carry the sand used to develop new wells, and for tank cars, which are needed to carry oil to the production sites.

The ownership of railcar fleets has shifted over time from the railroads to private companies. According to Progressive Railroading, in 1980, the majority of freight car fleets, nearly 1.5 million cars, were owned by 16 larger railroads, including the Chicago, Milwaukee, St. Paul and Pacific Railroad, the Atchison, Topeka and Santa Fe Railway, and the Union Pacific Railroad. Today, Progressive Railroading notes that private ownership such as manufacturers—including TrinityRail, American Railcar Industries and The Greenbriar Companies—own approximately 70 percent of the fleet. Other private owners, including finance firms, banks, operating lessors, specialty fleet car owners and industrial owners, also own a portion of the railcar fleet. This transition can be seen through the railcar deliveries in 2014, when more than 65,000 new railcars were delivered from the various manufacturers to end users, rather than to the railroads, according to the Railway Supply Institute.

RAIL FLEETS AND EQUIPMENT

While rail equipment can vary, there are three major commercial equipment types: (1) freight cars, (2) locomotives and (3) maintenance of way, or MOW, equipment. Freight cars are used to load and transport materials and products along the railway, and locomotives are used to pull the freight cars. Railinc states that there are more than 1.4 million freight cars and 25,000 locomotives operating along the US railways today. MOW equipment provides track maintenance and repairs along the rails and is typically operated by the railroads or by private contractors.

Car Types:

There are a wide variety of railcars available to transport products. Typically, railcars are traded in groups, or trainsets, of 100 to 125 cars. Each type of car is designed for a specific purpose and, when used correctly and efficiently, will ensure safe transport and result in savings for the shipper.

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Tank Cars

Tank cars are fully enclosed and are designed to carry liquids, including sulfuric acid, crude oil, vegetable oil and chlorine. Railinc states that tank cars can transport up to 30,000 gallons of a volatile substance, which can be a serious environmental and safety risk in the event of a spill. This inherent risk—combined with several high-profile accidents in the last few years—has caused the cars and their design to be heavily scrutinized. Additionally, federal regulations with stricter standards were set in place in May 2015. The new standards require tank car operators and owners to adhere to guidelines relating to the products they can transport, the design of railcars and operational constraints.

Crude oil from the Bakken oil fields has played a major role in the emergence of stricter standards for tank cars. It was originally believed that Bakken crude oil was relatively benign; however, the industry is now working under the assumption that if not properly transported, the oil may release strong, toxic fumes. This has resulted in tighter design standards, including a release valve that reduces pressure buildup in the tank car and operational standards requiring that crude oil is processed before it is loaded into the tank car. Additionally, the Federal Railway Administration introduced Rule HM-201, which requires all tank cars—regardless of their cargo—to undergo a recertification inspection every ten years. This process confirms the structural integrity of the car's tank, as well as the overall operational integrity of the entire car.

Covered hopper cars, which are fully enclosed, are designated a "C" and vary in size based on what they transport. The Railcar Value Guide states that as of 2014 there were more than 410,000 covered hopper cars of various sizes in service:

- The C112 is a small cubic foot capacity car and is typically less than 3,500 cubic feet. It is designed to carry sand, cement and other granular mineral cargoes. There are approximately 60,000 C112 cars in service today transporting commodities, including cement and sand for fracking.
- While the C113 car is no longer in production, there are still 128,000 cars in service today. The C113 is 4,750 cubic feet and is designed to haul grain.
- The C114, of which there are approximately 110,000 cars in service, is a utility car with greater than 5,000 cubic feet capacity. It is used to move grain, minerals and plastic pellets.
- The C214 is primarily used for the transportation of plastic pellets and has a cubic foot capacity of greater than 5,250. There are about 112,000 of these units in service.

Source: Railcar Value Guide

Covered Hopper Cars

The single most popular and versatile car on the rails today is the covered hopper car. The car is fully enclosed, which protects its contents from the elements and makes it the primary way to transport any material or goods that could be negatively affected by inclement weather. While the majority of covered hopper cars adhere to a standard design, certain industries require specialty covered hopper cars. Specialty cars—including pressure differential covered hopper cars—are used by the food industry to carry powdered material, such as flour or powdered sugar. They have a function allowing the car to be unloaded by increasing the pressure inside the car, opening the hatches and blowing the product into a storage container at its destination.

Gondolas and Open-Top Hopper Cars

Out of all of the cars on the rails today, gondola cars and open-top hopper cars have been in production the longest. Both car types have an average age of over 28 years and are essentially rolling boxes with open tops. Gondola cars are unloaded by turning the car over, and the open-top hopper cars are unloaded through hatches on the bottom of the car. Both gondola and open-top hopper cars are used to carry coal, scrap steel, gravel, aggregate construction waste and a multitude of other materials and products that can be loaded into the cars and do not require protection from the elements. The cars are made of steel or aluminum.

