



AMERICA'S BEER & BEVERAGE DISTRIBUTORS

# Efficiency and Sustainability Roadmap

AUGUST 2022

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DOUBLE GREEN<sup>®</sup>

# Working to Reduce Distribution Impact on the Environment



America's local beer and beverage distributors have long been known as corporate social responsibility (CSR) leaders.

Together, America's beer and beverage distributors rise above challenges to deliver much more than just beverages. They lead in taking care of their industry and their community through stewardship, no matter how big or small the need, by being innovative and collaborative. As predominately family-owned businesses, they have led the local CSR efforts for the brands they represent for generations. They have long led responsibility programs and used their logistics capacity to help their communities in times of need. As a result, their customers, neighbors and communities know that they can count on independent distributors to respond to pressing issues and natural disasters.

What beer and beverage distributors are less well known for is environmental stewardship. Yet, they have enabled a green route to market for beer, consolidating deliveries to retail through the US three-tier distribution system for over 85 years, reducing trucks on the road, fuel consumed and greenhouse gas emissions. In addition, they have continuously operated as efficiently as possible, investing in routing and warehouse technology and energy efficiency solutions, which conserves resources.

Many of America's beer and beverage distributors have invested in green solutions as outlined in this document. Through innovation, partnering and doing the right thing, America's beer and beverage distributors will continue to have a lasting and positive impact on the industry, their community and the brands they represent.

This document is a roadmap highlighting NBWA members' best sustainability initiatives and the natural evolution of America's beer and beverage distributors' CSR and sustainable stewardship programs.



# A Green System Getting Greener

Across the country, America's beer distributors are using innovation and creativity to make their businesses run as efficiently and environmentally friendly as possible.

America's beer and beverage distributors are experts at routing, selling, logistics and delivery – this expertise and efficiency promotes safety and environmental benefits for the products they represent.

Distributors consolidate brewers' deliveries reducing congestion on the road and greenhouse gas emissions while increasing the variety of products at retail. With more than 13,300 brewers in the US and 600,000 retailers served this process saves millions of gallons of fuel a year. Due to this scale and reach, the three-tier system is the most environmentally friendly way to distribute beer nationally.

Distributors receive products from brewers and other suppliers in their warehouse. Then they consolidate the retailers' orders, maximizing the load in their trailer and delivering the beverages most efficiently to retail with the least possible impact on the environment. This results in fewer trucks on the road and more efficient deliveries. In other countries, each brewer distributes its products to retail making deliveries less scaleable and efficient.

Reducing greenhouse gas emissions is a major, long-term challenge for all logistics professionals. Beverage distributors understand that managing their resources is more critical today than ever before, and they can do more to reduce their waste, pollution and carbon emissions.

This document was created to communicate and accelerate beer and beverage distributors' best practices in reducing greenhouse gas emissions. In tandem with the calculator on the NBWA website, distributors are empowered to reduce and measure their greenhouse gas emissions, set goals, evaluate the best solutions for their business and communicate their progress.

America's beer and beverage distributors are doing important sustainability work. This paper provides an overview of those initiatives and serves as a guide for the industry and individual distributors to help them continue to be more sustainable and understand potential cost savings.

Organized for the ease of a distributor who may be new to sustainability, this document has three main sections: Warehouse, Trucking & Transport and Trade Recycling.

Within each section, the solutions are listed, from the most effortless solutions to deploy with the greatest financial returns to the more capital-intensive or complicated solutions, all of which have significant environmental returns.



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Communicating and collaboration are central to the success of rolling out and continuously improving a sustainability program. To complement this roadmap, Double Green's greenhouse gas emissions calculator is available on the NBWA website for members to easily measure the reductions of a sustainability solution or process deployed, as well as evaluate the impact of a solution under consideration.

The calculator enables distributors to measure their greenhouse gas emissions per case, set goals, evaluate solutions, and communicate their progress with science backed metrics.



# Beer & Beverage Impact

Knowing and communicating a brand's environmental impact has become essential for a healthy brand and corporate reputation.

A beer's environmental impact is spread across its supply chain, from the resources used on the farm and at the brewery, including packaging, to the energy consumed through local distribution and retail. A lifecycle analysis (LCA) measures the total impact.

The LCA changes for each product based on the ingredients - where they are sourced and how they are grown, what package is used, where the product is made and how and where it is consumed, among other factors. This graphic to the right illustrates the approximate greenhouse gas emissions breakdown of beer.

Brewers and beverage suppliers have their sustainability plans and goals, which they include in their annual reports and many have additional detailed sustainability reports. A decade ago, these goals were broad and their sustainability actions focused on their brewery operations.

However, today, suppliers' goals, as the brand owners, are strategic based on their LCA and the areas where they have the most impact. Typically, they measure their progress by their reduction in greenhouse gas emissions against a baseline year. To meet their goals, they require supply chain collaboration.

Distributors care about protecting the planet and the brands they represent and have been working to reduce their environmental impact.



INGREDIENTS   BREWING   TRANSPORT TO WAREHOUSE   DISTRIBUTION   RETAIL   CONSUMER



# WAREHOUSE

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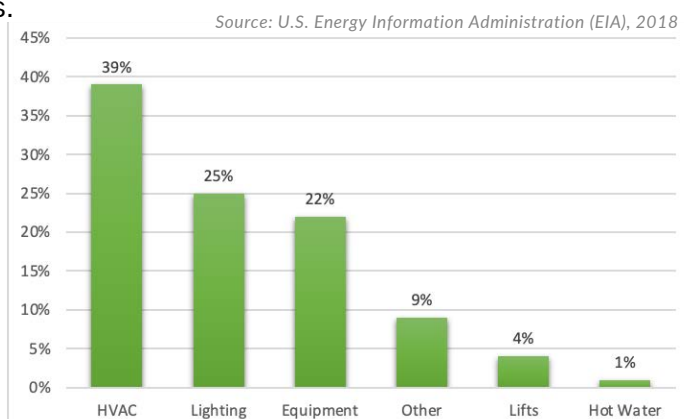
## Where We Start

America's beer and beverage distributors first focused their sustainability efforts on their facilities for the financial and environmental returns with the greatest ease of deployment under controllable situations in their own assets.

