ROAD TRANSPORTATION
Research Brief

SASB’s Industry Brief provides evidence for the material sustainability issues in the Road Transportation Industry. The brief opens with a summary of the industry, including relevant legislative and regulatory trends and sustainability risks and opportunities. Following this, evidence for each material sustainability issue (in the categories of Environment, Social Capital, Human Capital, Business Model and Innovation, and Leadership and Governance) is presented. SASB’s Industry Brief can be used to understand the data underlying SASB Sustainability Accounting Standards. For accounting metrics and disclosure guidance, please see SASB’s Sustainability Accounting Standards. For information about the legal basis for SASB and SASB’s standards development process, please see the Conceptual Framework.

SASB identifies the minimum set of sustainability issues likely to be material for companies within a given industry. However, the final determination of materiality is the onus of the company.

Related Documents

- Road Transportation Sustainability Accounting Standards
- Industry Working Group Participants
- SASB Conceptual Framework

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INTRODUCTION

The Road Transportation industry plays an integral role in the global logistics network. With the development of the interstate highway system in the U.S. in the 1950s, transport of freight by roads became commonplace. It has many advantages over other modes of transportation, which are limited by infrastructure including railroad tracks and waterways, as well as the availability of airports. While the U.S. contains about four million miles of road, it has only 5,000 public-use airports, 140,000 miles of railroad tracks, and 8,200 ports and other facilities on 25,000 miles of navigable channels. Trucks provide a vital connection between other modes of transport. Trucking’s popularity is also driven by the benefit of point-to-point delivery and unparalleled route flexibility.

However, the ton-miles of freight transported by trucks can create significant environmental externalities, the most prominent being the generation of greenhouse gases (GHG) and air pollutants from the fuel that powers the industry. At the same time, with job opportunities in expanding sectors of the economy including health care and construction, the risks and health strains of a driving job can appear unattractive to younger generations entering the workforce, creating a labor problem for the industry. Furthermore, in this fast-paced world, industry players are required to ably transport goods within limited timeframes. Because of this, accidents are inherently linked with efficiency. As global environmental and safety concerns increase, and regulators begin to address externalities, management (or mismanagement) of material sustainability issues has the potential to affect company valuation in the Road Transportation industry through impacts on profits, assets, liabilities, and cost of capital.

Investors would obtain a more holistic and comparable view of performance with Road Transportation companies reporting metrics on the material sustainability risks and opportunities that could affect value in the near- and long-term in their regulatory filings. This would include both positive and negative externalities, and the non-financial forms of capital that the industry relies on for value creation.

Specifically, performance on the following sustainability issues will drive competitiveness within the Road Transportation industry:

- Reducing GHG and other air emissions, particularly through fuel management strategies;
- Ensuring good working conditions for drivers to attract talent and reduce turnover; and
- Maintaining a safety culture, which is essential for reducing accidents and cost to the environment and society.

INDUSTRY SUMMARY

The Road Transportation or motor-carrier industry consists of companies that provide long- and short-haul freight trucking services. A key activity of the industry is the shipment of containerized and bulk freight, including consumer goods and a wide variety of commodities. Companies in the industry are generally asset-based, owning and operating their own fleets. The Road Transportation industry
also includes companies that provide passenger transportation services, however, companies listed on U.S. exchanges are primarily involved in freight transportation, which is the focus of the brief. The industry is commonly broken down into two categories: truckload and less-than-truckload. Truckload is defined as a vehicle carrying the goods of only one customer, while less-than-truckload vehicles transport goods of multiple shippers. The truckload market is highly fragmented, while a few less-than-truckload companies control high market share.

In the U.S., owner-operators, or drivers who own and operate their trucks, comprise the vast majority of the industry in terms of numbers, but due to their small size and lack of pricing power, they generate a small fraction of the revenue. Larger operators maintain market share through contracts with major shippers like Walmart, and they often subcontract individual owner-operators to supplement their owned fleet. There are approximately 17 publicly listed trucking firms in the U.S., including J.B. Hunt, Werner Enterprises, Swift Transportation, and Knight Transportation. Smaller companies and owner-operators are not publicly traded.

Road Transportation companies provide services to the construction, manufacturing, wholesale and retail trade industries, and well as to freight-forwarders. Trucks transport materials to and from manufacturing facilities and construction sites. They carry goods from warehouses to distribution centers, and to businesses and retail outlets. Major industry players operate internationally. Ryder, for example, operates fleets in Canada and the UK. In 2013, freight and passenger road transportation was a $150 billion global industry, about $72 billion of which was generated from the freight segment. It is estimated that the U.S. commercial fleet market includes 7.4 million vehicles with 900,000 in the commercial lease and rental market. The trucking industry benefits from the vast public highway and road network in the U.S., particularly the country’s roughly 47,000-mile interstate highway system. Therefore, it is dependent on public funding highway maintenance, which can affect its routing and fuel efficiency. Road transportation companies use tractors to haul a variety of trailers, including flat beds, tankers, hoppers, and box trailers. Intermodal freight, where containers are used to shift goods between different modes of transport, has been a key driver of trucking growth. Intermodal freight uses standardized containers, leading to faster loading and shipping times, greater fuel efficiency, and reduced damage and loss.

Industry revenues are closely correlated with industrial output and demand for consumer goods. Individual company performance is largely driven by tonnage and fuel prices. Fuel is the industry’s largest cost component, representing approximately 39 percent of total costs, followed closely by wages and benefits, which account for roughly 34 percent of outlays. Shippers and carriers negotiate a fuel surcharge in addition to their line-haul rates to mitigate some of the risks associated with fuel price volatility. There is no standard fuel surcharge, however; it is based on diesel spot prices. Nonetheless, operating margins are directly impacted by fuel prices. Other costs include truck or trailer lease or purchase (11 percent of total costs), repair and maintenance (eight percent), insurance premiums (four percent), permits and licenses (one percent), tires (three percent), and tolls (1 percent). The median net income margin for U.S.-listed companies in 2013 was 4.4 percent.