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Flatcars and Well Cars

Flatcars are designed with a low, flat bed and are used to haul lumber, steel or welded rail. Progressive Railroading notes that the average life of a flatcar is over 30 years, but their useful life can reach 50 years due to the limited miles put on the cars. Modifications to the flatcar led to the well car. Well cars include a depressed section which sits close to the rails, allowing a container to be carried lower than on a traditional flatcar. Well cars are designed to carry intermodal, or shipping, containers from ports to interior cities for the distribution of goods. They are also used for the auto racks that carry automobiles from factories to distribution points closer to dealerships. Well cars make it possible to stack intermodal containers two high by securing the top container to the bottom container, which allows for larger amounts of product to be transported on the same number of well cars.

Boxcars

The number of boxcars has begun to dwindle in recent years. RailSolutions Inc.states that the current population of boxcars is 110,000, with only 20,000 cars built in the last ten years. The boxcar was originally designed to serve the paper industry and has been falling out of use as a result of the industry's declining demand. But, new uses for these cars have been found in recent years. The agriculture and food industries have converted standard boxcars to refrigerated boxcars, allowing them to transport their products safely. The automobile industry has also leveraged the existing boxcar population to carry auto parts.

RAILCAR VALUATION DRIVERS

According to Progressive Railroading, there were approximately 66,000 railcars of varying types delivered in 2014. Seventy percent of those deliveries were either small-cube covered hopper cars, used for hauling sand, or tank cars, used for crude oil transportation by the energy sector. As of Q1 2015, Railway Supply Institute notes that there was an order backlog of more than 100,000 railcars, with a projected delivery time of 18 months. The majority of the backlog is for railcars related to the energy sector; however, since the same manufacturers produce all car types, orders for all railcar models are being affected. With the contraction of crude oil prices, railcar orders in the energy sector have slowed significantly, resulting in shortened delivery times for all cars going forward.

PRIMARY VALUE DRIVERS OF RAILCARS ARE:

- Age vs. useful life
- Railcar condition
- Railcar replacement cost
- Technological status—current design vs. previous design
- Regulatory environment
- Railcar supply vs. demand
- Commodity demand
- Alternate uses

While demand is a strong factor in a railcar's value, it is not the only driver. Railcar values are also influenced by the capacity of the car, the car's age and technological and design developments that increase efficiency. According to RailSolutions Inc., over the years, railcars have gone from a gross rail load (GRL) capacity of 263,000 pounds to 283,000 pounds, allowing operators to transport larger product quantities in the same amount of time. Progressive Railroading states that as of 1974, all railcars have a mandated useful life of 50 years. While a 50-year useful life is an industry standard, there are certain car types that are not practical to run for that many years due to necessary maintenance. Cars that carry or are subject to abrasive or corrosive materials or environments will typically have a shorter useful life. Additionally, the delivery of all railcars types is affected and fluctuates with commodity demand.

The value of railcars is also affected by the specifications required by the operators, and custom designs could limit the railcars' attractiveness in the secondary market. As with all industrial equipment, there are some parameters that are desirable and some that are not.

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INCREASED FEDERAL REGULATIONS

As a result of several accidents involving railcars carrying crude oil, more stringent federal regulations were created for tank cars designed to carry crude oil. The new regulations, introduced May 1, 2015, by the Department of Transportation (DOT), have control over railcar design and operating procedures, including a mandatory retirement age for railcars transporting crude oil. Older tank cars, with an average age of 20 years and estimated useful life of 35 to 40 years, make up the majority of the rail fleet that carries crude oil. Many of the older cars will need to be removed from crude oil service over the next one to five years—depending on their age and design—to ensure that all operating tank cars carrying crude oil comply with federal regulations. The retirement of the older cars, coupled with the new regulations, will redefine the crude oil fleet and the way oil is transported.

CONCLUSION

Throughout its 150-year history, the rail industry has been widely used to transport commodities, goods, products and people. It has evolved to meet economic and industry demands, changing environments and stricter regulations. Major changes that have occurred in the rail industry include a shift towards private ownership, increased demand as a result of both the recovering economy and the discovery of crude oil in the Bakken and Eagle Ford oil fields, and most recently, the fact that railcars have been redesigned to meet new safety standards.

The various car types available throughout the industry cater to the wide range of products moved by rail. Railcar owners and operators must understand that while the standard useful life for railcars built after 1974 is 50 years, each car's useful life is affected by its maintenance schedule and the products it carries. Cars carrying less abrasive materials that are maintained on a regular schedule have longer useful lives and can be repurposed more easily. Those looking to purchase or lease railcars on the secondary market must understand the current condition of the railcar, past maintenance schedules and repairs, as well as any custom modifications the cars may have, which will affect the overall working condition of the railcar.

Because it's inexpensive compared to other transportation options, the rail industry is expected to continue to be the primary source for commercial transport for the foreseeable future. Railways also allow for greater amounts of products to be moved at once, and regulations make railroads the safest and most efficient way to transport any commodity. While no one can be sure what future challenges will be encountered, the past 150 years will allow rail analysts and the industry to better predict changes in demand, especially when they are tied to the state of the US economy, enhanced federal safety standards and regulations, and technological advancements.