Distributors started by addressing their operation's energy hogs - HVAC/R and lighting and applied solutions to those areas to reduce their kWh. By lowering their kWh consumption through LED and other energy-saving solutions, Distributors ensure an efficient way to minimize the cost of future sustainability solutions while coping with increasing energy costs and disruptions from rising temperatures and supply shortages.

A typical HVAC/R system accounts for 40% of an entire building's energy consumption, with 27% from cooling.

Lighting accounts for 25% of a building's energy consumption.



By reducing their kWh before installing solar, distributors bought fewer solar panels, further conserving resources.



**LIGHTING**   **HVAC**   **WAREHOUSE ENERGY EFFICIENCY**   **SOLAR**   **WASTE / RECYCLING**   **WATER**

# LIGHTING

LED relamping is the first step for most beer and beverage distributors' sustainability programs due to its outstanding energy efficiency, reduced kWh and cost savings.

Skylights increase natural light during daylight hours, so many distribution facilities use skylights to make the most of free natural light with their employees appreciating the naturally lit working conditions.



However, skylights provide little advantage during off-peak operations, are immovable and eliminate space for revenue-generating solar panels. Skylights can let in too much light and heat or worse, leak. Skylight technology and installation have improved with better seals to keep out moisture and glazing to diffuse the light. North-facing installation restricts direct sunlight from heating the warehouse.

Most distributors have converted their lighting to LED, from their offices to their warehouses to their parking lots and it is no wonder as LED delivers a 240% return on their investment. Distributors who switched from conventional high bay lighting to LED received an 80% reduction on their electricity bills improving their warehouse energy efficiency.

LED brightens up the warehouse much better than fluorescent and metal halide lamps, while consuming less energy to produce the same amount of light. Thus, not only are the lights more efficient but the air conditioning and refrigeration work more effectively as LEDs run cooler than other lighting. Since LED bulbs can last up to 50,000 hours distributors also save on maintenance costs and increased safety from fewer burnt-out bulbs in their high-ceiling warehouses, which lead to sections of the warehouse being dark as the bulbs are a logistical and financial burden to replace.



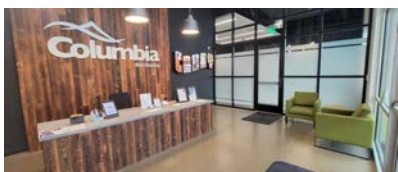
Distributors who have recently re-lamped are seeing the biggest savings as today's LED lighting is not the same as a decade ago. Prices have fallen and the light has become better and more efficient over the years lasting four times longer than metal halide technology. It is also now available in a range of colors and brightness.

## Motion / Daylight Sensors

Distributors who add motion and daylight sensors in conjunction with their LED installation further conserve resources and save money. Previously, these distributors would leave the lights on continuously due to their 24/7 operations, with many areas of the facility left lit unnecessarily without anyone in the area, wasting kWh, money and greenhouse gas emissions. By installing programmable motion sensors on every fixture, the distributor's lights stay off until there is movement, drastically reducing their energy usage and extending the life of the light.

## LED Case Studies

**America's beer and beverage Distributors converted to LED, reducing their electricity consumption by 50-80%.** In a typical 150,00 sq. foot warehouse, a distributor **saved 580 metric tons of greenhouse gas emissions a year and approximately \$7,000** in utility costs through LED.



Columbia Distributing converted their 400,000 sq ft Kent, Washington warehouse and office to all LED with motion sensors to conserve resources and provide brighter, safer working conditions.

Columbia **reduced their electricity consumption by 51.4%, saving 8,052 metric tons of greenhouse gas emissions a year** with a two-year payback and a 465% return on investment.

Crescent Crown Distributing in Arizona converted to LED in 2019, **reducing its kWh by 689,529 and its costs by \$72,159 every year.**



The impact of their lighting conversion is the elimination of 489 metric tons of greenhouse gas emissions a year which is the equivalent to keeping 169 tons of trash from going into landfills or growing 3.3 acres of US forests.



Kloss Distributing converted 86,000 sq ft of its Gurnee, Illinois warehouse to LED, **reducing their electricity by 66% and saving 72 metric tons of greenhouse gas emissions annually.**

Utilizing \$65,000 in rebate incentives and on-bill funding, Kloss realized the financial and environmental savings without any upfront capital.

# HVAC/R SOLUTIONS

America's beer and beverage distributors reduced their greenhouse gas emissions and costs by more than 20% with HVAC/R solutions .

One of the ways America's beer and beverage distributors protect the quality and freshness of the products they deliver is through temperature-controlled environments. Brewery mandates on distributors include keeping beer at 39 degrees throughout all stages of their operations. The environmental and financial impact is not insignificant.

Cooling a space uses a massive amount of energy. HVAC/R is responsible for a significant proportion of a beverage distributor's energy consumption, approximately 40% of the warehouse's energy consumption.

Distributors don't want to risk the safety of their product and subsequently, HVAC/R systems are invariably oversized for the worst-case scenario of the hottest temperatures. In many cases, one of the systems will run, consuming energy without providing cooling. This results in frequent compressor cycling and greater energy consumption than necessary during milder weather.

A great deal of energy and resources goes into the growing of the natural ingredients and the brewing of the beer; refrigeration is necessary to ensure these perishable beverages and the resources used in making them are not wasted.



