How it was thought to work

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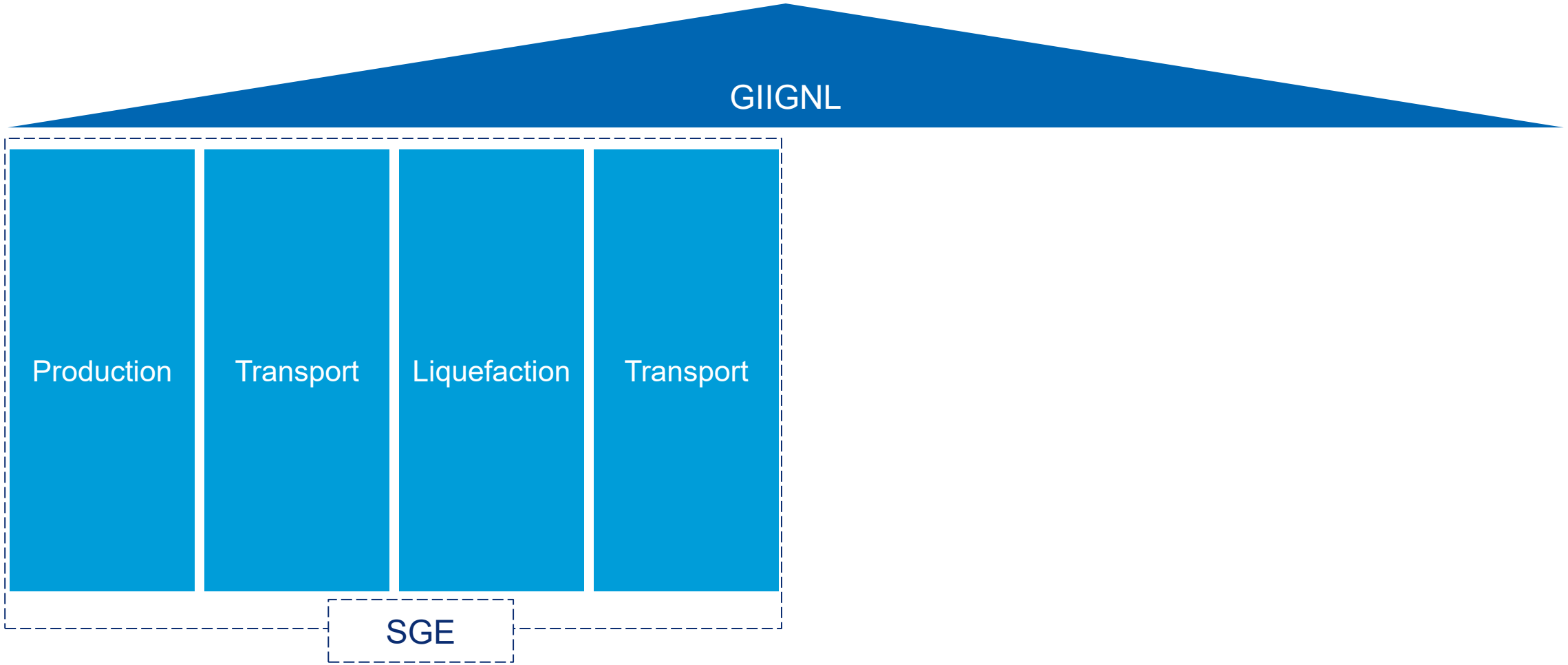

