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he name of the game is network optimization. That's logistics-speak for the intense re-evaluations that supply-chain managers are conducting in the face of soaring fuel costs that many believe are here to stay.

Energy costs have hit supply chains hard, but in a perverse way, they could benefit companies by encouraging them to squeeze more efficiency and long-term sustainability from their distribution networks.

While the pass-through approach is in play in a big way to offset high energy costs, other strategies are coming into focus to help bolster shrinking profit margins.

Companies are pooling equipment and loads, moving full container and truckloads, and going to alternative transportation modes — especially rail — while trying to optimize inventory by finding the right mix of warehouse and distribution locations. Shippers are trying to ensure that containers are fully loaded, and they're using more cross-docking and intermodal rail.

"A variety of things are happening," said Roger W. Woody, general manager of transportation and logistics at Embarq Logistics in New Century, Kan., and chair-elect of the Council of Supply Chain Management Professionals.

BY BILL DIBENEDETTO

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COVER STORY

Companies are opting for slower vessel and truck speeds and various fuel-saving technologies. Trucks and handling equipment are being equipped with automatic shutoffs to prevent excessive idling.

Wal-Mart, which recently put the construction of new distribution centers on hold, is pushing to achieve its goal of doubling the fleet's fuel efficiency by 2015. Trucks are being equipped with speed governors and auxiliary power units and are being given daily tire-pressure checks.

"We want to make the most efficient use of our existing distribution centers," said Kevin Dyer, Wal-Mart's regional transportation director. "We need to move from incremental improvements to transformational improvements." The retailer's goal is to eventually use 100 percent renewable energy and to create zero waste.

Woody said companies are finding ways to pass on the cost of fuel. "At \$140 a barrel, the longer-term strategy is how you operate when that is the norm," he said. While oil may eventually stabilize at a lower price, he said, "It certainly won't go back to \$30 a barrel, and we have to understand how that impacts our businesses and find ways to handle that."

There's been considerable talk about consolidating warehouse and distribution centers, but few companies have taken that long-term step. Reducing the number of DCs "is quite an interesting idea, but there's not a clear consensus on which direction to move on that," Woody said.

Kate Vitasek, managing partner of Supply Chain Visions, a Bellevue, Wash., consulting firm, said that, while there's movement in this direction, the decision varies according to each company's size and situation.

"Companies are doing more network optimizations to help them make the smartest warehouse location and transportation cost tradeoff," she said. "Smaller companies with one or two ware-

houses located far apart might want access to more warehouses in order to cut transportation distances and driving times. The big companies, meanwhile, might want a smaller number of warehouse and distribution centers to maximize their truckloads. It's a trade-off to optimize location, higher inventory and transportation."

Inventory is a key issue in designing and operating a supply chain. For years, logisticians have concentrated on minimizing inventory costs by moving goods through the supply chain as rapidly as possible. Now, rising fuel costs are prompting some companies to think about keeping more inventory on hand, but not all are ready to take that step.

"I don't see anyone extending safety stock yet in the domestic market," said Ron Cain, chief executive of third-party logistics provider TMSi Logistics, based in Portsmouth, N.H. "Carrying high inventory has a detrimental effect on cash flow, working capital and carrying costs."

Vitasek agreed that there is a trade-off in balancing higher inventory costs against rising transportation and fuel costs and determining exactly where those lines cross.

"Network optimization can determine that calculation through mathematical models," she said.

"We're coming to grips with that calculation now," Woody said. The issue is when to pull the trigger on fundamental changes, he added. Then the vital questions become what should be done and how to do it.

Kimberly-Clark, the Irving, Texas-based maker of Kleenex facial tissue, Huggies, Scott paper towels and many other health and hygiene brands, began to address those questions about four years ago, when it started a project to update its supply chain. The primary goal was "customer-centric, to improve customer service," said Mark Jamison, vice president of customer



service at Kimberly-Clark North America. "The second goal was to fashion a lower-cost network."

The company examined its physical distribution network, which comprised 70 mill and plant distribution centers," Jamison said. Each manufacturing location had multiple warehouses, and many were not located near major markets.

"So the intent was to streamline the distribution network," he said. "We saw that we needed to change how we looked at our physical distribution network, and it became an opportunity to reduce costs and simplify the network."

Today Kimberly-Clark has reduced those 70 facilities to nine "regional mega-centers" that are lo-



cated close to its key retail customers and markets. The change enables the company to reach 90 percent of the North American population within eight hours, Jamison said.

The nine regional distribution centers are located at Chicago; Scranton, Pa.; Atlanta; Graniteville, S.C.; Dallas; Redlands, Calif.; Kansas City, Mo.; Conway, Ark.; and Seattle.

"As we have seen the cost of oil increase and its significant impact on distribution expenses, the decision to consolidate and streamline the network has become a real positive," Jamison said. "Our inventory is no longer scattered among many manufacturing and distribution centers."

Kimberly-Clark figures that last year, the network restructur-

ing saved 473,000 gallons of fuel and decreased the number of miles driven from distribution centers to customer locations by 2.8 million.

The company is looking into increasing its use of trailer-on-flatcar rail moves. TOFC saves 130 gallons of fuel per 1,000 miles, Jamison said.

Another initiative that Kimberly-Clark recently began will move some 22 co-packaging facilities into the regional distribution centers over the next 18 months. Under the current system, the company has to move its product from the manufacturing and distribution plant to the co-packer and then ship them back to the distribution center for shipment. "This will eliminate moving the same product twice,

and it eliminates the costs of shipping to the co-packer and the additional material-handling costs," Jamison said.

Are companies such as Kimberly-Clark and Wal-Mart showing the way with a less-is-more warehousing and distribution approach?

"I can't speak for the entire industry, but when I talk to my peers, I hear that many are rethinking about how they go to market and how they can become more efficient," Jamison said.

"We've always had to manage around transportation costs, but that expense variable has become much more significant," said Rich Thompson, senior vice president of supply-chain consulting at Staubach Co., a real estate, professional services and supply-chain consulting firm. "Fuel is up 40 percent since last year, and this is not a blip. We're getting killed on fuel; it won't go away any time soon, and companies are looking at their options."

Companies are "looking hard at how they can better utilize alternative modes of transport. Companies are really looking closely at network strategy and optimization, how many distribution centers they ought to have and where they should be located. A network strategy is essential to get freight costs down and get closer to the customer," Thompson said.

"Companies have to become more sophisticated in pooling loads and optimizing loads," he said. "I don't hear anyone saying that things will go back to \$3 a gallon any time soon. I don't know of anyone who thinks this is temporary. That's why the strategic re-evaluations are going on." ♦

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