America's beer and beverage distributors understand this and have invested in improving their HVAC/R efficiency through maintenance, monitoring and treatments for the quality of their products and to reduce their impact on the environment.

## HVAC/R Maintenance

Dirt and neglect are the top causes of heating and cooling system inefficiency and failures. Routine maintenance ensures efficient system operation, saving technician visits, system failures, energy costs and greenhouse gas emissions.

## HVAC/R Maintenance - PM Schedule

Preventative maintenance is standard practice for all fleet and major assets for a distributor, yet HVAC/R equipment is often missed in distributor's PM schedules.



Proper care by a qualified technician mitigates risks as a dirty coil reduces the system's ability to cool the facility and causes the system to run longer, increasing energy costs and shortening the life of HVAC/R equipment. For example, too much or too little refrigerant charge can damage the compressor and also reduce the HVAC/R equipment's life and increase costs.

America's beer and beverage distributors have been adding PM schedules for their HVAC/R equipment as part of their sustainability programs. Columbia Distributing had PM schedules for many of their warehouse's HVAC/R equipment. Yet, the distributor identified that some of their facilities' HVAC/R equipment was not being serviced and were the likely culprits of compressors gone bad and the need for new units. In response, the Pacific Northwest distributor secured technicians and maintenance contracts for those facilities to ensure optimal equipment performance.

## HVAC/R Monitoring

A few leading beverage distributors have added monitoring to their HVAC/R systems to ensure optimal performance. HVAC/R systems can operate at a degraded performance for extended periods because there is no visibility into how they work with redundancy compounding the potential expense. Distributors have invested in monitoring with alerts and logs to improve their system's efficiency, optimize airflow management and reduce runtimes. Monitoring also enables distributors to quantify the impact of the steps taken to deliver against sustainability benchmarks.

Crescent Crown Distributing in Arizona recently deployed an Internet of Things (IoT) to monitor their HVAC/R. IoT is the concept of connecting devices to collect and share data about the environment and the way the equipment is used under the conditions. While they say it is too early to quantify the results, they consider this a good investment in terms of future savings and environmental impact. The vendor estimates that their solutions can improve HVAC/R efficiencies up to 50% and prolong asset life reducing maintenance costs while increasing air quality, without having to replace the existing system.

## HVAC/R Energy Control Measures

Distributors have significantly reduced their energy consumption and greenhouse gas emissions by treating their air conditioning units, refrigerators, cold boxes and chillers with Energy Control Measures (ECM) to minimize oil fouling, increasing the efficiency and capacity of the equipment.

According to the American Society of Heating Refrigerating and Air-Conditioning Engineers (ASHRAE), HVAC/R equipment loses efficiency from oil-fouling, 7% efficiency is lost in the first year, 5% in the second and 2% in each subsequent year. This is because when oil gets past the piston or crankshaft, it adheres to the inner walls of the freon tubes and reduces the heat transfer, making the machine run longer to cool the facility.

The longer and harder the equipment runs, the more energy it consumes, resulting in a larger energy bill and a more significant environmental impact. Treating the equipment with an ECM to remove the oil fouling improves efficiency, reducing costs and environmental impact.

## HVAC/R Treatment Case Studies

Mississippi distributor Mitchell Distributing deployed an ECM throughout all their operations and facilities, including 67 HVAC/R units **saving \$65,000 annually with a lifetime savings of \$637,000** and a payback of 1.8 years and an 842% return on investment over the life of the equipment.



The one-time treatment removed the oil fouling and prevented it from ever adhering to the coils again, improving the HVAC/R's efficiency and capacity while reducing energy costs and greenhouse gas emissions every year for the equipment's life.



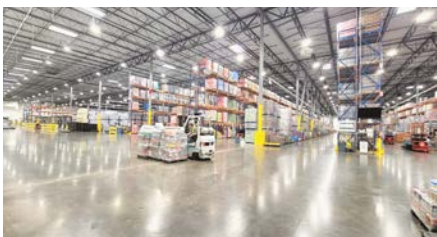
Columbia Distributing, located in Washington and Oregon, states that experienced last year's heat dome, deployed the same energy control measure in all of their HVAC rooftop and cooler equipment across 15 of their warehouses this year as part of their sustainability program to reduce their kWh and greenhouse gas emissions.

They anticipate **saving \$241K annually in energy costs** and 2.6 Million dollars with a return on investment of 1000% over the equipment's life. The treatment will reduce their annual kWh consumption by 2.8M and greenhouse gas emissions by 2,007 metric tons yearly.

# WAREHOUSE ENERGY EFFICIENCY

Off peak hours, increased productivity and increased efficiency in warehouse operations translate into reduced greenhouse gas emissions.

## Off Peak Hours



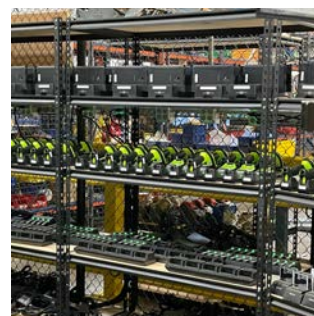
The busiest time in a beverage warehouse is generally late at night and early morning, when warehouse staff pick orders and load trucks for the day's deliveries. Running on this schedule ensures that distributors are using off-peak energy.

## Warehouse Picking / Selecting

America's beer distributors' deep investment in routing software, resources and people has dramatically reduced trucks and time on the road. More recently, it has reduced time spent picking in the warehouse, including energy consumed by material handling equipment. Sales, picking and routing work together to manage resources.

Andrews Distributing in Texas uses voice pick in their warehouse to increase productivity, which **increases the utilization of electric material handling equipment (MHE)** and minimizes the time lights are left on.

Before using the technology, an average team member could load two trucks per shift; **with the technology, productivity quadrupled**, increasing order picking efficiency with teams picking 4,000 and 5,000 cases today in a single eight-hour shift.



