

Offshore Energy Law

LNG Consumption

Those familiar with conventional tanker time charters will be used to how the vessel's performance relating to speed and fuel consumption is monitored. The charterer provides the fuel and wishes to be reimbursed if the vessel, due to poor design, maintenance, operations or any matters within the owner's responsibility, fails to achieve the overall speed it should for the volume of fuel provided. The speed of the vessel may be calculated by time and observed distance, and the amount of fuel used each day can easily be ascertained by measuring the volume of fuel in the fuel oil tanks.

However, where the vessel uses as fuel gas boiling-off from the LNG cargo, the position, as ever with LNG, is not so simple.

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Measurement is straight-forward – the volume of fuel used is ascertained by gauging the quantity in the fuel tanks. However, these are the LNG cargo tanks. Gaugings cannot accurately be taken at sea, and therefore readings are taken immediately following loading and compared to the volume immediately before unloading. Thus, the total quantity of LNG lost as boil-off during the voyage may be calculated in this way, but not the quantity used on any given day.

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The most that may be achieved by this method would be to assume that LNG is lost as boil-off at a constant rate throughout the voyage, being the total volume lost divided by the time taken for the voyage. It could not be used to measure the additional consumption required, for example, during days of adverse weather.

The quantity of LNG lost as boil-off throughout the voyage does not of course represent actual consumption – it is a measurement of the boil-off that has occurred, not a measurement of what the main engine has consumed. If the vessel is idle or slow steaming, or if the boil-off generated is greater than required to achieve the warranted speed, the surplus boil-off gas would be burned as waste. It would nevertheless be treated as consumption, as the calculation of consumption would be by reference to the volume of boil-off generated, not the volume actually used. See for example the definition of consumption in ShellLNGTime2.Condition of Tanks on arrival at Load Port

The cooling down of the cargo tanks of LNG carriers prior to loading adds to the time necessary to load. For longer-term charterparties, it is generally easier for owners to keep the tanks cool and ready to load with minimal delays, as they will have more information about the vessel's itinerary.

In contrast, with vessels chartered for a single voyage, owners will not have the same information about the vessel's schedule. One solution adopted in Clause 5(a) of LNGVOY is to provide flexibility by giving three options for the presentation and

condition of the cargo tanks on arrival at the load port¹.

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This definition assumes either that the boil-off generated will be less than required for the ordered service, and therefore additional fuel will be needed, or that the vessel is ordered to proceed only at the speed that requires the volume of boil-off naturally occurring. (Charterers may have the option to request owners to "force" boil-off i.e. produce more than would naturally occur in order to have more fuel available to increase speed. However, such orders would operate outside the usual speed and consumption provisions.)

Difficulties arise if the boil-off naturally occurring is greater than the vessel requires for the ordered speed. The normal speed and consumption provisions would need to be amended to reflect this. However, if the reason for more boil-off being available than needed is the cargo tanks generate more than they should, owners would additionally be at risk of being in breach of the boil-off performance warranty. These normally provide that only a maximum amount should be generated each day, again based on the assumption that boil-off occurs at a constant rate throughout the voyage. The measurement of cargo lost as boil-off for the purpose of the boil-off warranty is the same measurement used for the consumption warranty.

Therefore, if an excessive volume of LNG is lost as boil-off during the voyage, the owners may be liable to compensate for this loss by way of breach of the boil-off warranty and also breach of the consumption warranty.

Obviously, owners would wish to ensure the performance provisions avoid such double compensation. This is the intention of ShellLNG Time1, and is expressly provided for in ShellLNGTime2. However, it should be noted that the owners' liability to compensate charterers for excessive boil-off and for excessive consumption is calculated at the end of the performance period,

which is usually at the end of each year. If the aggregate of either, taking account of both under- and over-performance, shows an excess, owners compensate charterers accordingly.

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However, there is no credit due to owners if the aggregate shows net over-performance, either for boil-off or consumption. Therefore, if the vessel does generate excess boil-off which charterers are able to use as fuel, thereby saving the additional cost of fuel oil during the performance period, owners would remain liable to compensate charterers for this excess boil-off without any corresponding credit for the fuel oil savings.

One final point may help explain why LNG carrier speed consumption and boil-off provisions may seem so complex. It may be reasonable to assume the volume of boil-off may be controlled during the voyage, and adjusted to meet the vessel's fuel demands. That is not so – a certain amount must be allowed to boil-off and be drawn consistently from the cargo tanks to avoid pressure build-up and to maintain the safe temperature. This is the natural boil-off that will inevitably occur, which the charterer makes available to the owners as fuel throughout the charter service, whether needed for propulsion or not.

Lastly, I am pleased to have recently co-authored the Intertanko Guide to LNG Chartering. If you are interested in ordering a copy of the book please do not hesitate to get in touch with our Business Development Manager Nicola Porter (nicola.porter@shlegal.com).



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¹ The options under Clause 5(a) are with tanks (i) cooled down and ready to receive cargo; (ii) warm, either under natural gas vapours or (iii) inerted.