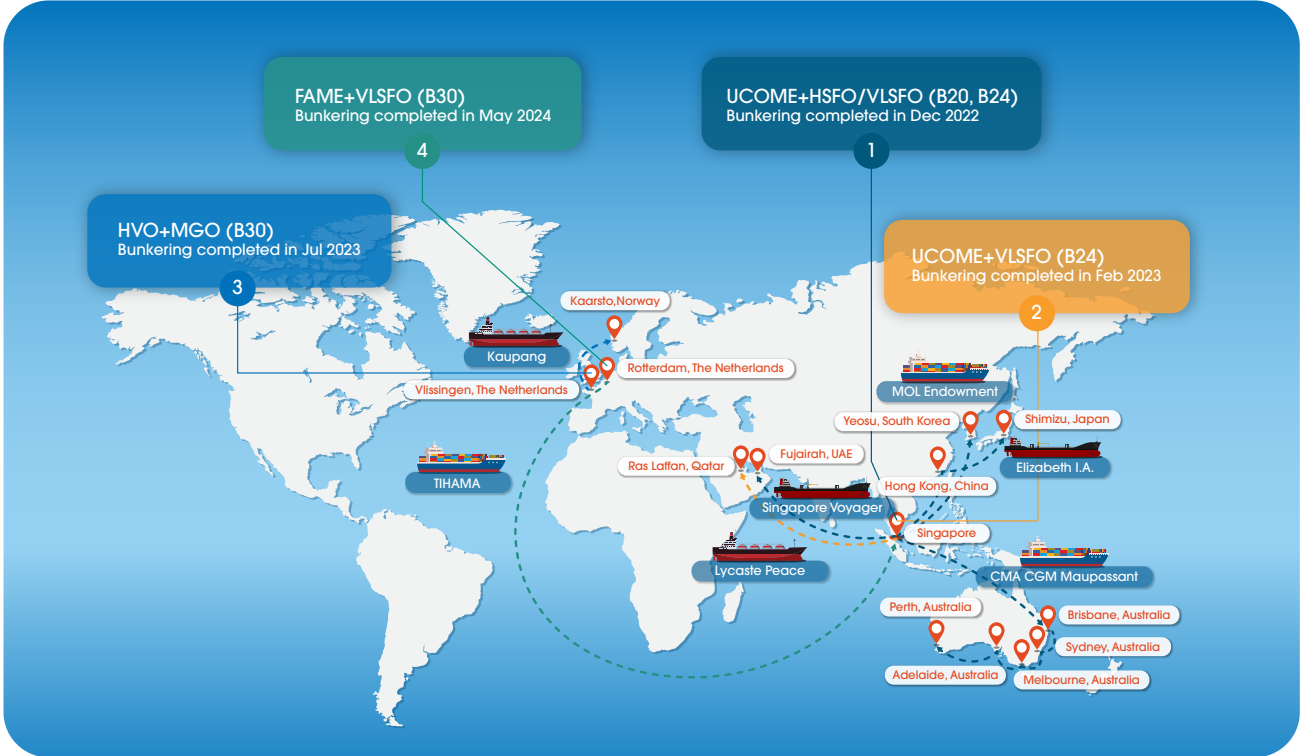


# GCMD's biofuels end-to-end supply chain trials

In July 2022, GCMD initiated a pilot to develop an assurance framework to guide the use of biofuels in shipping. This framework will safeguard key aspects of biofuels use, including:

- **Traceability:** A diverse range of tracer technologies, including synthetic DNA and element-based tracers, and tracing techniques were developed and deployed in these trials.
- **Quantity:** The pilot uses ISO and ASTM standards to quantify biofuel content in blends. Additionally, tracers were used to verify the expected concentrations of sourced biofuels throughout the supply chain by sampling and testing at designated sampling points.
- **Quality:** Chemical analyses indicate no degradation of FAME under commercial operations conditions.
- **GHG emissions abatement:** Using these biofuels have reduced GHG emissions by 24% on a tank-to-wake basis and 20.3% on a well-to-wake basis compared to using conventional fossil fuels across all four trials.

GCMD's framework to provide quality, quantity and emissions abatement assurance is scheduled for release in the fourth quarter of 2024.



	Supply chain trial 1	Supply chain trial 2	Supply chain trial 3	Supply chain trial 4
<b>Bunkered location</b>	Port of Singapore	Port of Singapore	Port of Vlissingen	Port of Rotterdam
<b>Date of operations (from sourcing and blending fuels to bunkering to the consumption of fuels)</b>	Oct 2022 – Apr 2023	Dec 2022 – Feb 2023	Jul 2023 – Oct 2023	May 2024 – Aug 2024
<b>Volume bunkered</b>	3,500 MT of B24 (UCOME+VLSFO) bunkered to 2 vessels 1,000 MT of B20 (UCOME+HSFO) bunkered to 2 vessels	200 MT of B24 (UCOME+VLSFO)	200 MT of B30 (HVO+MGO)	4,500 MT of B30 (FAME+VLSFO)
<b>Vessel details</b>	Vessel name: CMA CGM Maupassant Vessel type: Container Ship  Vessel name: MOL Endowment Vessel type: Container Ship  Vessel name: Singapore Voyager Vessel type: Crude Oil Tanker  Vessel name: Elizabeth I. A. Vessel type: Crude Oil Tanker	Vessel name: Lycaste Peace Vessel type: LPG Tanker	Vessel name: Kaupang Vessel type: LPG Tanker	Vessel name: TIHAMA Vessel type: Container Ship
<b>Project partners</b>	CMA CGM ONE Chevron Angelicoussis	NYK Astomos Energy Corporation	EPS	Hapag-Lloyd
<b>Marine fuel supplier</b>	Chevron	TotalEnergies Marine Fuels	GoodFuels	bp
<b>Tracer solutions provider</b>	BunkerTrace	BunkerTrace	Control Union and IDS	Authentix
<b>Tracer technology</b>	Synthetic DNA	Synthetic DNA	Element-based	Organic compound-based
<b>Surveyor and fuel test lab</b>	VPS			
<b>Other tracing techniques explored</b>	The pilot has also developed fingerprinting methodology, evaluated lock-and-seal and automatic identification systems (AIS) as solutions to ensure the integrity of the biofuels supply chain.			