## Optimizing Material Handling Equipment

If all the suppliers' deliveries arrived at once, all the doors would be open, and more MHE would need to be purchased. As you've seen throughout this document, planning and communication throughout a distributor's operations leads to efficiency, reducing greenhouse gas emissions.

Many distributors optimize their MHE by using different shifts for receiving product from suppliers and loading deliveries for retailers to reduce bottlenecks at the dock and in the warehouse, minimizing the amount of MHE needed, and enabling time for the equipment to charge if electric.

## High Volume Ceiling Fans

Distributors use high-volume, large, energy-efficient overhead ceiling fans to improve HVAC/R efficiency, comfort and savings.



These fans use a fraction of the energy of an HVAC/R system, reducing the ambient temperature, resulting in less air-conditioning, thereby reducing overall energy consumption. On some days and in some climates, these fans can eliminate the need for HVAC/R, significantly saving energy. Fans installed outside keep employees and products on the dock cooler and reduce the heat brought into the warehouse.

In their facilities, F.E.B. Distributing and Capital City use large ceiling fans to reduce their kWh, energy costs and greenhouse gas emissions and increase the comfort for their employees. When utilized strategically, high-volume ceiling fans **reduce HVAC usage and costs by 10-15 percent.**

## Insulation



Insulation keeps the temperature regulated and the environment as comfortable as possible while protecting distributors' inventory and reducing HVAC/R costs and equipment strain.

To ensure that the air they have paid to cool is not wasted, distributors have replaced the traditional batt insulation in their buildings with more efficient spray foam insulation to seal whole walls, ceilings, and larger areas and used loose-fill cellulose insulation made from reclaimed/recycled materials to fill-in existing spaces for greater energy and greenhouse gas emissions savings.

## High Speed Doors

The vast majority of beer distributors have invested in high-speed doors as they are a highly effective way of ensuring that the air they spend money and energy to cool is not wasted.



High-speed doors eliminate the excessive flow of warm air into the space, impacting the facility's humidity and temperature, significantly reducing energy costs.

F.E.B. Distributing Co. and its sister company Capital City Beverages work hard to keep their beverages cool, while operating in the humid Mississippi Gulf Coast. One of the many ways they keep the beer efficiently cool is by using high-speed doors in their coolers and loading docks, reducing their kWh and increasing productivity. The fast opening and closing of doors increase worker efficiency by reducing the time workers wait in front of doors.

## CNG Forklifts



Compressed Natural Gas (CNG) is an option for reducing greenhouse gas emissions in warehouse operations.

The benefits of CNG forklift are that they can be refueled quickly onsite and maintenance costs are low compared to other types of forklifts. However, there is an upfront refueling station investment. and the CNG forklifts have the highest upfront cost.

Capital Distributing of Oklahoma City, Oklahoma and Valley Wide Beverage in Fresno, California, among others, use natural gas forklifts for their busy warehouse operations with heavy pallets.

## Electric MHE

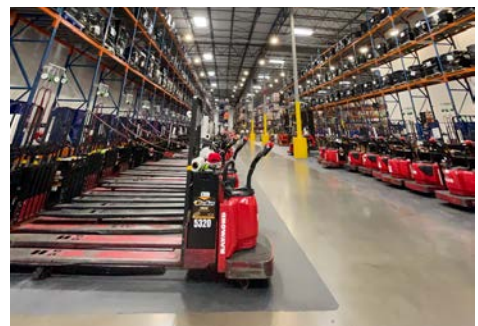
Electric MHE provides many advantages as they do not produce any direct emissions or odors and are substantially quieter. They also have fewer moving parts than other MHE, equating to lower repair costs. However, electric forklifts and other electric MHE come with some disadvantages. They are more expensive, have a more limited battery life and are out of service while being charged but the lower repair costs equate to a comparable lifetime cost.

Electric forklifts' increased utility demand charges can be mitigated by charging at off-peak hours IF it doesn't conflict with operations. Another option is powering the facility with solar.

Valley Wide Beverage reduces emissions using electric forklifts in its Fresno warehouse and charges the equipment with renewable energy from the 4,354 solar panels on its roof.

Columbia Distributing's warehouse and route pallet jacks are electric throughout its Oregon and Washington operations.

All of O&W's fork lifts and pallet jacks are electric significantly reducing emissions, odor and noise in its Michigan operations.



## Renewable Energy

Today there are miles of solar panels on beer warehouse roofs across America converting sunlight directly into electricity to power distributor operations, sending the excess power back to the local utility grid to power local homes and other businesses and reducing greenhouse gas emissions. Leading sustainable beer distributors Crescent Crown, Bay Area Beverage Company, Valley Wide Beverage and O&W were early investors with many more distributors installing solar last year and more this year.



Crescent Crown Distributing's roof, Mesa Arizona

There was a time when it was cost-prohibitive to install solar but today, it costs 69-85% less than a decade ago. Distributors' large, flat warehouse roofs make ideal locations for solar photovoltaic panels providing sustainable energy and savings. Solar power is the most abundant energy source on the planet, with more energy from the sun falling on the earth every hour than is used by everyone in the world in one year.

These are just a few of America's beer and beverage distributors who have invested in this green technology to reduce their kWh consumption, impact the environment and help their suppliers deliver on their sustainability goals. Even with a significant initial investment, the following examples show impressive savings over time and demonstrate the cost of inaction with rising energy costs and current available rebates.

## Solar Case Studies

Crescent Crown Distributing operating in Arizona and Louisiana, was an early solar pioneer, installing its first solar project in 2011. The company is set to save **\$17 million in energy** over the lifetime of its solar panels with a **return on investment above 20%**.