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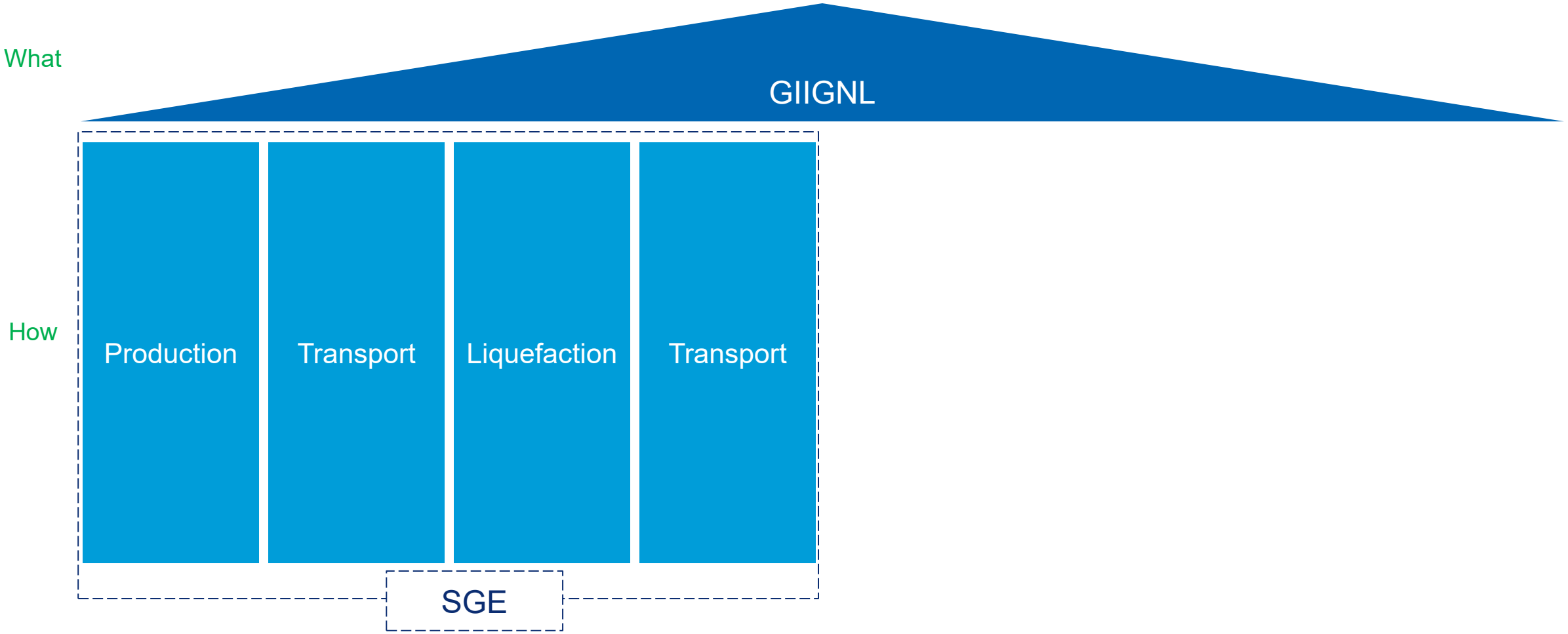

