

# Figures from Countdown Insight Brief: Establishing Default Emission Factors

Countdown to IMO NZF  
2026



**Mærsk Mc-Kinney Møller Center**  
for Zero Carbon Shipping

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# What does representative and conservative mean for DEFs?

Fig 1

DEFs need to be both representative and conservative

## Representative

Representative value reflects a fuel's typical emissions intensity

1. Collects specific primary data directly from industry stakeholders
2. Tests representativeness by cross-checking industry data against literature values



## Conservative

Conservative value acts as safety margin by adding a risk adjustment to the fuel's typical emissions intensity

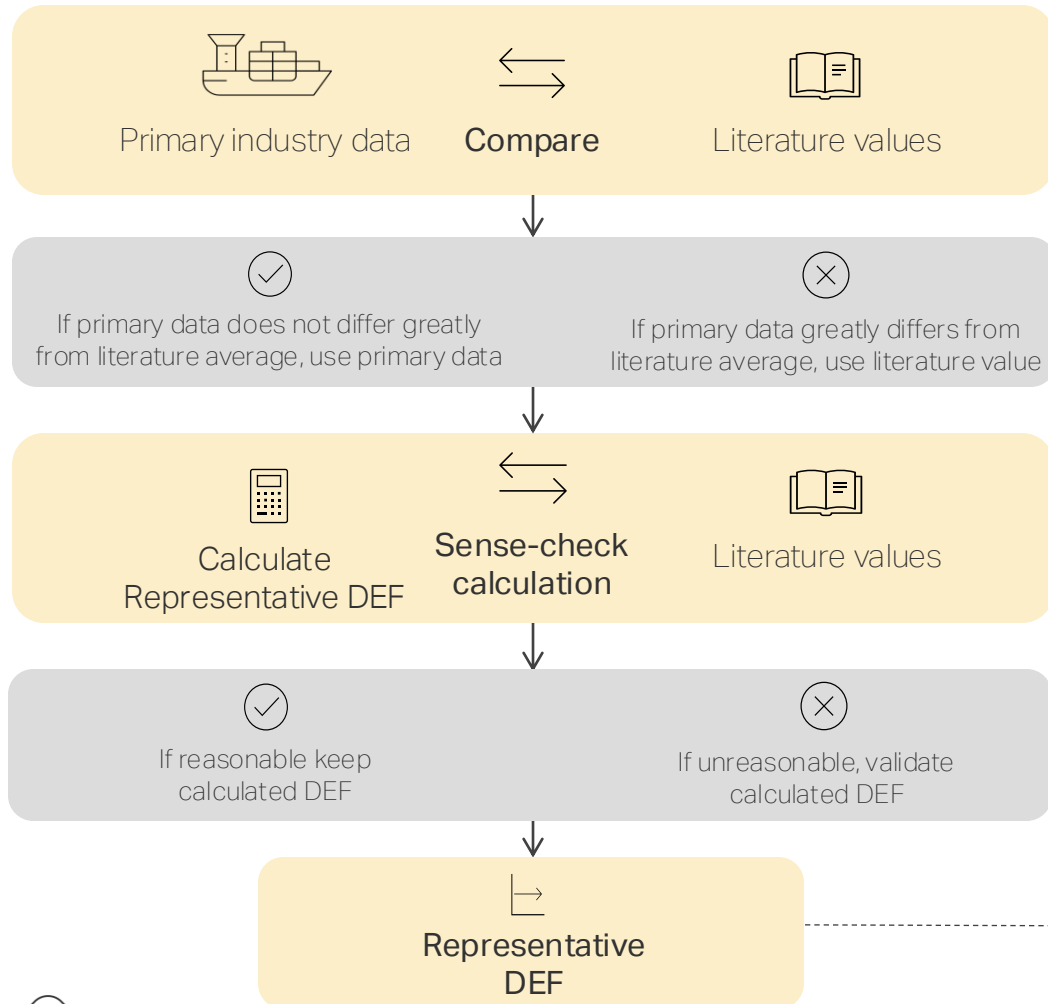
1. Accounts for uncertainty and variability in the data to avoid understating the true GHG intensity using Monte Carlo
2. Achieved by adding the standard deviation to the representative value