Today, 90% of the electricity used in Crescent Crown's Arizona operations comes from its solar panels. Running on its own clean, renewable solar power reduces its costs and greenhouse gas emissions and the company's reliance and drain on the grid.



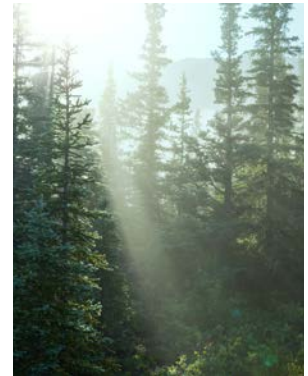
## Solar Case Studies



O&W Inc. has been using renewable energy for their distribution operations in Ypsilanti, Michigan, since 2013. In 2021, as part of O&W's plan to leave the environment and industry in better shape than they found it through greener choices, the Michigan beer distributor invested in 420 new solar panels producing 200,000 kWh of electricity and **\$20,000 of savings annually.**

Bay Area Beverage Company has been committed to minimizing its environmental impact and maximizing returns for decades. They installed 2,756 solar panels on their Richmond, California warehouse in 2008.

The 500 kW solar power system, reduces the beer and beverage distributor's carbon footprint by more than 905,924 pounds of greenhouse gas emissions per year, equivalent to the carbon captured annually by nearly 123 acres of forest.



Florida distributor J.J. Taylor first installed solar on their Fort Myers warehouse roof in 2015. In 2019 they added panels for a 1,000 kW (1mW) system, nearly covering the entire roof. They report that their system is almost maintenance-free, besides the occasional cleaning, inverter adjustments, routine maintenance and monitoring.

Their daytime operations are fully powered by their 3,000-panel rooftop solar system, with excess daytime power sent back to the grid. At night, their operations rely on the grid as viable and cost-effective battery storage options are not yet available. The system's **ROI is 4.4 years, with annual electrical savings of over \$135,000.** The solar system covers 67% of J.J. Taylors Fort Myer's energy needs due to their nighttime operations.



Kloss Distributing in Gurnee, Illinois, installed 2,000 panels in 2020 with a 700kW system and received financial incentives covering almost 80% of the costs.

Today the midwest distributor **offsets 93% of its energy consumption through its solar system** annually, producing 840,000 kWh. Kloss Distributing's investment in solar **saves \$67,200 and 639 M Tons of greenhouse gas emissions every year.**

## Recycling

In their operations, many of America's beer and beverage distributors recycle their cardboard, paper, glass, aluminum and plastic stretch wrap. And as you'll see later in this document, others collect materials at trade to recycle.



Distributors' impact on the environment through their waste and water operations is less significant compared to warehouse energy and transportation effects. However, distributors are committed to doing everything they can to conserve resources and reduce their environmental impact. In addition, these measures are good business, lowering costs while delivering on their sustainability plan and green culture.

## Cardboard



To reduce waste, most distributors recycle their cardboard. The cardboard is placed into a baler or compactor that compresses the cardboard and corrugated box waste and ties it into a square bale. Once there is a large enough load, a recycler picks up the bales.

Previously, the distributor threw the cardboard into a dumpster and paid waste management to throw it into a landfill. By recycling the cardboard, the distributor's waste bill is reduced, and depending on the recycling vendor, the distributor might make money from the cardboard "trash."

Since most brewers tend to produce incredibly clean cardboard waste and America's beer and beverage distributors keep impeccable distribution centers, the fibers in the cardboard retain their integrity even longer and are easier to recycle.

Out of all the recycling measures in the warehouse, a cardboard baler is one of the quickest and easiest ways to reduce waste. Cardboard is ideal for recycling - easy to bale, store and transport.

For every ton of cardboard distributors recycle, they save approximately 17 trees, 5,000 kilowatts of energy, 7,000 gallons of water, 400 gallons of oil, three cubic yards of landfill space and a ton of greenhouse gas emissions.



## Cardboard Case Study

J.J. Taylor works with local recyclers who provide balers for each warehouse at no cost to the distributor. The recycler picks up the cardboard from each facility, significantly reducing J.J. Taylor's costs and landfill contributions.

The return on investment comes from reduced waste bills as this program has no compensation for the cardboard. J.J. Taylor says this was the quickest and easiest way they found to reduce their waste and costs. Their motivation was environmental and operational efficiency.



## Plastic Stretch Wrap

America's beer and beverage distributors drastically reduce the waste in their warehouse and their supplier's environmental impact through stretch wrap recycling.

Some call it stretch wrap, and others call it shrinkwrap - it's the plastic that wraps the stacked cases of glass bottles, aluminum cans and plastic bottles and steel kegs, delivered to the distributors' warehouses by suppliers.

For years, tons of this material was thrown away, as it is in other industries, bound for the landfill. As the product comes into the warehouse, the plastic is cut and the product is shelved so orders can be made for specific retailers. Sometimes when those orders are made, the distributor will wrap pallets stacked with the wide variety of brands bound for a bar or supermarket in fresh stretch wrap.

Instead of throwing the cut plastic away, it is now increasingly being recycled. It can even be considered revenue. It's one of the most valuable recyclable materials in a logistics warehouse providing a high return.

Distributors who collect stretch wrap waste from retail are further reducing greenhouse gas emissions from the industry's supply chain while generating revenue.



## Plastic Stretch Wrap Case Study

Florida distributor J.J. Taylor bales its waste stretch wrap in each facility and then ships it to its primary location in Tampa, where it is picked up and sold to a recycling company for profit. The balers are provided by the vendor at no cost to the distributor.



