

# CASE STUDY: USING BIOFUELS IN TOWAGE TODAY

CUSTOMER	LOCATION	CAT DEALER	PRODUCT	INDUSTRY	SOLUTION
Svitzer	London, UK & Rotterdam, Netherlands	Finning UK & Pon Power Netherlands	Cat 3516C & C4.4	Tug	Biofuels

## SVITZER & CATERPILLAR TEAM UP TO TEST 100% BIOFUEL OPERATION

Svitzer, the world's largest tug operator with a global fleet of over 460 tugs and operations spanning more than 30 countries, has introduced Svitzer EcoTow. A towage solution that relies on a fleet of Cat® powered tugs operating on 100% biofuels.

"Sustainability and decarbonization are at the forefront of our business operations and, increasingly, our customers' expectations," says Gareth Prowse, head of decarbonization at Svitzer. "We take our responsibility seriously and are committed to creating a carbon-neutral tug and towage sector."

### FUELING THE FUTURE

Svitzer's decarbonization strategy is three-pronged. First is behavior, focusing on actions to help crews enhance scheduling and operational efficiency across the company's 460-vessel fleet. Second is equipment, powered in many instances by engine connectivity and performance monitoring from Caterpillar that helps improve vessel efficiency and optimize fuel use.

Third is the fuel itself.

"We're looking for opportunities by exploiting the fuels that are available today," Prowse says. "What we learn from EcoTow will enable us to take these products to the rest of our fleet with confidence. We want to make investments now and put vessels on the water that provide fuel flexibility into the future."

To gauge the feasibility of operating a fully biofuel-powered fleet, Svitzer and Caterpillar worked together to conduct two EcoTow pilots. The first kicked off in London in late 2021 with five vessels, each with two Cat 3516C main engines plus two C4.4 auxiliary engines. All 10 engines operate on 100% hydrotreated vegetable oil, or HVO.

"The Caterpillar team was very responsive when we reached out about this HVO pilot," says Sven Lumber, head of Svitzer EcoTow. "Their support enabled it all to happen on the Cat tugs extremely quickly."



## PERFORMANCE ON TRIAL

Operating Cat engines on biofuels isn't a new concept. Caterpillar has been researching their use for more than a decade and published marine usage guidelines for renewable diesel (HVO) and biodiesel (fatty acid methyl ester - FAME) in 2021. But the EcoTow pilot gave both Caterpillar and Svitzer an opportunity to study the effects of biofuel use firsthand — not just on the engines themselves but also on Svitzer's total cost of ownership.

"These engines are running on 100% biofuel, which is quite different from running on a blend," says Andres Perez, Global Tug Strategy Manager at Caterpillar. "We worked hand in hand with Svitzer to understand the potential challenges that can come with handling a new fuel."

That included monitoring fuel quality, fuel cleanliness, load response and overall engine health. Caterpillar also provided special maintenance recommendations and guidelines on what to look for to identify and address any abnormal component wear.

"We put in place a special maintenance plan that allows Svitzer to look at parts wear as well as the condition of filters, gaskets, hoses — the kind of components that could be affected by exposure to a fuel other than diesel," Perez says. "We wanted to make sure we caught any trends early on related to the overall health of the engine."



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-GARETH PROWSE,  
HEAD OF DECARBONIZATION  
AT SVITZER

## NEW PORTS OF CALL

Svitzer has since expanded the use of HVO in its tugs throughout the UK. "We've only seen very positive signs from HVO so far" says Lumber.

Given that success, Svitzer embarked on a second EcoTow pilot, this one in the Netherlands. There, two vessels — also powered by two Cat 3516C main engines and two C4.4 auxiliary engines — are operating on 100% FAME. With Caterpillar's help, Svitzer is looking to compare the qualities and performance of FAME with those of HVO.

"The availability and price of HVO and FAME vary around the world," Perez says. "Both could be a solution in different locations. Understanding the impact of different types of biofuel used in tugs over periods of time will allow Svitzer to make the best choice no matter where they're operating."

## BIOFUELS, TODAY

Svitzer's sustainability goals motivate it to use fuel with decreased carbon intensity. While biofuels do not significantly reduce greenhouse gas emissions at the point of combustion, they can reduce the fuel's lifecycle emissions, which provide an opportunity to support lower carbon intensity in the maritime industry.

"Collaborations like this one with Caterpillar are helping us find practical solutions we can deploy at scale," Prowse says. "We haven't got time to wait. Our three strands — behavior, equipment and fuel — give us opportunities to drive change for the near future and to invest in solutions for the much longer term as well. We're doing everything we can to facilitate change in the maritime industry."

The launch of EcoTow is enabling Svitzer to make that change a reality now, leading the way for the industry's wider adoption of alternative fuels.

"It's been really rewarding to expand these pilots into something that we can take to our customers," Prowse says. "This is not just talk or an aspiration. We can show that we've employed biofuels, which has a decreased carbon intensity."