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CROWLEY Insights

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Sustainable businesses balance planet and people

The International Maritime Organization calls for a

40%

decline in the carbon intensity of global shipping by 2030

Source: IMO

The maritime industry is consciously engaged in finding ways to reduce greenhouse gas emissions, exploring options that include alternative fuels, electric engines and even wind propulsion. As no single technology provides an industry-wide solution, companies must balance the need to decarbonize with the best use of their capital investment.

The variables to calculate best use can include the size of the ship and its service route, access to financing, the availability of alternatives and the emissions lifecycle of the energy source. It is crucial that businesses are clear about their objectives while not losing sight of the encompassing concept of sustainability, which applies not only to the planet, but to businesses and people.

"We have our sustainability targets, the regulatory demands, and a generation that truly wants to develop solutions to make sure we will be around for a long time," said Cole Van Gundy, vice president of Crowley's engineering services group.

"But that sustainable environment must include a sustainable company. Just because a technology is ▸

Just because a technology is possible doesn't mean we should be doing it

Cole Van Gundy,
Vice President, engineering services group, Crowley

possible doesn't mean that we should be doing it, because if it's too capital intensive, it might overburden a company," he said.

Van Gundy's group, which includes a dedicated research and development team, designs and oversees construction and retrofitting of vessels for Crowley as well as external clients. He often urges those considering carbon reduction measures to be clear on their aims for the investment, because it will determine the best path for achieving their sustainability goals.

As an example, operators in Alaska may consider electrification over methanol or other clean fuels because of the abundant supply of hydropower in the state, he said. "It really depends on where you are and what you're trying to achieve."

Crowley's own fleet is diverse, and the company is moving to align its vessels to reach its sustainability goals of net-zero by 2050. The company is involved in research projects that include carbon sequestration from vessel emissions, electrification of smaller boats, and even applications for hydrogen fuel.

THE LNG PATH

In addition, Crowley has embarked on the transition to cleaner emissions in part by way of liquefied natural gas (LNG). "We elected to go to LNG on Crowley's new build container vessels because of the fuel availability and our knowledge of LNG in the Americas," said Van Gundy.

Although natural gas is still a fossil fuel, it burns cleaner. Greenhouse gas emissions from modern vessels running on LNG can be reduced by 23% on a full lifecycle basis, nitrogen oxide by as much as 80%, and sulfur oxides and particulate matter can be nearly eliminated[1].

Crowley currently powers its two combination container/roll-on roll-off vessels with LNG. Launched in 2018 and 2019 the vessels service the U.S. mainland-Puerto Rico trade. The company is also awaiting 2025 delivery of four new LNG-powered vessels for its U.S., Central America and Caribbean trade.

Additionally, it is in the final stages of a 12,000 metric-cubic LNG bunker barge, the largest in the U.S., that will begin servicing ships under long-term charter on the East Coast this year. ▸

1. Det Norske Veritas (DNV), the global classification society and maritime industry adviser

Crowley also recently announced it reached an agreement to begin offering LNG bunkering services on the Pacific side of the Panama Canal, marking the first time the Panama Canal Authority has issued a permit for such services in the Pacific location.

Other alternative fuels on the radars of ship owners include methanol and ammonia, with global orders for dual-fuel methanol vessels reaching 228 by the end of January, a recent S&P Commodities Insights article stated.