The Motor Carrier Act of 1980 largely deregulated the U.S. trucking industry. Measures included elimination of route restrictions and operating licenses, which lead to enhanced rate competition. The industry grew rapidly post-deregulation,
garnering market share from water transportation. Deregulation also enabled companies to hire non-union drivers, which caused labor costs to decline. During the 2007–2009 recession, road freight revenues declined sharply in parallel with demand for consumer products and commodities. The recovery has been slow, with freight volumes not expected to reach pre-recession levels until 2016. In recent years, the trucking industry has experienced a surge in competition, both from within and outside the industry. Externally, higher fuel prices and a desire for more environmentally friendly transportation have driven shippers towards rail transportation, which can be more fuel-efficient in terms of ton-miles. Within the industry, private equity investments and mergers have increased the number of large, well-capitalized market players that can afford new fleets of safer, more efficient vehicles. Recently, just-in-time (JIT) inventory management systems have led to an increase in demand for trucking services, as JIT systems require smaller, more frequent deliveries to manage demand for goods.

LEGISLATIVE AND REGULATORY TRENDS IN THE ROAD TRANSPORTATION INDUSTRY

The Road Transportation industry is subject to regulatory oversight at the federal, state, and local levels. This section provides a brief summary of key regulations and legislative efforts related to this industry.

The Environmental Protection Agency’s (EPA) regulations under the Clean Air Act (CAA) and Clean Water Act (CWA) address the environmental impacts of operating facilities and automotive vehicles. The CWA addresses point source pollutants associated with industrial and hazardous waste related to operating and maintaining vehicle fleets. The CAA gives the EPA oversight of vehicle emissions including hazardous air pollutants, criteria air pollutants, and volatile organic compounds.

There are EPA regulations that apply specifically to road freight operators. Under President Obama’s direction, the EPA and the National Highway Traffic Safety Administration (NHTSA) have adopted strict emissions standards for heavy-duty commercial trucks built between 2014 and 2018 to reduce U.S. GHG emissions. The regulations will require heavy-duty trucks to meet targets for gallons of fuel consumed and GHG emissions per ton-mile. The standards vary according to truck type and size. As a result, higher engine manufacturing cost is expected to increase the price of purchasing new trucks or upgrading existing engines.

In California, the Air Resources Board’s Truck and Bus regulation will require diesel trucks and buses to be upgraded in phases to help reduce emissions. By 2023, nearly all trucks and buses will have to meet 2010 model year engine emissions requirements. Compliance could involve high capital expenses to upgrade fleets, particularly for those with older trucks.

The EPA’s Smartway program is designed to improve fuel efficiency and safety across the industry through use of technology, data collection, and analysis. Smartway focuses on identifying equipment, strategies, and technology that save fuel and benchmark results to continually improve performance. Trucking companies benefit by reducing fuel expenditures.

The industry is subject to federal regulation by the various units of the U.S. Department of Transportation, including Federal Motor Carrier Safety Administration (FMCSA), the Pipeline and Hazardous Materials Safety Agency (PHMSA), and the Surface Transportation Board (STB).
The FMCSA is the primary road safety regulatory agency; its mission is to reduce the incidence of crashes, injuries, and fatalities involving large trucks and buses. On July 1, 2013, new FMCSA rules for improving safety went into effect, reducing drivers’ weekly drive times by 12 hours and requiring regular 34-hours rest breaks. This regulation contributes to an already strained trucking labor market and may raise wage costs for motor-carriers. Compliance Safety Accountability (CSA) is a safety program that allows the FMCSA to use a Safety Measurement System (SMS) to identify carriers with safety-performance issues that require intervention. The SMS identifies carriers that have similar numbers of safety events and assigns them a percentile from 0 to 100 (the higher the percentile, the worse the performance) to prioritize them for interventions. Interventions include roadside inspections that can, for example, result in immediate action to prevent fatigued drivers from continuing to operate. The Department of Transportation has proposed increasing the minimum amount of liability insurance that companies must carry and requiring the use of speed limiters.

The PHMSA regulates issues surrounding the transportation of hazardous materials (hazmat), including training for employees handling hazmat, classification and identification, protective packaging, proper labeling, and incident reporting. The STB resolves pricing disputes and authorizes certain types of inter-carrier agreements. For example, the STB can approve agreements by motor carriers to collectively set rates. In addition, states have the authority to impose insurance requirements on motor-carriers operating within their borders.

SUSTAINABILITY-RELATED RISKS AND OPPORTUNITIES

Industry drivers and recent regulations suggest that traditional value drivers will continue to impact financial performance. However, intangible assets such as social, human, and environmental capitals, company leadership and governance, and the company’s ability to innovate to address these issues are likely to increasingly contribute to financial and business value.

Broad industry trends and characteristics are driving the importance of sustainability performance in the Road Transportation industry:

- **Environmental externalities associated with fuel use:** U.S. and international regulators have put the transportation sector under scrutiny due to its contributions to global GHG emissions and other air pollutants.
- **Key role in the transportation network:** As a connector and last-mile service provider, trucking companies need to be efficient and timely. Therefore, safety management is important not only to limit harm to the environment and society, but also to minimize delays and property damage.
- **Use of common resources:** Contractor and Road Transportation companies’ use of various common capitals like natural resources (fossil fuels), public infrastructure (roads and bridges), and human capital (labor) drives both their sustainability impacts and, consequently, impacts on their value through regulations or public reaction.

As described above, the regulatory and legislative environment surrounding the Road Transportation industry emphasizes the importance of sustainability management and performance. Specifically, recent trends suggest a regulatory emphasis on environmental protection and driver wellbeing and safety management, which will serve to align the interests of society with those of investors.

