TRANSPORT

Boosting fleet efficiency while reducing CO_2 emissions for a major postal freight provider

Reducing carbon emissions is a key business focus, but heavy freight providers still need to operate large, predominantly Euro 5 Diesel fleets for long-haul trips. Ampol worked with a major Australian postal freight organisation to optimise fleet fuel efficiency while decreasing CO_2 & CO emissions, using Amplify Diesel.

The Mission

Heavy vehicle manufacturers have introduced advanced high-pressure common rail injection systems, exhaust gas recirculation (EGR), diesel oxidation catalysts (DOC), diesel particulate filters (DPF) and selective catalytic reduction (SCR) systems to meet stricter emissions regulations.

The optimum operation of these integrated systems is critical to maintaining the fuel burn and emissions characteristics of the complex, heavy-duty engines powering Australia's road freight haulage fleet.

The drawbacks of regular diesel
Regular diesel allows deposits to form on the tips and inside fuel injectors. This affects fuel flow and combustion – leading to reduced engine performance, increased fuel consumption and emissions, and reduced efficiency and longevity of emission control systems.

A third-generation fuel tested under controlled conditions
Ampol developed Amplify Diesel in Australia to help keep heavy-duty engines running clean. Additives in Amplify Diesel work to remove the deposits, restoring the engine to full performance specifications and efficient emissions control.

To quantify its fuel efficiency and emission-reducing qualities, we tested consumption and emissions in an in a Volvo 540 Euro 5 prime mover – on the road and at Melbourne's Automotive Centre of Excellence (ACE).

The Action

The test truck was fitted with high-precision mass flow fuel meters to accurately measure fuel consumption. Emissions were measured by a Euro 6 certified Portable Emission Measurement System (PEMS).

The Trial
We collected baseline data using the ACE facilities, filling the truck with regular diesel only and conducting eight Composite Urban Emissions Drive Cycle (CUEDC) runs. After baseline data, the fuel tank received a single dose of Ampol Amplify Diesel HD Injector Cleaner to accelerate the cleaning process.

Amplify Diesel was used from the depot bulk tank for three weeks. To maintain consistency, the truck kept the same drivers, covered similar mileage and worked under similar load conditions. The truck returned to ACE in week four to repeat the same testing under the same conditions.

The Result

The customer reported an initial on-road fuel consumption decrease via the vehicle ECU after the single dose of Ampol Amplify Diesel HD Injector Cleaner and three weeks using Amplify Diesel.

Emissions testing at ACE confirmed:

3% decrease in fuel consumption

2.3% CO_2 reduction

9.7% CO reduction

"We use over 42 million litres of fuel annually. This year, we looked for ways to reduce our fleet fuel consumption by working with AMPOL on an independently managed trial of their additised diesel fuel. Switching one of our largest trucks from regular diesel to the additised diesel resulted in a 3% decrease in fuel consumption. We have now introduced this additive into all bulk tanks across the Australia Post and StarTrack fleet and estimate a saving of 700,000 litres in fuel per year[1]."

- Customer

The Bottom Line

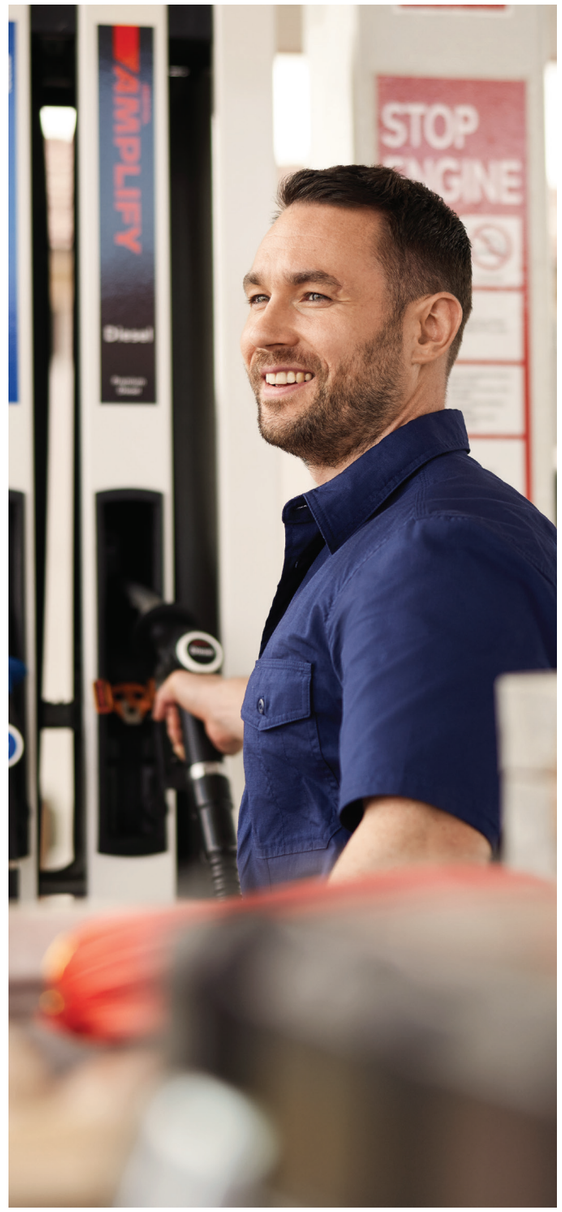
Amplify Diesel decreased fuel consumption and CO_2 & CO emissions, with long-term benefits for peak engine performance on Australian roads.