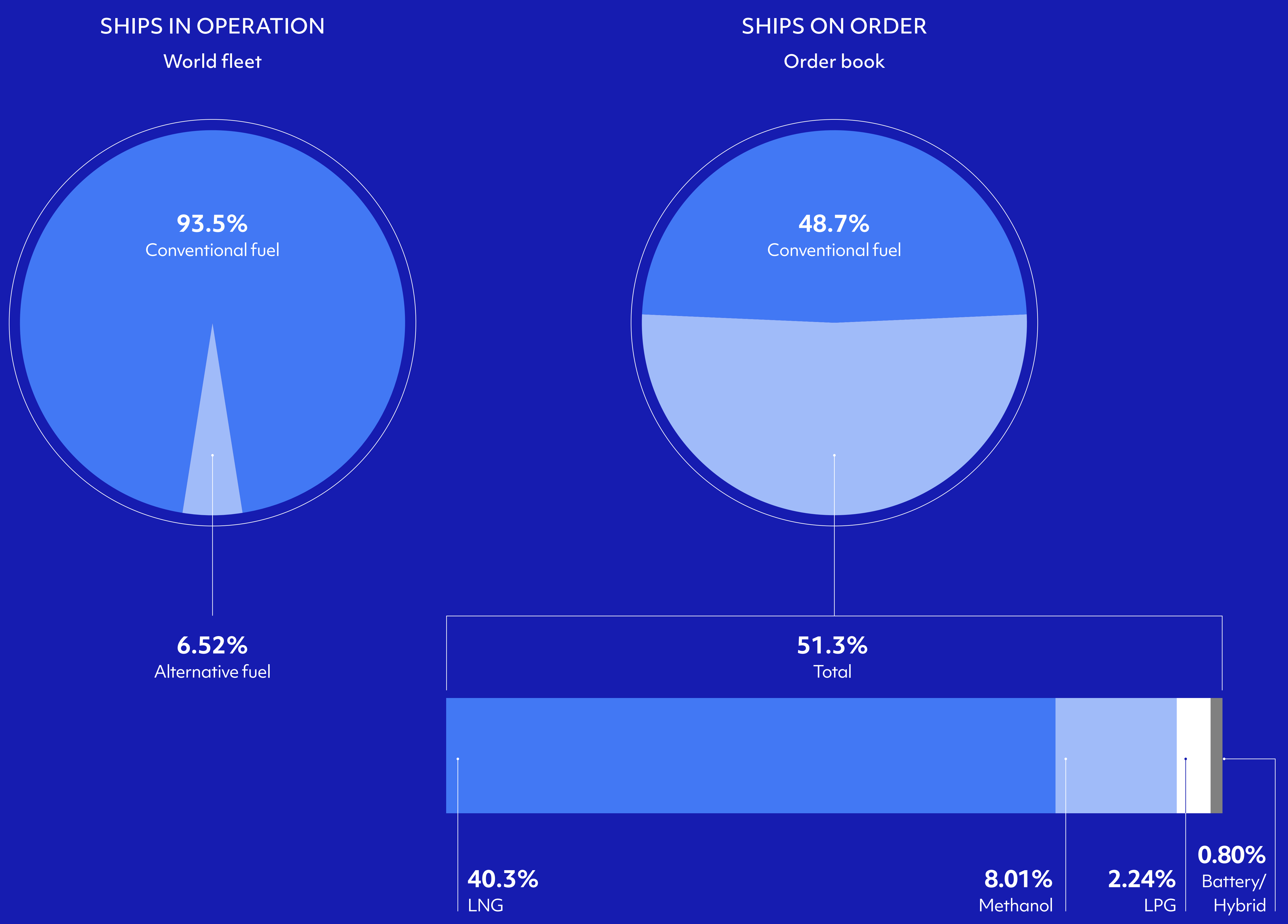
Overall, more than half of newbuild orders are for vessels running on alternative fuels, according to a recent study by DNV.

GOING TO THE SOURCE

But be it electric power or alternative fuels, emissions are only as clean as their source.

For now, availability of methanol from biomass, or green methanol, is not enough to support a growing fleet. Production of the renewable fuel will need to accelerate to keep pace with demand, as low availability will likely translate into higher prices and hinder further adoption of the alternative.

SHIPS BEING BUILT WILL INCREASINGLY RUN ON ALTERNATIVE FUELS



Alternative fuel uptake in the world fleet by gross tonnage.