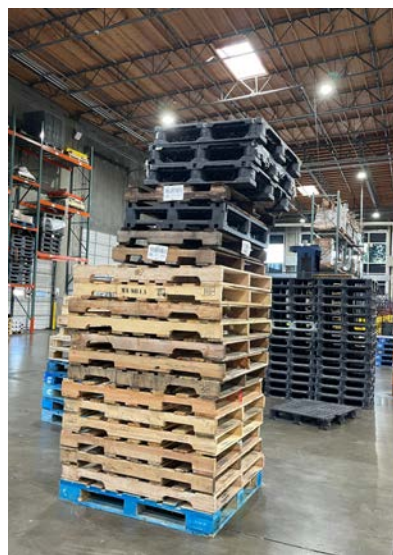
J.J. Taylor says it makes a small profit versus the cost of the bulky disposal.

They are working to increase their returns by bringing all the stretch wrap back from trade when operationally allowable.

## Pallet Recycling

America's beer and beverage distributors reuse and recycle the majority of their pallets.

Pallets carry the weight of a sustainable supply chain. If America's beer and beverage distributors received the product on one uniform pallet, they would be able to optimize their trailer loads, warehouse receiving picking and recycling of the pallets. But, America's beer and beverage distributors represent hundreds of suppliers and thousands of brands on many different types of pallets. Distributors have learned to configure their warehouses, picking and loads for their suppliers' needs and efficiency.



Pallets are either reusable plastic or wood. Wood pallets are also reused and often recycled into new pallets. The plastic pallets tend to be lighter than wood pallets, a vital factor in a trailer's load and fuel efficiency. Wood pallets are valued for their repairability, but eventually, they are removed from service. Out-of-service units can be re-sold for consumer use or recycled into other products such as mulch. Plastic pallets can be recycled into new pallets or other products. The standard Grocery Manufacturers Association (GMA) size pallet is 48 inches by 40 inches surface, a half pallet is 48 inches by 20 inches on the surface and many other variations. Distributors do not have control over the type of pallets that arrive in their warehouse, but they are working to ensure every pallet is used to its complete life cycle.

## Upcycling Odd-sized Pallets

Kloss Distributing in Gurnee, Illinois, has been recycling their standard-sized pallets for many years. Yet, like other distributors, they struggled with the unique-sized wooden pallets from a fast-growing supplier with a hot brand.



Disposing of the pallets in the landfill was not an option for this green distributor and woodchipping the ever-growing pallets was not a sustainable option. So Kloss kept looking for solutions and hired a recycler to pick up the unique size pallets and rebuild and upcycle them into standard-sized grocery pallets.

As a result, the environmental impact is massive, the pallets were kept out of the landfill and resources were conserved from new pallets being made.



## Glass, Aluminum & Plastic

Glass, plastic bottles, aluminum cans and out of code products are disposed of through various relationships in every state. Out of code products that need to be destroyed are sent to the appropriate reclaim facilities for destruction and recycling.

J.J. Taylor in Florida separates the items into specific waste dumpsters onsite at each facility, with local vendors picking them up as needed. They receive small payments depending on the amount recycled.

## Zero Waste

Zero Waste is a formal commitment to divert 90% of the company's solid waste from landfills and incineration through reducing, reusing, recycling and composting.

One of the largest distributors in America, Andrews Distributing in Texas, is close to being zero waste in their distribution centers. They say they are keenly aware of the impact their operations have on the environment and are proud to have achieved their near-zero waste achievement together as a team.

Andrews achieved this impressive accomplishment by setting a zero-waste goal, deploying solutions that work for their operations and team and then measuring their progress and communicating their progress and celebrating success.



## Low Flow Plumbing

While distributors don't consume a great deal of water, as they are not manufacturers, their plumbing gets used like any office. According to the EPA, commercial building toilets are flushed more frequently than residential toilets. The EPA estimates that the worker is likely to use the toilet in the warehouse two to four times during an eight-hour workday. This amounts to one flush per toilet use or up to four flushes for each worker during the workday.

Distributor's water consumption is not just from their employees but from their visitors. Suppliers' drivers use the facilities during their visits, increasing the facility's water consumption with each flush. Distributors understand the importance of water conservation and are implementing low flow plumbing conversions.

All new warehouses are built with energy star appliances and low-flow faucets. Additionally, many distributors have been retrofitting older toilets and faucets with new low-flow faucets, toilets and urinals, cutting their water consumption in half.

## Rain Water Harvesting

Some distributors harvest rainwater off their warehouse roofs and use it as the primary supply for their on-site truck washes to prevent wasting water.

Several distributors have invested in filtering systems to re-use the wash water. The filters remove the dirt and chemicals before the water is used on the next truck.



# TRUCKING & TRANSPORT \_\_\_\_\_

## Reducing Fleet Emissions

America's beer and beverage distributors have invested heavily in solutions and resources which have removed trucks from the road and increased fuel efficiency while delivering on their essential role as last-mile delivery in America's supply chain.

America's beer and beverage distributors sell and distribute over 13,000 brewers and other suppliers' beverages to 600,000 retailers. They invest massively in resources from routing, accounting and warehouse software to training the skilled people using the software.

It's a sophisticated process made to look simple, delivered by your neighborhood distributor to ensure product quality and customer service, annually saving millions of gallons of fuel and tons of greenhouse gas emissions.

They run complex logistics operations by integrating their route optimization software with their accounting, sales and supplier information. They ensure that only the necessary number of trucks are on the road traveling by the most efficient routes.

It may be better for the environment and the distributor for a distributor to deliver 10 cases every two weeks rather than five cases of beer every week.



## Driver Behavior

All beer and beverage distributor drivers receive training and support. Driver education specific to sustainability delivers financial savings and safety improvements.

Driver education programs emphasize expectations to the driver and explain the no-idle policy, accelerating slowly, following speed limits and avoiding hard braking or jackrabbit starts. Several distributors provide world-class driver education beyond safety and sustainability with comprehensive instruction, including compliance, professionalism, and instruction in avoiding accidents, reducing costs, and reducing emissions.