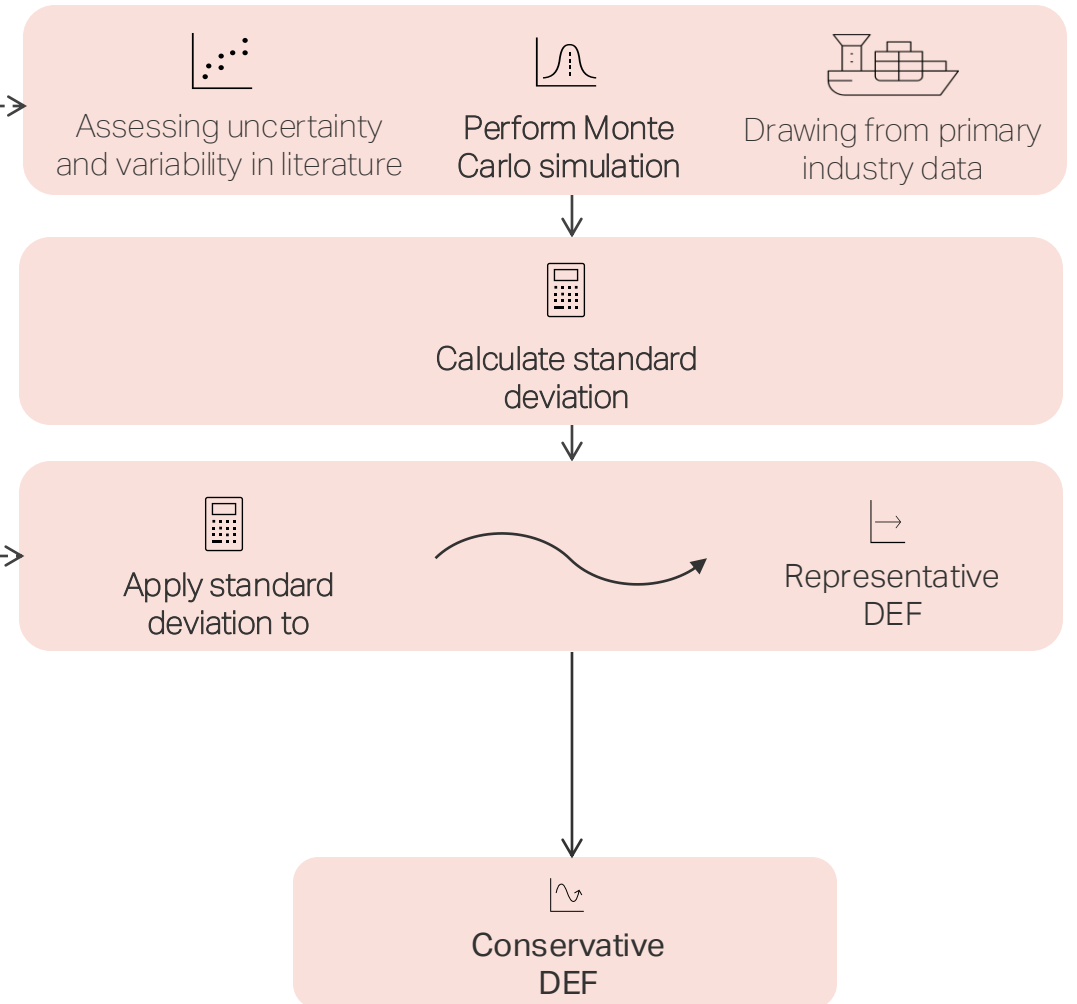
# Statistical benchmarking: Step-by-Step

