CHAIN OF CUSTODY MODELS FACT SHEET

Tracking low-carbon marine fuels through the bunkering supply chain

SEA-LNG

What does Chain of Custody mean?

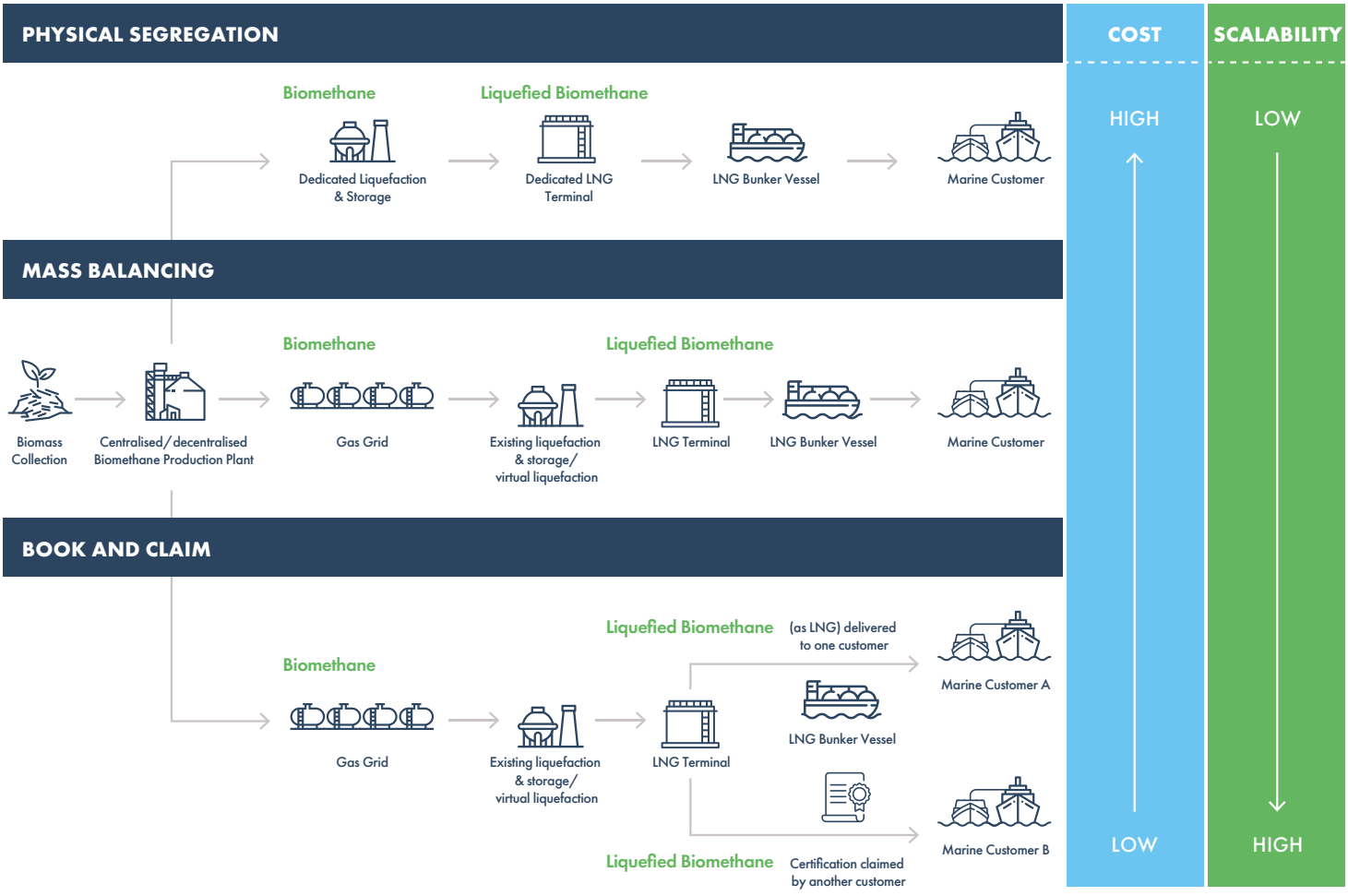
Chain of Custody refers to a transparent and verifiable way to track the greenhouse gas emission attributes of marine fuels throughout their lifecycle, from production to the end-use customer.

Why are chain of custody models important in decarbonisation?

Chain of custody models are important in maritime decarbonisation as they provide mechanisms to verify that the fuels used are low carbon. Such verification creates investor confidence in new fuel supply chains and accelerates the transition to low-carbon fuels, enabling early adoption in conditions of limited supply. They can create a market for green fuels by connecting buyers to fuel producers away from bunker ports enabling faster scaling and providing flexibility to shipping companies at lower cost.

What are the main chain of custody models being discussed in the maritime industry?

There are three relevant Chain of Custody models currently being discussed for low-carbon marine fuels such as liquefied biomethane (bio-LNG). These are Physical Segregation, Mass Balancing and Book & Claim.



What is Physical Segregation?

In the case of liquefied biomethane, Physical Segregation means that the biomethane molecule is produced, transported, stored, liquefied and delivered to the marine customer through a separate, dedicated infrastructure. The need for the supply chain to invest in this new infrastructure means that this is the most expensive way to supply liquefied biomethane and is also the most difficult to scale.

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Why is Physical Segregation used?	Physical Segregation is sometimes preferred because some stakeholders see it as a more tangible and easily verifiable approach. Some cargo owners with voluntary decarbonization targets require it depending on the voluntary frameworks that they have signed up to. For example, the Science Based Targets initiative (SBTi) guidelines currently do not recognise Mass Balance and Book & Claim chains of custody.
What is Mass Balancing?	Mass Balancing allows biomethane producers to sell their fuel into existing natural gas grids and allows fuel customers to purchase this biomethane from the grid via a certificate.
Why is Mass Balancing used?	Mass Balancing uses existing infrastructure to connect buyers and sellers. It is favoured by regulators as it is lower cost and enables the market for green fuels such as liquefied biomethane market for maritime to scale more quickly. Mass Balancing has also been successfully used in other sectors such the chemicals and plastics industry. A growing number of key jurisdictions accept Mass Balancing for biomethane, including the EU, USA and Canada and regulators are exploring it in countries such as Japan, China and Australia.
What is Book & Claim?	In Book & Claim the greenhouse gas emissions of a low carbon fuel such as biomethane produced by a supplier are 'booked' in a central registry, and customers can 'claim' them without any connection to the physical biomethane molecule. Book & Claim is analogous to the system of renewable energy certificates used in the electricity sector whereby the electrons produced by a wind farm, aren't necessarily the same ones powering a green consumer's light bulb.
Why is Book & Claim used?	Book & Claim is the lowest cost Chain of Custody model as it decouples greenhouse gas emissions from the physical supply chain. As it can connect buyers to sellers anywhere on the globe it is also the most scalable and flexible Chain of Custody system. Book & Claim is being used in the voluntary carbon markets. The International Civil Aviation Organization (ICAO) is considering the implementation of a Book & Claim system for Sustainable Aviation Fuels (SAFs) and the International Maritime Organization (IMO) is actively exploring the potential of Book & Claim systems for maritime.
What is needed for a credible chain of custody system for marine fuels?	A credible chain of custody system requires the following: • clear and verifiable standards for greenhouse gas emissions attributes of the marine fuel; • certification of fuel supply chains by certification bodies such as ISCC (International Sustainability & Carbon Certification); • robust tracking and traceability of fuels using digital certificates as they pass through the supply chain; • independent verification of compliance by third party auditors; • and full transparency and disclosure.