## Speed Limiters & Idling

Many distributors use built-in speed limiters or GPS systems to ensure drivers travel at the most fuel-efficient speeds.



Most distributors have No Idle policies as an idling truck consumes a gallon of fuel every hour. For some retail stops, drivers used to leave trucks idling in parking lots while making deliveries. Today, under a No Idle policy, a driver in this situation would cut off their engine and eliminate unnecessary fuel waste.

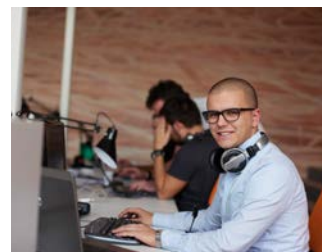
## Custom Sized Fuel Tanks

J.J. Taylor Companies in Tampa, Florida, has a significant truck fleet like all beer distributors. And like all distributors, they make last-mile deliveries serving bars, restaurants, convenience stores, supermarkets, bodegas, gas stations and all licensed accounts of all sizes in their market. Yet, the trucks they purchased were equipped with stock fuel tanks built for long-haul deliveries, not the in-market return to the warehouse every night deliveries of J.J. Taylor's business.

So J.J. Taylor requested and purchased trucks with custom smaller fuel tanks installed. The smaller tanks are large enough to accommodate J.J. Taylor's delivery routes but not so large that they result in unnecessary weight on their trucks. By dropping down to 50-gallon fuel tanks, J.J. Taylor saves an average of 900 pounds per truck, significantly increasing their miles per gallon, fuel costs and greenhouse gas emissions.

## Routing Efficiency

Distributors use telematics software to do more than optimize their delivery routes. They monitor fuel consumption, driver behavior, maintenance and vehicle diagnostics in real-time to set and measure their sustainability metrics.



Intelligent in-cab alerts proactively discourage drivers from practices that negatively impact carbon emissions with data collected to help manage the fleet's carbon footprint.

Andrews Distributing in Texas uses routing software to save fuel and greenhouse gas emissions. The software ensures the trailers are full when they leave the warehouse, automatically optimizing the 2.5 million miles driven by Andrews to retail and back, **cutting miles driven by 350,000, saving at least 100,000 gallons of diesel and eliminating 6,002 metric tons of greenhouse gas emissions.**

## Capacity Utilization

Routing software touched on this, yet we repeat it as its own section and a key component of reducing greenhouse gas emissions for America's beer and beverage distributors.

Capacity utilization is maximizing trailer loads, also called "cubing out the trailer," by packaging the most pallets in the trailer before it leaves the warehouse. A fuller trailer reduces the number of deliveries, the amount of diesel consumed and the amount of greenhouse gas emissions emitted.

To maximize capacity, distributors group delivery days together, adjusting delivery frequency, which requires communicating with customers and educating sales and others on the team. As a result, capacity utilization reduces deliveries, reducing fuel consumption and greenhouse gas emissions.



## Off Peak Deliveries

Using customer preferences and routing software distributors work to make off-peak deliveries.

The reduced traffic results in less time on the road and less fuel consumed. In addition to the more efficient journey saving fuel and greenhouse gas emissions, the community benefits from less congestion on the road.

## Rail



Distributors such as Valley Wide Beverage in Central California receive products from their suppliers who ship by rail to reduce their costs and carbon footprint.

Rail is known as a green transport contributing only 2% of the total greenhouse gas emissions within the sector. But for glass and perishable products, there are issues. A broken product is not good for the environment as it wastes the entire lifecycle. Still, as distributors search for new locations to expand their operations, access to rail spurs is a consideration.

Manhattan Beer Distributors capitalizes on its location and access to an existing rail network receiving  $\frac{2}{3}$  of its product by rail, arriving on 6,000 rail cars per year, eliminating 18,000 tractor-trailer deliveries from the streets annually.

## CNG

Compressed natural gas (CNG) is one way to reduce greenhouse gas emissions in transportation. According to the U.S. Energy Information Administration, natural gas emits approximately 27% less carbon dioxide when burned than diesel fuel.



Beer and beverages are heavy, requiring a class 8 truck to transport which has been an issue for electric trucks to date. CNG can carry a heavy load with lower emissions. Yet, it needs new fueling infrastructure and a separate maintenance structure from diesel maintenance both of which increase costs.

Manhattan Beer Distributors of New York were alternate fuel trailblazers. Over the past 19 years they have converted much of their diesel fleet to CNG trucks. By 2016 they already had three private CNG on-site fueling stations and 100 CNG trucks.

Manhattan Beer Distributors is committed to running a zero emission fleet. Today 75% of their miles are driven via alternative fuel either CNG or Electric.



## CNG Case Studies

J.J. Taylor says adopting CNG delivered on their sustainability goals by reducing their carbon footprint, while reducing their maintenance and costs.

J. J. Taylor is a Florida distributor with primary locations in Tampa and Fort Myers and cross-dock facilities in Fort Pierce and Sebring. They entered the CNG world early, testing their first CNG truck in 2012 for three months and receiving their first small fleet in 2013. Today, the majority of the beer and beverages delivered to retail by J.J. Taylor arrive fueled by a CNG truck.

Following the test in which they validated that the CNG truck operated similarly to their Class 8 diesel tractors under the same conditions on the same routes with the same loads, J.J. Taylor placed an order. After receiving the 42 CNG tractors in early 2013, J. J. Taylor had CNG fueling stations built onsite first at their Fort Myers facility in 2013 and then at their Tampa location in 2014.

The distributor says the adoption of CNG from a metrics perspective was a win-win. It reduced the distributor's and their suppliers' carbon footprint and costs, with the price of diesel per gallon at approximately \$4.00 when they first adopted CNG.