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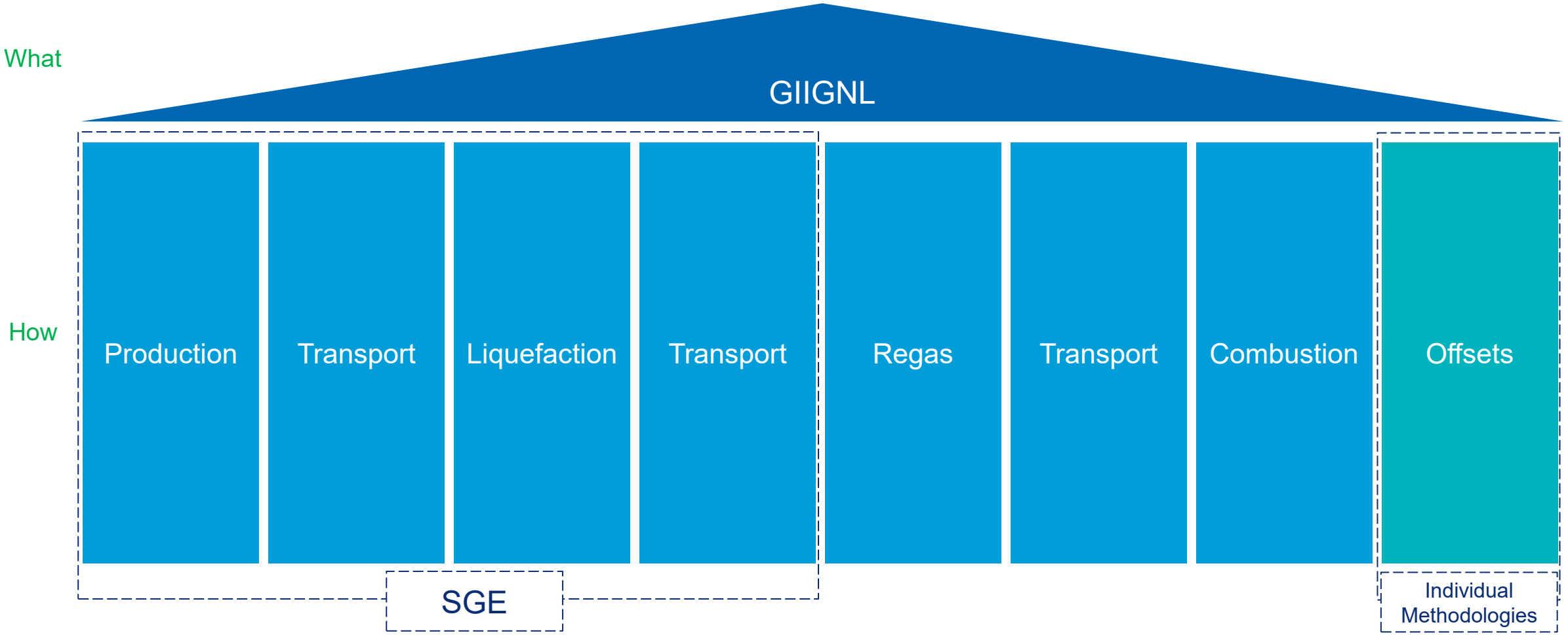
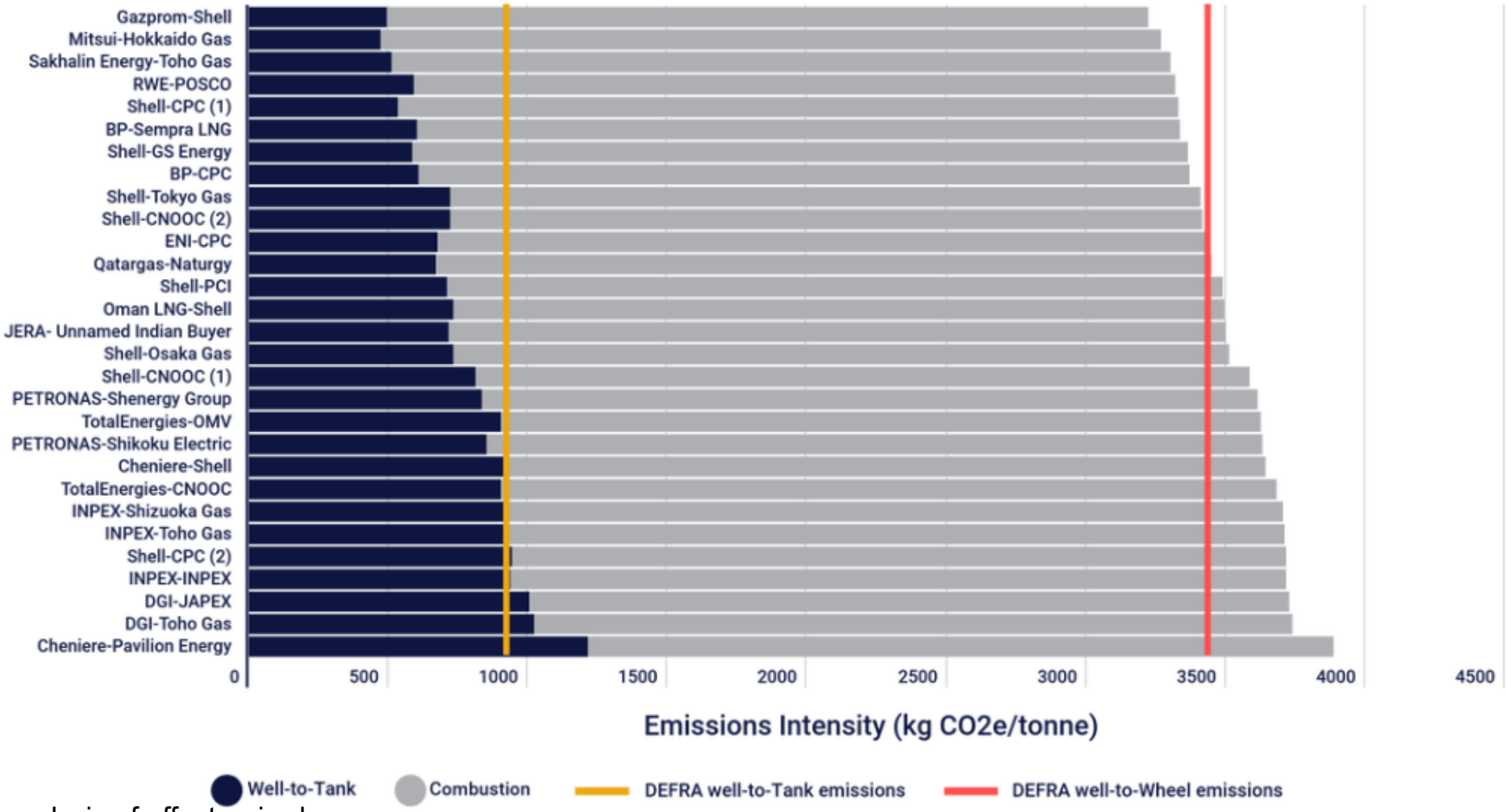