The following section provides a brief description of each sustainability issue that is likely to have material implications for companies in the Road Transportation industry. This includes an explanation
of how the issue could impact valuation and evidence of actual financial impact. Further information on the nature of the value impact, based on SASB’s research and analysis, is provided in Appendix IIA and IIB. Appendix IIA also provides a summary of the evidence of investor interest in the issues. This is based on a systematic analysis of companies’ 10-K and 20-F filings, shareholder resolutions, and other public documents. It also based on the results of consultation with experts participating in an industry-working group convened by SASB.

A summary of the recommended disclosure framework and accounting metrics appears in Appendix III. The complete SASB standards for the industry, including technical protocols, can be downloaded from www.sasb.org. Finally, Appendix IV provides an analysis of the quality of current disclosure on these issues in SEC filings by the leading companies in the industry.

ENVIRONMENT

The environmental dimension of sustainability includes corporate impacts on the environment. This could be through the use of natural resources as inputs to the factors of production (e.g., water, minerals, ecosystems, and biodiversity) or environmental externalities and harmful releases in the environment, such as air and water pollution, waste disposal, and GHG emissions.

The Road Transportation industry faces risks and opportunities related to its environmental impacts, particularly from expanding climate regulations. Regulatory costs associated with GHG emissions and air pollutants are threatening the industry’s profit margins. However, optimizing fuel management through technological innovation offers an opportunity to reduce operating costs.

Environmental Footprint of Fuel Use

Freight trucks generate emissions that contribute to climate change and threaten human health. Compared to other modes of transport, road freight has a more localized negative effect on air quality. The trucking industry’s heavy reliance on diesel fuel is of particular concern, since diesel vehicles generate more harmful air pollutants than gasoline vehicles. Emissions from trucks constitute a significant portion of transportation-related emissions. This makes the Road Transportation industry a primary target of potential regulations to limit GHG emissions, and creates a risk that environmentally conscious customers will switch to alternate modes of transportation such as rail.

Road Transportation generates air emissions mainly from the combustion of diesel in engines. GHGs, including carbon dioxide (CO2) and nitrous oxide, are of particular importance to government regulators concerned about climate change. Furthermore, emission of sulfur oxides (SOx), nitrogen oxides (NOx), and particulate matter (PM) are of concern because of their impacts on the environment and human health. Most trucks have diesel engines, which have better gas mileage and emit less CO2. However, the net impact on global warming and local air pollution may be worse than alternatives like gasoline engines, due to significantly higher emissions of PM.

There are various regulations aimed at reducing GHG emissions and air pollutants from vehicles. These include the On-Road Heavy-Duty Diesel Vehicels regulation in California, which requires truck and bus engines to be upgraded to meet emissions standards.

Consumer demand for low carbon or carbon neutral transportation solutions is also driving the need to reduce emissions. Fuel management addresses both fuel efficiency and emissions reduction. It offers an
effective way for companies to increase profits through reduced fuel costs while also limiting exposure to volatile fuel pricing, future regulatory costs, and other consequences of GHG emissions.

Industry leaders have already started managing the issue by implementing changes to operations such as renewing fleets with cleaner vehicles, limiting truck engine idle times, voluntarily reducing truck speed limits, optimizing the weight and specifications of their equipment, installing fuel efficiency hardware such as trailer skirts, super-single tires, speed governors, etc., and implementing mile-per-gallon-enhancing (mpg) equipment changes. Some companies have also started using alternative fuel vehicles that use a fuel other than diesel or biodiesel blend.

Company performance in this area can be analyzed in a cost-beneficial way internally and externally through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Gross global Scope 1 emissions;
- Long- and short-term strategy to manage emissions, emissions reduction targets, and performance against those target;
- Total fuel consumed, percentage renewable; and
- Emissions of NOx, SOx, and PM.

Evidence

Transportation is a major contributor to global GHG emissions. In 2011, EPA found that transportation accounted for 27 percent of U.S. GHG emissions, 18 percent of which came from light-duty trucks, while 22 percent came from medium- and heavy-duty trucks.

Researchers at MIT’s Laboratory for Aviation and the Environment have been studying the effects of vehicle emissions on human health. In 2013, they found that ‘ground-level emissions’ from combustion engines cause about 200,000 premature deaths in the U.S. every year.

The U.S. trucking industry contributes 30 percent of GHG emissions in the transportation sector, including those from light-, medium-, and heavy-duty trucks. As a result, the industry continues to be the target of environmental regulations. The EPA and NHTSA proposed federal rules aimed at reducing greenhouse gas emissions and improving fuel efficiency of on-road heavy-duty vehicles, including commercial trucks. The EPA estimates that the $8 billion in technology costs for the industry will be trumped by $50 billion in fuel savings. Compliance with the CARB Truck and Bus regulation may require significant expenditures on engine upgrades and retrofits for companies operating in California.

A 2012 cost analysis of emissions control requirements by the National Automobile Dealers Association (NADA) and American Truck Dealers (ATD) examined the impact of the EPA’s past emissions mandates on model years 2004 - 2010. The report found that mandates had resulted in much higher prices for commercial vehicles, and that the EPA had consistently underestimated compliance costs by a factor between two and five. The report compared EPA estimates for vehicle surcharges, or additions to wholesale cost to dealer, from the use of emission reduction strategies and technologies with dealership data. For model year 2010, for example, they found vehicles surcharges for heavy-duty vehicles ranged from $3,868 to $9,600 compared to the EPA estimates of $2,737 and $3,419 per vehicle. Compliance with the aforementioned CARB Truck and Bus regulation in California can lead to significant additional costs for engine upgrades. The California Environmental Protection Agency (CEPA) estimates retrofits would cost between $10,000 and $20,000 per engine. For large companies, these costs can add up – for example, e.g. Ryder System has a U.S. fleet total of 161,000 vehicles across their different segments.
Older trucks may require more costly upgrades, or even replacement. On average, trucks are replaced every five years, or after 500,000 miles of travel, when maintenance costs begin to soar. However, the average age of U.S. trucks in 2012 was 6.5 years, implying that many rigs on the road are older models and may require engine overhauls to meet regulatory requirements.50