Source: DNV Maritime Forecast to 2050

More than 80 renewable methanol projects are underway globally, with an annual production capacity estimated at 10 billion liters of bio-methanol and e-methanol by 2027, derived from recycled carbon dioxide and hydrogen.

In the meantime, the blends currently in use derive methanol from natural gas, or "grey" methanol, which have lifecycle GHG emissions higher than conventional fuels. Because of its energy density, it takes 2.5 times more methanol to generate the same propulsion power as marine fuel.

LNG also has less energy density than marine fuel oil and requires not only larger, but specialized storage tanks in vessels, to keep it pressurized and at low temperatures. Considering technical requirements such as storage capacity and the premium cost of biofuels, these options aren't economically feasible for smaller vessels. That's where electrification is making some headway.

ELECTRICITY FOR SMALLER BOATS

Electric engines are a good fit for smaller boats such as tugboats, and Crowley recently took delivery of a fully electric tugboat, *eWolf*, that will operate at the Port of San Diego.

The first of its kind in the U.S., the tug's batteries are based on technology already in the market for electric passenger cars.

The batteries in Crowley's tug have approximately six megawatts of capacity, and can be charged at a rate of one megawatt per hour with a DC rapid charging system. Tests indicate that it will use around three megawatts per job so it can service two ships with one charge.

Crowley and the Port of San Diego are building an onshore microgrid charging facility which also holds two batteries that can store a combined three megawatts of power. The system will operate off-peak hours and includes a solar array designed to complement the power supply from the grid.

Crowley's engineering services team is also involved in the development of a hybrid-electric passenger ferry that will operate in Maine.

The backdrop for the intense activity to reduce carbon emissions in the maritime sector is one of tightening ▸

The IMO targets

5%

of the international shipping industry to run on zero or near-zero technologies by 2030

Source: IMO

regulations, from governments and the International Maritime Organization (IMO). The IMO's emissions reduction strategy, revised in July 2023, calls for a 40% decline in the carbon intensity of global shipping by 2030 (from 2008 levels). It also sets a goal of at least 5% of the international fleet running on zero or near-zero greenhouse gas emission technologies by 2030.

The U.S. Environmental Protection Agency has been issuing rules to limit emissions from new marine diesel engines since 1999, and its latest iteration aims to phase-in new ships equipped with engines that meet Tier IV standards, which require emissions of NOx and particulate matter be further reduced by 90%.

Regulators have extended lead times for installation of Tier IV certified engines further into 2024 to give vessel owners more time to comply. The EPA is also modifying its certification requirements to promote Tier IV adherence.

LOOKING AHEAD

Finding alternative solutions requires companies to be open and consider new pathways for tackling emerging challenges, and often that can only be done in partnership. That openness is imperative for a sustainable business.

"Crowley knows when to bring in the right strategic partner in a challenging environment," said Van Gundy. "No single company can have all the knowledge in-house, and we partner to find solutions and come up with a team that can actually execute the project."

"A reluctance to take that first step toward an alternative from what people know is always the hardest," said Van Gundy.

Steering the shipping industry through the challenge of reaching net-zero emissions in the coming decades can seem daunting, but it is also exciting.

"Not many of us get to go through so many new emerging technologies in a lifetime, and now we have the opportunity to help transition from our reliance on traditional energy sources into some new energy means," said Van Gundy. "We all get to explore and figure out what can change the future."

Trucking anticipates a shift from market downcycle

73%

of the US's land-based freight by weight is moved by trucks

Source: [American Trucking Association]

Depressed freight rates and economic uncertainty continue to weigh on the trucking business, with signs of a turn in the cycle not likely until the second half of 2024. But several large bankruptcies and strategic combinations over the last year have reshaped the industry for an expected rebound.

After a soft peak shipping season and recent winter weather disruptions, several industry tracking indices suggest the market may be approaching equilibrium, as shippers have worked through excess inventory and financial pressure is forcing some carriers – in particular smaller firms – to the sidelines.