Fig 2

## Solving for representativeness

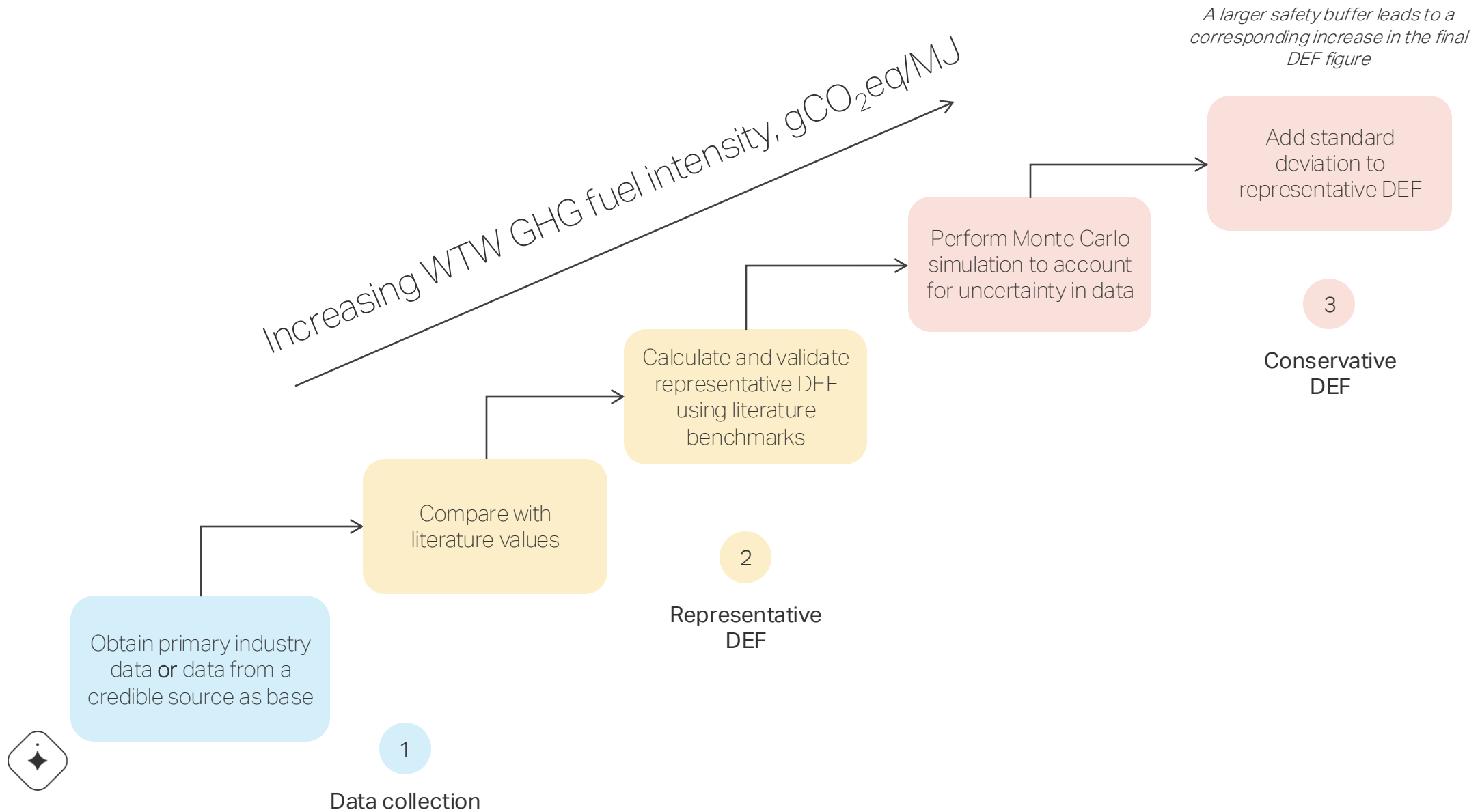


## Solving for conservativeness



# Going from representative to conservative

Fig 3



# Method limitations and opportunities for improvement

Table  
1

Characteristic of the method	Limitation(s)	Opportunities for improvement
Based on available industry data and literature	Results depend on data breadth and quality	Prioritize ongoing data collection and regular updates
Statistical approach	Can smooth over rare outliers or inherit bias from input assumptions	Periodically review input data Clearly document assumptions
Dual reporting of representative and conservative values	May add complexity for stakeholders	Develop guidance and communication tools to ensure the method is accessible



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