Moreover, increasing the fuel efficiency of their fleets helps companies to not only reduce GHG emissions and meet regulatory requirements, but also to achieve substantial cost savings by reducing fuel consumption. Based on the Energy Information Administration’s (EIA) diesel price information and market conditions, the American Trucking Associations’ (ATA) Economic and Statistics Group estimated that the trucking industry spent $150.4 billion on diesel fuel in 2012.51 As noted above, fuel costs were the biggest operational expenses in 2012, representing 39 percent of the total costs to motor carriers, up from 35 percent in 2011 and 31 percent in 2010.52 This also represents a trend of increasing diesel fuel prices, up from $1.11 per gallon in 1995 to $3.92 in 2013.53 The American Trucking Association estimates that a one-cent increase in diesel prices adds $391 million in annual industry costs.54

Fuel management addresses both fuel efficiency and the use of alternative fuels. According to a report by the U.S. National Academy of Sciences (NAS), changes in truck aerodynamics, reduction of mass, and improved rolling resistance are likely to yield significant improvements in fuel economy.55 Limiting driver speed is one of the most effective practices; reducing speed from 75 mph to 65 mph would yield 27 percent lower fuel consumption on average, or a 0.14 mpg benefit for every one mile per hour reduction in speed.56 In a survey of motor carriers, two percent of respondents reported having trucks that use liquefied natural gas (LNG) or a hybrid engine.57

In its Saia, Inc. valuation report, BB&T Capital Markets estimated that the company achieved five percent savings on fuel costs - worth about $10 million - which were largely attributed to installing trailer skirts on pup trailers to improve aerodynamics. The skirts improved fuel efficiency by three to five percent.58 In early 2014, Con-way Freight installed trailer skirts on 16,000 of its trailers. As a result, the company expects to reduce fleet carbon emissions by approximately 80 million pounds of carbon dioxide annually.59 Also achieving benefits from trailer skirts, on its quarterly earnings call in May 2013, YRC Worldwide stated that “[YRC Freight] is realizing fuel efficiency gains from modifications to its 53-foot trailers with trailer skirts and fuel-efficiency tires. More than 3,000 YRC Freight trailers have been upgraded.”60

In addition, major industry players have already begun identifying emissions management as a material issue in their SEC filings. Apart from alerting investors about upcoming and evolving regulations on GHG and other air emissions, companies also mention changing consumer trends as a material risk factor. For example, in its fiscal year (FY) 2012 Form 10-K, YRC Worldwide states that it could “lose revenue if customers divert business from us because we haven’t complied with their sustainability requirements,” adding that “these costs, changes and loss of revenue could have a material adverse effect on our business, financial condition, liquidity and results of operations.”61 Conway, SWIFT, and others also include similar disclosures in their annual SEC filings. Maintaining high standards for truck emissions can ensure access to ports. The largest container ports in the U.S., the Ports of Los Angeles and Long Beach impose fees on shipments carried by trucks that do not meet certain emissions standards. As a result, logistics providers like Pacer International contract with trucking companies who are in compliance with these emissions requirements to ensure access to ports.62
Value Impact
Fuel and emissions management is likely to affect road transportation companies’ operational efficiency and cost structure over time. As the debate continues over the most efficient mechanisms to reduce GHG emissions and local air pollution from the industry, companies will likely be forced to either increase operating costs (e.g., through use of more expensive alternative fuels) or invest to modernize their fleets as a result of regulatory and fuel cost pressures and customer demands. At the same time, investments in fuel-efficient and alternative fuel trucks will result in lower ongoing fuel expenses in the medium term, improving profitability.

Road Transportation companies might also be able to offer customers lower-carbon shipping services for an increased price premium, enabling companies to expand revenues. Moreover, positive public perception resulting from effectively managing GHG emissions can improve reputation and brand value. In their Form 10-Ks, trucking companies recognize the risk to revenue of environmentally conscious customers diverting business to more fuel-efficient competitors. Noncompliance with the sustainability requirements of customers could have a material adverse effect on companies’ result of operations and could lead to a substantial deterioration of market share. As externalities from climate change continue to worsen, and road transportation increasingly becomes the focus of regulations to limit emissions, the probability and magnitude of these impacts are likely to increase in the near to medium term.

The magnitude of these impacts can be estimated using companies’ Global Scope 1 emissions, in absolute terms and relative to their peers, factoring in mitigation efforts reflected in concrete emissions-reduction targets. It can also be assessed through the energy efficiency and energy mix (renewables) of transportation companies’ fleets, as well as each fleet’s total emission of NOx, SOx, and PM.

HUMAN CAPITAL

Human capital addresses the management of a company’s human resources (employees and independent contractors), as a key asset for delivering long-term value. It includes factors that affect the productivity of employees, such as employee engagement, diversity, and incentives and compensation, as well as the attraction and retention of employees in highly competitive or constrained markets for specific talent, skills, or education. It also addresses the management of labor relations in industries that rely on economies of scale and compete on the price of products and services. Lastly, it includes the management of the health and safety of employees and the ability to create a safety culture for companies that operate in dangerous working environments.

Trucking companies rely on a large number of trained workers to drive and manage truck fleets safely and efficiently; thus, labor costs are a significant outlay for operators. Managing labor recruitment and safety is an important sustainability issue that is likely to materially impact companies in the industry. While driver safety is discussed under Leadership & Governance below as an “Accidents & Safety Management” issue due to its wide-ranging impacts beyond worker health, driver well-being and retention are discussed here. The lifestyle of truck drivers, which includes odd hours and long periods away from home, make companies in the industry prone to high turnover rates.

