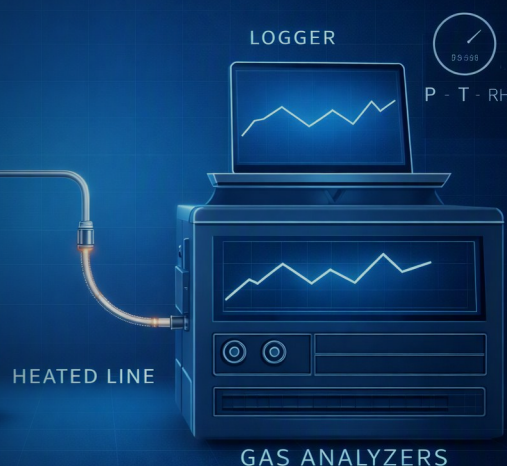


Methane slip: default factor or measured value?



Relevant for ship owners, managers and engine designers of LNG and dual-fuel ships.

13 October 2026

For LNG-fuelled ships, the methane that slips through the engine now counts in the GHG figures. You can report it with a conservative default factor, or measure what your engine actually emits.

What methane slip is

In a gas or dual-fuel engine, a small part of the methane in the fuel leaves the engine unburnt. That is methane slip. The amount is small compared with the fuel used, but methane is a far stronger greenhouse gas than CO₂, so it weighs heavily when emissions are reported as CO₂ equivalents.

Methane slip applies to methane-containing fuels such as LNG. A methanol engine has no methane slip, but unburnt methanol and formaldehyde can be relevant to measure.

MEPC.414(84)

The IMO guidelines for measuring methane (CH₄) and nitrous oxide (N₂O), onboard or at your test bed.

What the rules say

FuelEU Maritime uses default methane slip factors for each engine type. These defaults are conservative. FuelEU also allows a certified, measured value to be used instead of the default.

The European Commission has published guidelines for reporting and verifying actual methane slip. They are not legally binding, but

they describe the route: measure the engine at several loads, monitor how the engine is actually loaded in service, and document it so that flag or the recognised organisation can approve it.

On the IMO side, MEPC.414(84) gives the guidelines for measuring methane (CH₄) and nitrous oxide (N₂O) from marine engines, onboard or at your test bed. It replaces MEPC.402(83). The reference method for methane is a heated FID with a non-methane cutter.

In the EU ETS, methane and N₂O are covered from 2026. Whether measured values can be used in MRV and ETS reporting should be agreed with your verifier.



FTIR analyzer onboard, used for N₂O, methanol and formaldehyde.

Why one number is not enough

Methane slip changes with load. At low load it can be higher, at higher load it can be lower. A single test point, or a test bed cycle, does not tell you what the ship emits on a real voyage.

That is why the measurement covers several load points, including the lowest load where the engine runs in gas mode. Combined with the vessel’s logged load profile, the measured curve gives a figure that reflects how the ship is actually operated.

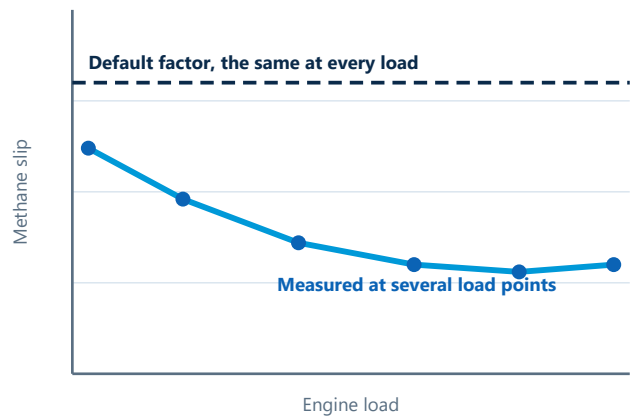


Illustration of the principle, not measured data.

Default factor or measured value

	Default factor	Measured value
Basis	A fixed value per engine type	What your engine actually emits
Load	The same at every load	Several load points, weighted by the logged load profile
Proof	None needed	A certified measurement, agreed with the verifier
Reduction	Not visible	Shown before and after tuning or a catalyst

Measure first, then decide

A measurement shows the real emission. With that in hand you can decide whether the measured value or the default factor serves you best, and whether the ship’s operating pattern supports the measured approach.

Either way, you know your figure, and it is one you can document and defend.

Reduce, not only report

The measured data is also the starting point for lowering the slip. Together with the engine designer, the results show where tuning can reduce it, within the emission limits.

If a methane catalyst is fitted, its effect can only be proven by measuring before and after.

What we recommend

Check whether the default factor fits your engine and the way your ship operates. Measure at the loads the ship actually runs, log the load profile, and agree the approach with your verifier before you rely on it.

Sources: Regulation (EU) 2023/1805 (FuelEU Maritime); European Commission, guidelines for reporting and verification of actual methane slip (October 2025); IMO resolution MEPC.414(84).
This note is general information and not legal advice. Check the current regulation text before you rely on it.

Contact

Talk to us before the scope is fixed. It is the cheapest point to get it right.

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