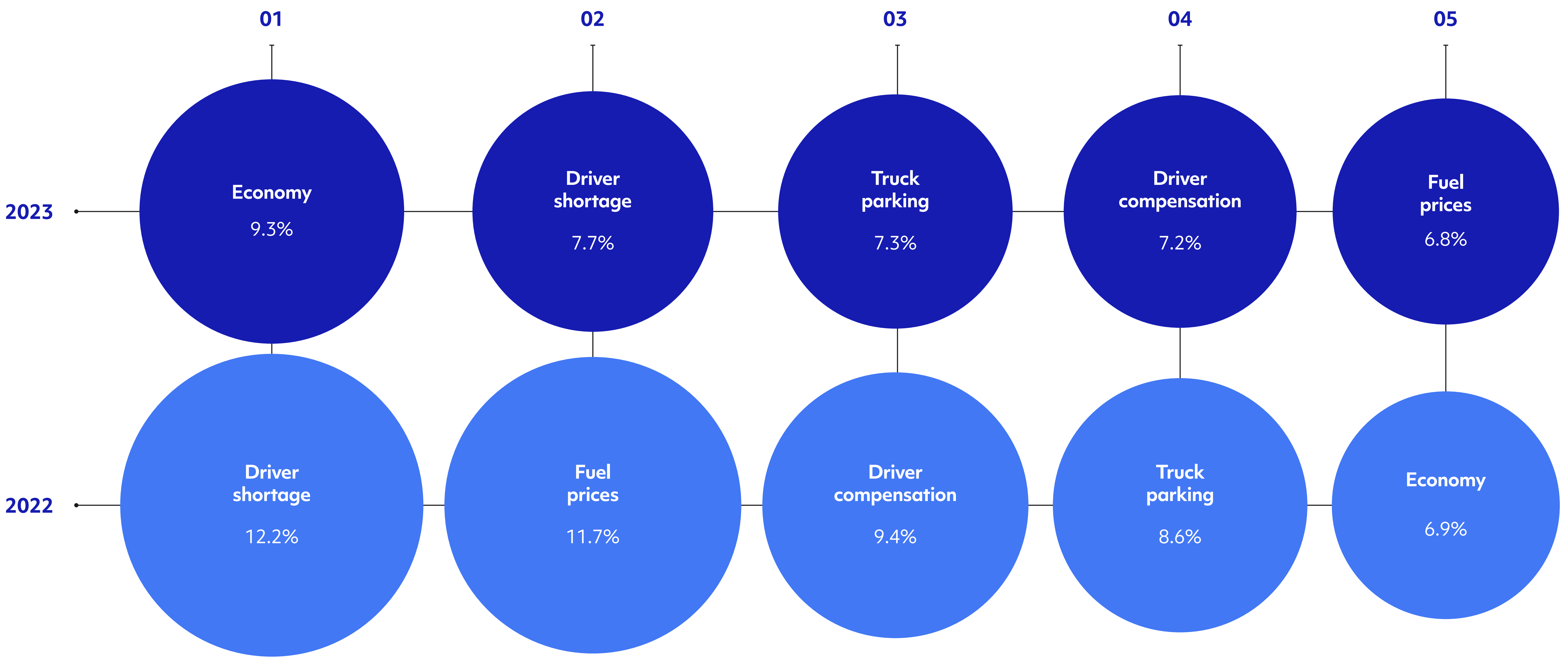
"Market disruption has impacted the land transportation sector, causing all stakeholders to take steps as freight order levels and equipment availability have changed," said Phil Shook, senior vice president and general manager of Crowley Land Transportation Services. "The industry is adapting to find new ways to meet adjusted demand while maintaining fleet functionality and driver quality. While rates have been impacted in the near-term, these dynamics are creating opportunities for long-term growth for companies that focus on innovation, technology and strong relationships focused on customers."