Driver Working Conditions

The Road Transportation industry faces challenges with driver recruitment and retention as a growing labor shortage, in part fueled by the unattractive and tough labor conditions of the industry and new regulations limiting working hours may raise labor costs and lower industry revenue.
While truck driving has become less physically demanding, pressing schedules demand long and often odd hours behind the wheel, lengthy stays away from home, a lack of sleep, and isolation, which can put strain on the health and well-being of long-haul drivers. Furthermore, long hours of driving leave little time for exercise or healthy eating. Short-haul drivers delivering food to retail locations may have to work early mornings and late nights. In addition, pay is low for truck drivers. These factors, in combination with the high rate of injury and illness in the industry due to the potential for accidents, make it difficult to recruit new drivers and retain existing staff.

Companies that are able to enhance driver experience through better working hours or additional remunerations may benefit from lower turnover rates, higher productivity, and the ability to hire more drivers in order to expand operations. Company performance in this area can be analyzed in a cost-beneficial way internally and externally through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Voluntary and involuntary employee turnover rate; and
- Description of approach to managing short- and long-term driver health risks.

Evidence

Despite a high national unemployment rate, a trucker shortage persists for a variety of social, health, and demographic reasons, which can limit road transport companies’ ability to expand operations and even to continue operations at current scale. The average age of U.S. truckers is 46, while fewer than eight percent of truckers are aged 25 to 29.63 The skewed age distribution indicates that fewer young people are interested in careers in trucking, perhaps in part due to long and odd working hours and weeks away from home.64

At the same time, turnover is high. In the first quarter of 2013, the national truck driver turnover rate at large carriers (those with $30 million or more in revenue) hit an annualized rate of 97 percent.65 According to the Bureau of Labor Statistics, employment growth for heavy and tractor-trailer truck drivers is expected to be 11 percent from 2012 to 2022, matching the average rate of job growth for the country.66 The American Trucking Associations estimates that the industry needs 96,000 new drivers to meet annual demand; this number could reach 240,000 by 2022 if freight demand continues as projected.67 This estimate is conservative compared to Bloomberg projections, which suggest that the trucking labor shortage will grow by 114 percent from 2013 levels, with the demand gap peaking at 338,000 workers in the fourth quarter of 2015.68

Attracting talent can be difficult, both due to the harsh working conditions in the industry, as well as the need for background checks, which eliminate applicants with poor driving records or past drug use. Compensation is not very competitive: Median annual pay for heavy and tractor-trailer truck drivers is $38,200, and delivery truck drivers earn even less, at $27,530.69, 70 While the pay of tractor-trailer drivers is just above than median for all occupations ($34,750),71 it may not be enough to attract new talent. Increasing demand for freight combined with new government regulations and an older workforce will likely require companies to offer more attractive compensation packages to recruit and retain drivers.72

It has been recognized that long-haul driving in industrialized nations is an occupation that is detrimental to the long-term health of drivers.73 A 2014 National Institute for Occupational Safety and Health study on the health of long-haul truck drivers found that they were twice as likely to be obese compared to all working adults, and 88 percent of drivers reported having at least one risk factor for chronic diseases, compared to 54 percent for the...
general adult population. A 2007 study by The Journal of the American Dietetic Association similarly found high obesity rates among truckers, with an average trucker obesity rate of 86 percent, compared to the national average of 66 percent.

These results are consistent with a study by researchers at the University of North Carolina Greensboro that examined the health of U.S. long-haul truckers through a survey of 316 full-time drivers. The survey inquired about physical and mental health, work history, and healthcare access. Results indicated that truck drivers have a greater-than-average risk for conditions such as obesity, sleeping disruptions, fatigue, musculoskeletal disorders, and cardiovascular disease. Furthermore, a third of those surveyed had no health insurance, and most did not visit a physician or exercise regularly. These figures suggest that the trucking occupation can significantly impact health, unless workers and their employers take steps to address some of these factors through more rest periods, reasonable working hours, and adequate health insurance coverage, among other actions.

Furthermore, the life expectancy of U.S. truck drivers is 16 years lower than the average for the U.S. male population. In addition, roughly 87 percent of accidents involving trucks resulted from driver error, and as many as a quarter of these crashes were due to some form of health problem, including sleep deprivation or diabetic shock. This indicates a clear link between driver working conditions and accidents or other safety incidents, which can have an acute impact on the value of road transportation companies (see “Accidents & Safety Management” issue below).

Truckers and their employers literally pay for workers’ poor health: an annual trucking industry report found that deductibles and out-of-pocket insurance expenses for truck drivers and employers are 40 to 70 percent higher than in other industries. Some carriers have implemented successful health and wellness programs in order to improve the health of drivers and lower medical costs. For example, Schneider National of Wisconsin conducted a program to treat sleep apnea among its employees, reducing an estimated $651 per driver per month in health care costs since 2003.

An important component of the FMSCA’s statutory mandate is to ensure that “the operation of commercial motor vehicles does not have a deleterious effect on the physical condition of the operators.” New rules from the FMCSA reducing total driving time per week and mandating rest periods between shifts takes into account driver health and safety. Old Dominion Freight Line Inc., a U.S.-based company, suggests in its FY 2012 10-K filing that these new requirements “could shrink the industry’s pool of drivers, as those with unfavorable scores could leave the industry. As a result, the costs to attract, train, and retain qualified drivers could increase. In addition, a shortage of qualified drivers could increase driver turnover, decrease asset utilization, limit growth and adversely impact our results of operations.” Motor carriers may have to increase rates to help offset the increased labor costs necessary to attract workers to the industry. As a result, shipping volumes could shift to alternatives like rail, impacting revenues.