- Fuel efficiency improvement of up to 3% with cleaner fuel injectors
- Decreased emissions of 2.3% carbon dioxide and 9.7% carbon monoxide reduction

Amplify Diesel also delivers long-term benefits not specifically measured in this trial, including:

- Corrosion inhibitors in the fuel protect the engine from the formation of abrasive rust particles
- Foam inhibitors in the fuel allow for faster and cleaner refuelling
- Demonstrated CO_2 emissions reduction makes some customers eligible to earn Australian Carbon Credit Units (ACCUs).

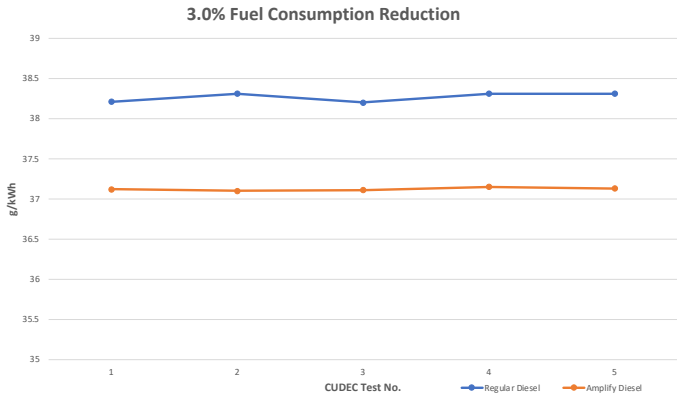
A similar trial with a Volvo 540 prime mover[2] showed a 10% reduction in Diesel Exhaust Fluid (DEF e.g. AdBlue®) usage after switching to an Amplify Diesel variant. DEF consumption is linked to fuel consumption and is potentially influenced by engine load and environmental conditions.



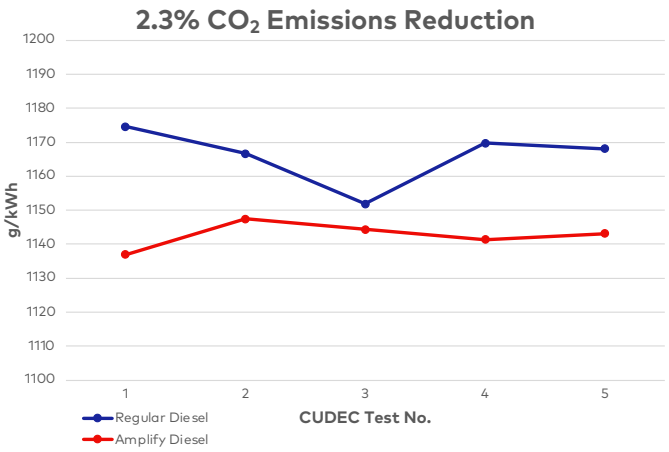
Choose Amplify Diesel.

Appendix

1. Amplify Diesel Trial (Fuel Consumption g/kWh)



2. Amplify Diesel Trial (CO_2 Emissions g/kWh)



3. Raw Data

	RUN NO	1	2	3	4	5	AVERAGE	% DIFF
TEST	FUEL							
FUEL CONSUMPTION (G/KWH)	REGULAR DIESEL	38.21	38.31	38.2	38.31	38.31	38.27	-3.0%
	AMPLIFY DIESEL	37.12	37.1	37.11	37.15	37.13	37.12	
CO_2 EMISSIONS (G/KWH)	REGULAR DIESEL	1174.61	1166.67	1151.89	1169.78	1168.14	1166	-2.3%
	AMPLIFY DIESEL	1136.95	1147.47	1144.38	1141.38	1143.13	1140	
CO EMISSIONS (G/KWH)	REGULAR DIESEL	2.55	2.93	3.48	3.29	3.22	3.10	-9.7%
	AMPLIFY DIESEL	2.29	2.65	2.87	2.94	3.23	2.79	

[1] Australia Post 2022 Annual Report p58.

[2] 2019 Volvo 540 Log Haulage trial Jan-Feb 2022. After switching to Amplify Diesel for three weeks, the customer captured and provided data on AdBlue usage.

® Registered trademark of the Verband der Automobilindustrie e.V. (VDA).

Note that all the results may vary depending on the engine itself, environmental conditions, and other factors such as variability in engine load factor and driver's behaviour.