Indeed, the state of the U.S. economy is top of mind for the industry, according to the 2023 annual survey by the American Transportation Research Institute (ATRI), a not-for-profit trucking research organization. The economy emerged as the number-one concern, after ranking fifth in 2022. The study fielded more than 4,000 responses from truck drivers, motor carriers, and industry suppliers, among others.

"We might have hit the bottom or are near it, but I don't think we're going to have a 'V' shaped curve – it's going to be more drawn out," said Dennis White, vice president of brokerage for Crowley. "Even with recent economic growth, consumer spending isn't rebounding fast enough," he said. ▸

THE ECONOMY IS NOW THE TRUCKING INDUSTRY'S BIGGEST CONCERN

Ranked as number one concern



Source: Critical Issues in the Trucking Industry 2023

Add to the mix geopolitical conflicts and policy uncertainties in a major election cycle in the U.S. and the cautious outlook is reflecting the wariness engendered by the turbulent economic landscape.

But despite the challenging environment, diesel prices held relatively steady in the past year, keeping operating costs at somewhat manageable levels and delaying a rebalancing of capacity.

"We are in such a weak market that it is possible some carriers will continue to get aggressive with pricing and push rates down," White said. "Eventually, that will get to a point where it is unsustainable, and capacity will leave the market – sometimes that's the impetus for the swing in the cycle."

LIGHT AT THE END OF THE TUNNEL?

Several indices tracking the industry continue to register signs of a struggling market, even if there are hints of some leveling off amid the uncertainty.

The Cass Truckload Linehaul Index, which includes both spot and contract freight, fell 0.6% to a new cycle low in January, after rising 0.4% in December. But on a year-on-year basis, the 5.9% decline was the narrowest in the past year. The shipments component of the Cass Freight Index dropped 3.5% in January from December, which is consistent in seasonally adjusted terms.

Analysts writing the monthly Cass Transportation Index reported: "It's been over two years since the first year-on-year decline of this freight recession, and with destocking playing out and goods consumption rising, the downturn is likely nearing its end."

At the same time, the American Trucking Associations' (ATA) seasonally adjusted For-Hire Truck Tonnage Index fell 3.5% in January, after rising 1.2% in December. ATA Chief Economist Bob Costello said in a news release that adverse weather in January, as well as weaker retail sales and housing construction starts, contributed to the poor performance and highlights the vulnerability of the trucking market. "January's data was a snap back to reality for anyone thinking the freight market was about to turn the corner," said Costello.

As the industry attempts to read the tea leaves for signs of an upswing, data from the supply side is more optimistic. Orders for new heavy-duty Class 8 trucks are on the rise and could reach a record this year. Some of the increase can be attributed to pent-up demand and a backlog in orders, explained White.

"A lot of the larger trucking companies are taking a longer-term view on the industry and expecting the typical bounce back, so that is reflected in the high volume of orders," he said.

REGULATORY SHIFTS

New regulations by the U.S. Environmental Protection Agency, which set more stringent greenhouse gas emissions targets for 2027 models of heavy-duty trucks and engines, are leading the industry to consider their future purchases.

Zero-emission vehicles emerged in the list of top-10 industry concerns for the first time in 2023, according to the ATRI survey. Respondents cited the high costs of the technology and the poor charging infrastructure as the main challenges for converting the trucking fleet.

"Sustainability is clearly on the industry's radar," said White. "Companies were able to find some ways to make a dent on emissions by addressing some of the low-hanging fruit, but it's becoming more challenging to make a meaningful difference."

There are some provisions in legislation passed in recent years to financially support the adoption of lower-emission vehicles, and companies are expected to take advantage of them.

STRATEGIC COMBINATIONS

The challenges of the industry have inevitably led to layoffs and many business failures, with the bankruptcy of Yellow Corporation last August being a notable example. ▸

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Dennis White,
Vice President, brokerage,
Crowley

Even though the nearly 100-year-old carrier had been struggling for years, a soft freight market, high interest rates and labor disputes forced the company to liquidate.