**Value Impact**

Failure to comply with laws and regulations regarding employee health and safety could result in regulatory penalties or legal actions, leading to extraordinary expenses and contingent liabilities. In the extreme, violations can result in cease-and-desist orders against any operations that are not in compliance, resulting in disrupted services and lost revenues. Health and safety incidents may also result in higher costs for insurance and long-term health care obligations, with a direct, chronic impact on companies’ operating costs, negative impact on liabilities, and high cost of capital.
The aging population of truck drivers, high turnover rates in the industry, and expected future shortages of qualified candidates will drive increases in wages and working conditions, impacting operating expenses and pressuring already thin profit margins. At the same time, companies that address labor shortage in a timely manner could gain competitive advantage and win greater market share.

Company performance on drivers’ working conditions can be analyzed through management’s approach to both short-term and long-term health risks as well as voluntary and involuntary turnover for all employees.

**BUSINESS MODEL AND INNOVATION**

This dimension of sustainability is concerned with the impact of environmental and social factors on innovation and business models. It addresses the integration of environmental and social factors in the value creation process of companies, including resource efficiency and other innovation in the production process. It also includes product innovation and efficiency and responsibility in the design, use-phase, and disposal of products. It includes management of environmental and social impacts on tangible and financial assets—either a company’s own or those it manages as the fiduciary for others.

Sustainability innovations in the Road Transportation industry center on fuel management and alternative fuels, which have been addressed under the “Environmental Footprint of Fuel Use” issue in the Environment section of this brief.

**LEADERSHIP AND GOVERNANCE**

As applied to sustainability, governance involves the management of issues that are inherent to the business model or common practice in the industry and are in potential conflict with the interest of broader stakeholder groups (government, community, customers, and employees). They therefore create a potential liability, or worse, a limitation or removal of license to operate. This includes regulatory compliance, lobbying, and political contributions. It also includes risk management, safety management, supply chain and resource management, conflict of interest, anti-competitive behavior, and corruption and bribery.

It is important for Road Transportation companies to maintain a safety culture at all levels of the organization and continually improve safety performance. Regulations and public relations involving the impact of vehicle accidents on the public and the environment can damage company reputation and affect financial performance.

**Accidents & Safety Management**

While all modes of transportation pose safety risks, either due to mechanical failure or human error, Road Transportation is relatively more dangerous, with high rates of fatal accidents. Therefore, employee safety and accidents are inherently connected. In general, transporting freight involves risk of accidents and unintended releases of hazardous materials that can cause injuries, fatalities, and negative environmental impacts.

Road Transportation companies work under time constraints to ensure efficient delivery. Because of this, safety and efficiency are closely linked. Exposing employees to the dangers and rigors of work without adequate training and safety measures heightens the chance of work stoppage due to acute events, or of lower productivity if employees feel that their safety and well-being are not being prioritized. At the extreme, poor management related to working hazards and accidents could
result in regulatory action and lawsuits from workers, impacted communities, or customers of trucking companies.

There are many regulations aimed at improving road safety including the CSA program, which can be used to flag unsafe carriers, and the FMCSA’s new rules, which mandate rest periods and limit the number of hours worked by drivers. While the stringency of regulatory requirements may vary by the region of operation, this is a global industry, and companies that maintain the highest safety standards throughout their global operations could minimize the risks of safety incidents that can affect their reputation and profitability.

Company performance in this area can be analyzed in a cost-beneficial way internally and externally through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Number of accidents and incidents;
- Injury and fatality rates for full-time and contract workers;
- Safety Measurement System BASIC percentiles; and
- Number and volume of spills and releases into the environment.

Evidence
Transportation activities are associated with a high rate of accidents, resulting in injuries and fatalities. For the Road Transportation industry, strong safety and emergency management practices and a culture of safety are important for both their operations, as well as those they contract. By minimizing the risk of accidents, managing them effectively when they do occur to minimize local impacts, and protecting worker health and safety, companies can avoid expenses and reputational damage associated with such events.

In 2012, approximately 3,800 large trucks were involved in fatal accidents in the U.S, while another 330,000 were involved in non-fatal accidents. Though the numbers had fallen from the annual average of 5,000 fatal accidents and 400,000 non-fatal accidents between 1991 and 2000, trucks are still more likely to be involved in fatal crashes due to their weight, size, and time spent on high speed roads. The Road Transportation industry experiences higher than average injury and fatality rates. According to Bureau of Labor Statistics data, in 2012, the average worker injury rate for the “transportation and warehousing sector” within the North American Industry Classification System was 4.9 injuries per 200,000 hours, which is higher than the private industry rate of 3.4. The rate specifically for the U.S. “truck transportation industry” was 4.5 per 200,000 hours. (This rate includes independent owner-operators of trucks as well as small private businesses). The rate of fatal occupational injuries for the “transportation and warehousing sector” was extremely high at 14.6 per 100,000 full-time employees, compared to 3.4 for all workers. Most of the lives lost were in the trucking industry. Out of the total 783 lives lost in the “transportation and warehousing sector,” 404 were employed truck drivers and 96 were self-employed.

Trucks are sometimes used to transport hazardous materials; accidents involving such freight can have particularly large or wide-ranging impacts, both on workers and on local communities and the environment. Between 1991 and 2000, there were more than 800,000 daily shipments of hazardous materials in the U.S. During the same period, there was an average of 200 hazardous materials trucks involved in fatal crashes and 5,000 in non-fatal crashes annually. Accidents are often costly events: a 2006 DOT report found that the average unit cost for a highway crash involving medium and heavy-sized trucks was $91,112, including medical costs, emergency service costs, property damage, and lost productivity. In the first quarter of 2014 alone, trucks carrying hazardous materials were involved in 1,846 incidents resulting in damages of nearly $31 million. These accident rates and potential costs...
underscore the importance of strong safety management.