Comparison of LNG footprint methodologies

	SGE Methodology	GIIGNL Framework	ISO6338
Standard?	Yes	No	Yes
GHG included	CO_2, CH_4, N_2O	CO_2, CH_4, N_2O	CO_2, CH_4, N_2O
GWP	Most recent	Most recent	Operator selection
Physical Boundary			
Wellhead	x	x	x
Processing	x	x	x
Pipe	x	x	x
Liquefaction	x	x	x
Shipping	x	x	
Ballast Voyage	x	x	
Regassification		x	
Pipe		x	
End Use		x	
Allocation Basis	Energy, and mass for non-energy products	Energy preferred, flexibility provided	Energy, and mass for non-energy products
Allocation Granularity	Process block, required	Most granular, recommended	Process block, required
Temporal Boundary - Production	12-month average	12-month average	Annual average
Temporal Boundary – Shipping	Cargo-specific	Cargo-specific	N/A
Reporting requirements	Yes, prescribed	Yes, prescribed	Limited
Parties Involved	Chevron, Pavilion, QatarEnergy	GIIGNL members	IOGP Members
External Verification	Required	Required	Recommended

GIIGNL and SGE developed in parallel: GIIGNL Framework developed to be the “what”, SGE developed to be the “how”

Performance differentiation is difficult without standardization



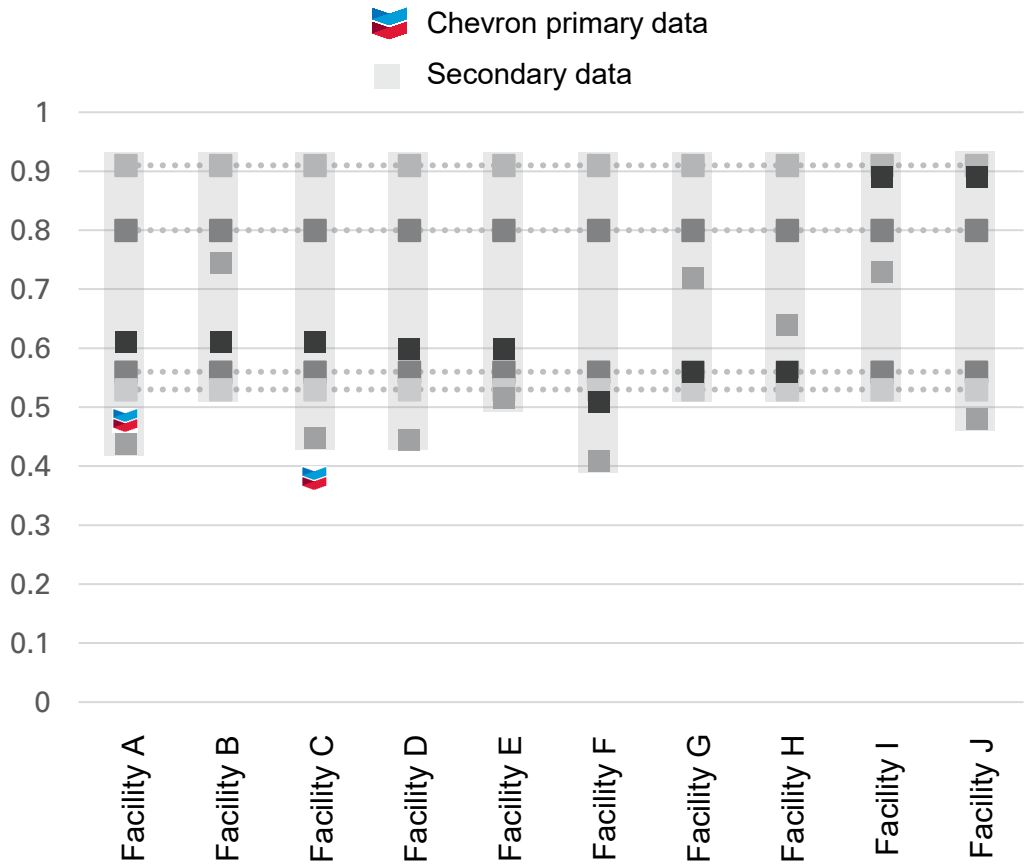
Source: WoodMac analysis of offset-paired cargos