But the distress of some meant opportunity for those with healthy balance sheets following the bounty of the 2021-2022 market. Yellow's portfolio of assets included approximately 12,000 tractors, 35,000 trailers and 170 terminals, and several transportation and logistics companies lined up to bid for them.

In 2023, strategic transactions accounted for the lion's share of mergers and acquisitions in transport and logistics, even if the overall volume of transactions was down from 2022.

M&A deals in the sector rose 22.2% to 253 in the fourth quarter, compared with 207 deals in the previous quarter, but were down from 273 deals completed in the fourth quarter of 2022, according to R.L. Hulett, a middle-market investment banking firm.

At the same time, the weak market and high cost of borrowing are dampening private equity's appetite for ▸

deals. Private equity firms were involved in 30.8% of the sector's M&A transactions in 2023, but made up 63% of the total capital invested in the sector in 2022[2].

"It's a challenging time because companies are struggling from a profitability perspective, but it is a good time strategically to look at mergers because there are likely assets selling at a discount at the moment," said White.

DRIVERS WANTED

While the market works itself back to balance, many in the industry remain concerned about a shortage of drivers that has prevailed for years, recent uptake of the profession notwithstanding.

Many people were attracted to driving trucks during the peak of the pandemic, when loads were abundant and drivers could command higher fees. Although that trend is reversing – more carriers are exiting the market than are seeking to start a trucking business – analysts at Freightwaves and FTR Transportation Intelligence say there are still approximately 90,000 more for-hire trucking operations in the U.S. than there were in pre pandemic.

These firms track the government's registry of operating authorities issued to commercial carriers to assess trends in transportation capacity. By contrasting the number of new permits against the revocations by the Federal Motor Carrier Safety Administration, they chart changes in active trucking operations. Although these businesses can be as small as one truck or as large as thousands of trucks, the vast majority are operations with fewer than 10 trucks.

According to an FTR report in early March, the net decrease in carriers' authorities to operate was 3,595 in January, and 799 in February, the smallest drop since June 2023.

Despite the smaller drop, the number of trucking operators has been declining steadily for more than one year.

Although layoffs and a depressed market translate into more drivers immediately available for work, there is a deficit in the long run, according to White. An aging workforce, a minimum age requirement for commercial driving across state lines, time away from home, and lack of diversity are behind the nagging worry about a shortage of drivers.

"A driver needs to be 21 to operate on long-haul routes, but by then most young people have charted their career path," said White. ▸

$54,320

Median annual wage for heavy/tractor-trailer truck drivers in 2023

Source: U.S. Bureau of Labor Statistics

46

Average age of a commercial truck driver in the US

Source: American Trucking Associations

241,200

Estimated openings for truck drivers each year

Source: U.S. Bureau of Labor Statistics

2. R.L. Hulett

A driver's age can also impact the cost of insurance, as older drivers with a track-record of safety can vouch for their responsible driving. New technology, such as electronic logs and cabin cameras, can provide an accurate record of a driver's behavior, but a study in 2022 found that almost a quarter of carriers were reducing investment in safety training and technology to counter higher insurance premiums.

Driver shortage ranked fourth as a top three concern for the industry in the 2023 ATRI survey, down from second in 2022, reflecting the soft market conditions. Between 2017 and 2021, though, it was the issue most frequently ranked as a top three concern in the survey.

The cyclical issues in trucking are intrinsically linked to economic activity – after all, trucks move about 73% of all land-based freight by weight in the U.S., according to the ATA. As GDP growth continues quickly despite the high interest rate burden, trucking freight rates will begin to reflect the expansion, even if the growth trajectory will be bumpy at times.

Read more

Commitment to sustainability

First all-electric, ship assist harbor tugboat in the U.S., delivered in San Diego

Phil Shook appointed to lead new business unit Land Transportation Services

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