Regulations around the issue have been evolving lately, and full enforcement of these new measures is expected in time. In 2010, for example, the CSA program introduced a new model that ranks both fleets and drivers on seven safety related categories known as the Behavioral Analysis and Safety Improvement Categories, or BASICS. These include unsafe driving, fatigued driving, driver fitness, controlled substances, vehicle maintenance, hazardous materials, and crash indicators. These new measurements determine a company’s DOT safety rating. As described in Arkansas Best’s FY 2014 Form 10-K, “(u)n satisfactory CSA scores could result in a DOT intervention or audit, resulting in the assessment of fines, penalties, or a change in a carrier’s safety rating.” The company adds that the new industry safety dynamics “could provide an opportunity for qualified carriers to gain market share.”

Ryder acknowledges the importance of managing safety in its FY13 Form 10-K. “Safety is an integral part of our business strategy because preventing injuries and collisions improves employee quality of life, eliminates service disruptions to our customers, increases efficiency and improves customer satisfaction. As a core value, our focus on safety is imbedded in our day-to-day operations, reinforced by many safety programs and continuous operational improvement and supported by a talented and dedicated safety organization.”

In addition to costs from delays, property damage, and employee health, companies could face lawsuits as a result of accidents. Recently, in Florida, the family of a fatally injured motorcyclist was awarded nearly $15 million. The Landstar truck driver involved in the accident had falsified his driving and rest period records and was also found exceeding the permitted number of driving hours. In 2011, a jury in Georgia entered a damage award of $40.2 million against Landstar from a 2007 accident involving an independent contractor hired by the company. In its FY 2013 Form 10-K, the company disclosed that it retained liability for up to $5 million since the rest would be covered by third party insurance and/or reinsurance policies.

In the trucking services segment of the logistics industry, new technologies are emerging that seek to increase highway safety while saving companies money. Dupre Logistics is using GreenRoad driver safety technology, a system that gives drivers and managers feedback on the frequency of unsafe maneuvers. The technology aims to reduce costs related to accidents, fuel, insurance, and maintenance. Since using the technology, the company has seen the rate of unsafe maneuvers improve from 23 to five per 10 hours, while also improving miles per gallon by 3.2 percent. Similarly, Con-way Truckload is investing $2 million in three technology solutions that aim to increase safety for the company. The systems will be applied to all of Con-way’s 525 new tractors. The new technology systems provide early-warning alerts and proactive intervention to reduce the most common incidents that lead to highway accidents.

Value Impact
Failure to maintain satisfactory safety ratings and acceptable safety records could reduce demand for services and impair a company’s ability to continue to conduct a significant percentage of its intermodal shipments, reducing revenues and market share. Failure to comply with safety laws and regulations can also result in regulatory penalties or legal actions, creating contingent liabilities or cease-and-desist orders against any operations that are not in compliance. Any such suspension or loss of operating licenses could disrupt services, also affecting revenues. Additionally, recent regulations on driver fatigue, well-being, and extended rest will likely force companies in the industry to hire additional personnel, effectively increasing operating expenses.
Accidents are likely to increase operating and capital expenditures via higher asset-salvage costs, insurance premiums, and legal expenses. Asset write-downs can result from loss of trucks in accidents. Companies with greater frequency of accidents or larger magnitude of impacts from them could face a higher risk premium, and therefore cost of capital.

Incident-based safety metrics (accidents and incidents; injury and fatality rates; number and volume of spills) characterize past performance as a proxy for how well companies manage this issue, and provide an understanding of the probability and magnitude of incidents. Performance in terms of Safety Measurement System BASIC percentiles provides complementary forward-looking information on how companies are likely to perform in the future.
APPENDIX I
FIVE REPRESENTATIVE ROAD TRANSPORTATION COMPANIES

<table>
<thead>
<tr>
<th>COMPANY NAME (TICKER SYMBOL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YRC Worldwide Inc. (YRCW)</td>
</tr>
<tr>
<td>Swift Transportation (SWFT)</td>
</tr>
<tr>
<td>Con-Way Inc. (CNW)</td>
</tr>
<tr>
<td>ArcBest Corp. (ARCB)</td>
</tr>
<tr>
<td>Old Dominion Freight Line (ODFL)</td>
</tr>
</tbody>
</table>

This list includes five companies representative of the Road Transportation industry and its activities. This includes only companies for which the Road Transportation industry is the primary industry, companies that are U.S.-listed but are not primarily traded Over-the-Counter, and for which at least 20 percent of revenue is generated by activities in this industry, according to the latest information available on Bloomberg Professional Services. Retrieved on July 11, 2014.
## APPENDIX IIA

### EVIDENCE FOR SUSTAINABILITY DISCLOSURE TOPICS

<table>
<thead>
<tr>
<th>Sustainability Disclosure Topics</th>
<th>HM (1-100)</th>
<th>IWGs</th>
<th>EVIDENCE OF INTEREST</th>
<th>EVIDENCE OF FINANCIAL IMPACT</th>
<th>FORWARD-LOOKING IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Revenues &amp; Costs</td>
<td>Assets &amp; Liabilities</td>
<td>Cost of Capital</td>
</tr>
<tr>
<td>Environmental Footprint of Fuel Use</td>
<td>77*</td>
<td>96</td>
<td>High</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Driver Working Conditions</td>
<td>50*</td>
<td>77</td>
<td>Medium</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Accidents &amp; Safety Management</td>
<td>40*</td>
<td>88</td>
<td>High</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

**HM**: Heat Map, a score out of 100 indicating the relative importance of the topic among SASB’s initial list of 43 generic sustainability issues; asterisks indicate “top issues.” The score is based on the frequency of relevant keywords in documents (i.e., 10-Ks, shareholder resolutions, legal news, news articles, and corporate sustainability reports) that are available on the Bloomberg terminal for the industry’s publicly-listed companies; issues for which keyword frequency is in the top quartile are “top issues.”

