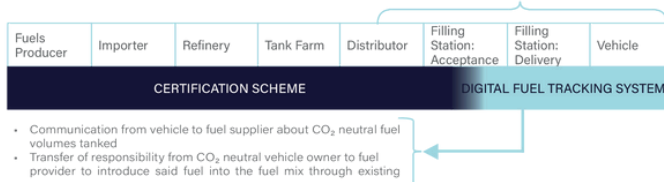


Option 11 – Combined – Upstream: mass balancing – Downstream: DFTS w/ Digital Handshake)

- Digital Software solution that enables transparency and auditability of CNFI volumes.
- Provides critical digital handshake to the vehicle to continue to operate
- If CNF vehicle tanks without a confirmation through a "digital handshake", the vehicle will not be able to operate and inducement system will be activated.



Description of Technology

This solution enhances Mass-Balancing methodology Option 9 by integrating a digital fuel tracking system. This system ensures that customers required to tank only CO₂ neutral fuels (CNF) transmit their fulfilment obligation through a digital system to the fuel supplier. This is done through a digital solution that safeguards the transparency, robustness, and auditability of the fulfilment obligation. Once the fulfilment obligation is transmitted at the retail station level through a Digital Tracking System to the fuel supplier, the fuel supplier acquires the mandate/obligation to bring the respective amount (Volume) of CNF into the fuel system either at the national or European level depending on how it is defined in the final regulation. This solution allows optimized fulfilment of the CNF obligation after 2035 without requiring extra investment in dedicated supply chains, thus maximizing the existing infrastructure.

The method emphasizes digital tracking to maintain the integrity of CO₂ neutral fuel claims. It ensures vehicles have an inducement system mechanism to monitor CO₂ neutral fuel usage. Customers opting for CO₂ neutral fuels are not guaranteed to receive the physical renewable product directly. Instead, the system ensures that an equivalent amount of CO₂ neutral fuel is supplied to the market as it's currently done for bio mandate based on REDII/REDIII, adhering to sustainability and environmental responsibility principles based on renewable energy directive-approved certification schemes.

While physical tracking offers conceptual clarity, mass balancing achieves the same end goal – verifiable carbon neutrality – while offering a crucial advantage: it removes CNF-specific infrastructure availability as a barrier. By decoupling carbon compliance from the physical fuel path, mass balancing unlocks the entire existing fuelling network immediately, allows CNF to scale fast, and ensures drivers can refuel anywhere without disruption.

It's a practical, future-ready approach that delivers environmental integrity while accelerating adoption at the pace the climate challenge demands. The combination with a digital software solution further enhances the robustness of the monitoring technology while taking full advantage of the existing infrastructure.

Customer & Retail Perspectives

Advantages:

- Flexibility
- High Scalability
- Low-cost barrier to entry
- Technology Availability and Fast Implementation
- Ease of implementation, wide network coverage and high customer acceptance
- Enhanced monitoring and flexibility mechanisms
- Mass balance already implemented across all member states and further integrated through the Union Database
- Regulatory geofencing capability

Disadvantages:

- Special attention regarding vulnerability to data latency and transmission failures necessary
- Increasing effort to reduce susceptibility to system failures by multi trust center approach
- Data privacy and GDPR compliance as for all digital systems demands special care
- Limitations in EU's external border fuelling flexibility if implemented without regulatory geofencing
- Limited Digital Infrastructure Availability Initially, which can be quickly implemented.

Regulatory Assessment

Upstream part: Mass balancing (See mass balancing in option 9).

Downstream part: Digital Fuel Tracking System (See DFTS in option 3 and 7).