The maintenance on J.J. Taylor's fleet of CNG is less frequent and overall less costly than their diesel fleet.



CNG delivered an ROI that paid for itself at J.J. Taylor. with their onsite fueling and tax credits. Currently, the CNG DGE (Diesel Gallon Equivalent) cost is on average \$2.59 per gallon, versus the current cost of diesel being on average \$5.56 per gallon.

**J.J. Taylor's Fort Myers fleet is 95% CNG, and its Tampa fleet is 81%.** The fleet that transports tractors that transverses **between their facilities at night is 100% CNG.** The Florida distributor plans to convert the remaining fleet to CNG and is also evaluating electric delivery vehicles.



## Electric Fleet

At long last, electric class 8 trucks are here for last-mile beverage distributors with no fumes, no noise and no emissions.

Cost, battery range, operation in extreme temperatures, and capability of handling heaving loads are all still opportunities for class 8 electrification. Still, real equipment capable of handling heavy loads under the right conditions has entered the market. Downtime, uptime, charging management and maintainability and reliability are things Double Green will monitor, share and collaborate with distributors and the original equipment manufacturers (OEM) to ensure sustainable solutions exist.

## Electric Fleet Case Studies

Since last fall, Manhattan Beer Distributors have been delivering beer in electric class 8 trucks. These zero-emission trucks cost three times as much as new diesel class 8 trucks. So why would a distributor that already has CNG and diesel trucks add more complexity to their fleet? Manhattan Beer Distributors says it is not only the right thing to do but that electric trucks are the way of the future, being both eco-friendly and more reliable.

Manhattan Beer Distributors has been **running the trucks on 100-150 mile routes** without breakdowns since August 2021, capable of operating in 60% of Manhattan's routes. Manhattan owns its own smart charging station enabling the distributor to charge when rates are cheapest. Drivers plug the trucks in on every return and the trucks are fully charged in 90 minutes.

The New York distributor says in addition to zero emissions, the quiet operation of the electric trucks is another benefit, especially in its densely-populated market with residents that complain about off-peak delivery noise. Also, importantly, the drivers like the lack of noise and fumes and the truck's performance. The trucks are also eligible for DOT's Clean Truck Program (DEC), which Manhattan Beer Distributors utilized.



## Reducing Waste At Retail

Old product, shrinkage, out of code beverages don't magically disappear nor does their packaging. Distributors are proactive about sustainability from limiting their own waste with paperless invoicing to sourcing recycled POS and proactively working on better sustainable solutions for old products.

### Paperless Invoicing

Most distributors are reducing their raw material usage and their costs by using paperless invoicing and other paperless administrative systems.

### Recycle and Recycling POS

Distributors now use recyclable materials wherever possible for their point of sale (POS) to reduce their impact on the environment and the impact of the brands they represent.

### Plastic Stretch Wrap

Some distributors collect stretch wrap recycling from retail in addition to recycling their warehouse stretch wrap. This reduces their customer's waste costs and environmental impact while increasing the distributor's financial returns.

As the delivery is made, the stretch wrap is collected and then transported back to the warehouse, saving the customer the cost of waste disposal and increasing the distributor's recycling rate. In addition, the process further enhances the distributor's green culture by getting drivers and other staff involved and invested in recycling.



## Recycling Out of Code Product Case Study

Columbia Distributing in Washington was involved in a unique recycling program during the pandemic.

Columbia saved 851 out of code kegs, turning them into much-needed hand sanitizer in the early days of the pandemic, in the region where COVID-19 first struck and ravaged the community and market.

They collaborated with Washington State Distillers and Pursuit Spirits, a local distiller. This creative collaboration saved the out-of-code beer from going down the drain.



The recycling program also **saved the disposal cost (between \$5 and \$10 each), reduced greenhouse gas emissions and conserved resources in creating the sanitizer.**



Columbia donated 1,668 hand sanitizer cases to local food banks while saving the cost of disposing 851 out-of-code kegs.

One hundred fifty cases of the hand sanitizer was produced and then used in Columbia operations and shared with employees and their families throughout Washington and Oregon.

During the stressful start of the pandemic, this innovative solution reduced waste. Moreover, through collaboration, it produced a vital product. Columbia Distributing was proud to utilize its business as a force for positive change and create meaningful moments for their employees in the process.



# Conclusion

America's beer and beverage distributors' sustainable journey has begun.

They are working to reduce freight emissions through increased delivery efficiency and fuel conservation to protect the environment and make their communities and air healthier today than yesterday. America's beer and beverage distributors consolidate a wide variety of products from thousands of suppliers, reducing congestion on the road and saving fuel and greenhouse gas emissions in their beer deliveries to hundreds of thousands of accounts. America's three-tier system is the world's most environmentally-friendly beer delivery system. However, there is more that can be done.

Distributors have some significant challenges due to the weight of beverage deliveries and today's limited zero-emission fleet technology and available infrastructure. Still, America's beer and beverage distributors will lead by deploying cost-effective, impactful solutions to reduce emissions and build capacity and resilience by investing in greenhouse gas emissions reduction solutions.

Over the last 85 years, America's beer and beverage distributors have demonstrated they're doing their part to improve quality of life in their communities and protect the reputations of the brands in their value chain.

While responsibility is central to America's beer and beverage distributors' DNA, some distributors are just starting their sustainability initiatives.

NBWA is committed to sharing tools, resources and best practices to reduce waste, pollution, costs and carbon emissions in beverage distribution. The compound impact of America's beer and beverage distributors' efficiency skills and collaboration will positively and profoundly impact the environment and their suppliers' carbon footprint while reducing costs.

Undoubtedly, with these tools, America's beer and beverage distributors will significantly optimize their resources and reduce waste and greenhouse gas emissions resulting in a more resilient, sustainable world.