**IWGs**: SASB Industry Working Groups

**%**: The percentage of IWG participants that found the disclosure topic to likely constitute material information for companies in the industry. (-) denotes that the issue was added after the IWG was convened.

**Priority**: Average ranking of the issue in terms of importance. One denotes the most important issue. (-) denotes that the issue was added after the IWG was convened.

**EI**: Evidence of Interest, a subjective assessment based on quantitative and qualitative findings.

**EFI**: Evidence of Financial Impact, a subjective assessment based on quantitative and qualitative findings.

**FLI**: Forward Looking Impact, a subjective assessment on the presence of a material forward-looking impact.
APPENDIX IIB
EVIDENCE OF FINANCIAL IMPACT FOR SUSTAINABILITY DISCLOSURE TOPICS

<table>
<thead>
<tr>
<th>Evidence of Financial Impact</th>
<th>REVENUE &amp; EXPENSES</th>
<th>ASSETS &amp; LIABILITIES</th>
<th>RISK PROFILE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Revenue</td>
<td>Operating Expenses</td>
<td>Non-operating Expenses</td>
</tr>
<tr>
<td></td>
<td>Market Size</td>
<td>New Markets</td>
<td>Pricing Power</td>
</tr>
<tr>
<td>Environmental Footprint of Fuel Use</td>
<td>•</td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>Driver Working Conditions</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Accidents &amp; Safety Management</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

[•] MEDIUM IMPACT  [•] HIGH IMPACT
## APPENDIX III
SUSTAINABILITY ACCOUNTING METRICS – ROAD TRANSPORTATION

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>ACCOUNTING METRIC</th>
<th>CATEGORY</th>
<th>UNIT OF MEASURE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Footprint of Fuel Use</td>
<td>Gross global Scope 1 emissions</td>
<td>Quantitative</td>
<td>Metric tons</td>
<td>TR0402-01</td>
</tr>
<tr>
<td></td>
<td>Description of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>TR0402-02</td>
</tr>
<tr>
<td></td>
<td>Total fuel consumed, percentage renewable</td>
<td>Quantitative</td>
<td>Gigajoules, Percentage (%)</td>
<td>TR0402-03</td>
</tr>
<tr>
<td></td>
<td>Air emissions for the following pollutants: NOx, SOx, and particulate matter (PM)</td>
<td>Quantitative</td>
<td>Metric tons (t)</td>
<td>TR0402-04</td>
</tr>
<tr>
<td>Driver Working Conditions</td>
<td>Employee turnover by (1) voluntary and (2) involuntary for all employees</td>
<td>Quantitative</td>
<td>Rate</td>
<td>TR0402-05</td>
</tr>
<tr>
<td></td>
<td>Description of approach to managing short-term and long-term driver health risks</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>TR0402-06</td>
</tr>
<tr>
<td>Accidents &amp; Safety Management</td>
<td>Number of accidents and incidents</td>
<td>Quantitative</td>
<td>Number</td>
<td>TR0402-07</td>
</tr>
<tr>
<td></td>
<td>(1) Total recordable injury rate and (2) fatality rate for (a) full-time employees and (b) contract employees</td>
<td>Quantitative</td>
<td>Rate</td>
<td>TR0402-08</td>
</tr>
<tr>
<td></td>
<td>Safety Measurement System BASIC percentiles for: (1) Unsafe Driving, (2) Hours-of-Service Compliance, (3) Driver Fitness, (4) Controlled Substances/Alcohol, (5) Vehicle Maintenance, and (6) Hazardous Materials Compliance</td>
<td>Quantitative</td>
<td>Percentile (%)</td>
<td>TR0402-09</td>
</tr>
<tr>
<td></td>
<td>Number and aggregate volume of spills and releases to the environment</td>
<td>Quantitative</td>
<td>Number, Cubic meters (m³)</td>
<td>TR0402-10</td>
</tr>
</tbody>
</table>
APPENDIX IV: Analysis of SEC Disclosures

Road Transportation

The following graph demonstrates an aggregate assessment of how the top ten U.S.-listed Road Transportation companies by revenue are currently reporting on sustainability topics in the SEC Disclosures.
References


3 Based on data from Bloomberg Professional service, accessed on July 10, 2014 using EQS screen for U.S. listed companies (excluding those traded primarily OTC) and generating at least 20 percent of revenue from Road Transportation segment.


6 Rivera, “Long-Distance Freight Trucking in the US.”

7 Data from Bloomberg Professional service, accessed July 10, 2014 using EQS screen for U.S. listed companies (excluding those traded primarily OTC) and generating at least 20 percent of revenue from Road Transportation segment.

8 Rivera, IBISWorld Industry Report 48412, "Long-Distance Freight Trucking in the US." p.12.


11 Author’s calculations based on data from Bloomberg Professional service accessed on June 11, 2014, using the ICS <GO> command. The data represents global revenues of companies listed on global exchanges and traded over-the-counter from the Road Transportation industry, using Levels 3 and 4 of the Bloomberg Industry Classification System.


14 Rivera, “Long-Distance Freight Trucking in the US.” p.16.


19 Author’s calculations based on data from Bloomberg Professional service, accessed on July 10, 2014 using EQS screen for U.S. listed companies (excluding those traded primarily OTC) and generating at least 20 percent of revenue from Road Transportation segment.


22 Thomas Gale Moore, “Trucking Deregulation.”


24 Setar, “Long distance freight trucking in the U.S.”

25 Soshkin, “Local Freight Trucking in the US.” IB


39 Jacobson “Control of fossil-fuel particulate black carbon and organic matter, possibly the most effective method of slowing global warming.”


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