LNG footprints vary based on data source and assumptions

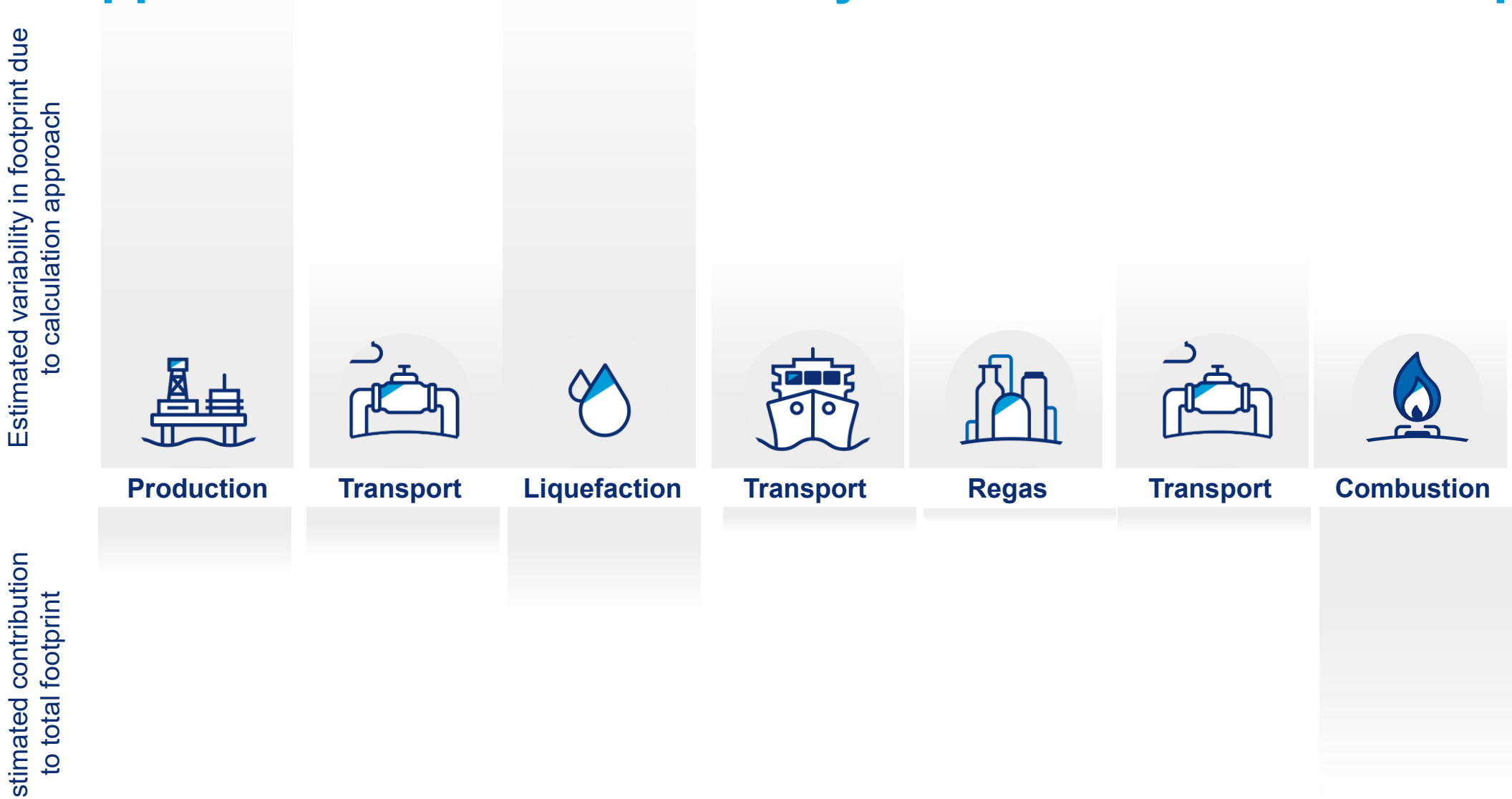
- **Primary data is key to differentiating between product suppliers.**
- Primary data is specific to the underlying product, process and supplier
- Primary data and a consistent accounting approach is needed to:
  - Develop accurate insights on actual carbon performance
  - Assess the relative performance of multiple suppliers of the same product
  - Incentivize performance improvements.

LNG Footprint Data Sources and Facilities

$tCO_2e/tLNG$, inclusive of upstream production and liquefaction

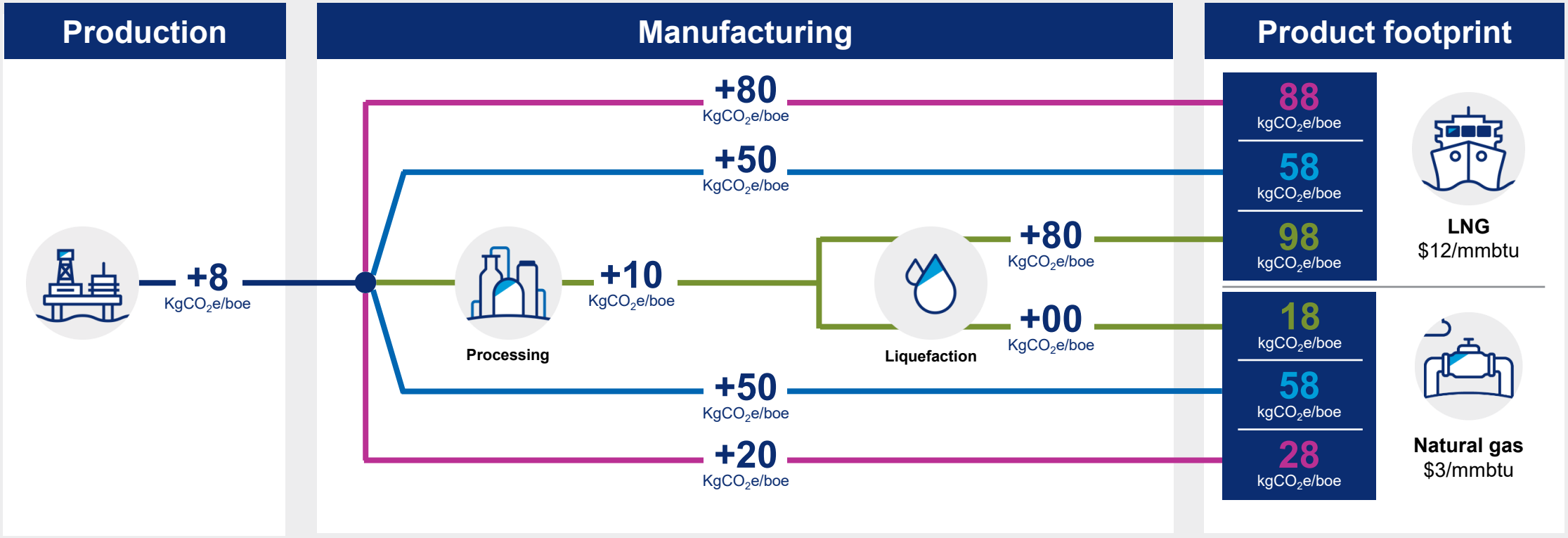


Approximate relative variability in & contribution to footprint



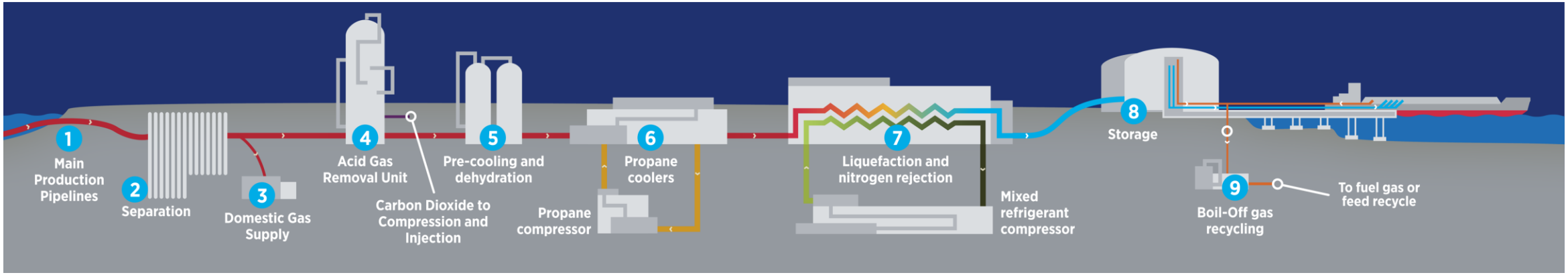
Allocation decisions affect outcome

Illustration of three commonly used allocation approaches applied to a two-step manufacturing plant



Allocations per SGE

at the process unit level



Stage index	Stage name	% LNG	% domestic gas	% condensate
1-2	Upstream production	90%	5%	5%
3	Domestic gas diversion	0%	100%	0%
4-7	LNG processing	98%	0%	2%
8-9	LNG storage	100%	0%	0%
Other	Facility utilities	90%	6%	4%

Calculation methodology maps emissions from the facility → sold products

- Product is traced through each stage from wellhead to sales point
- Emissions are grouped into stages
- Products receive a proportion of the emissions from each stage