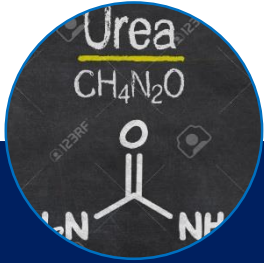


EPA Tier 4 Emissions and DEF/Urea Supply Chain



Urea Source

- Global Nitrogen Producers
- 32.5%, 40%,
- Barge, Tanker, Bulk, Drum availability



Terminal Network

- Quality gate – in and out
- Solutionizing or Dilution
- Packaging – Totes
- Warehouse
- Bulk Inventory
- Coastal and Inland network



J.A.M.
BRENNTAG



JOHN W.
STONE
OIL DISTRIBUTOR, L.L.C.



MARTIN
ENERGY SERVICES

Economy
BOAT STORE
ORIGINATORS OF MID-STREAM FUELING

Ergon Marine & Industrial Supply, Inc.

CUSTOM

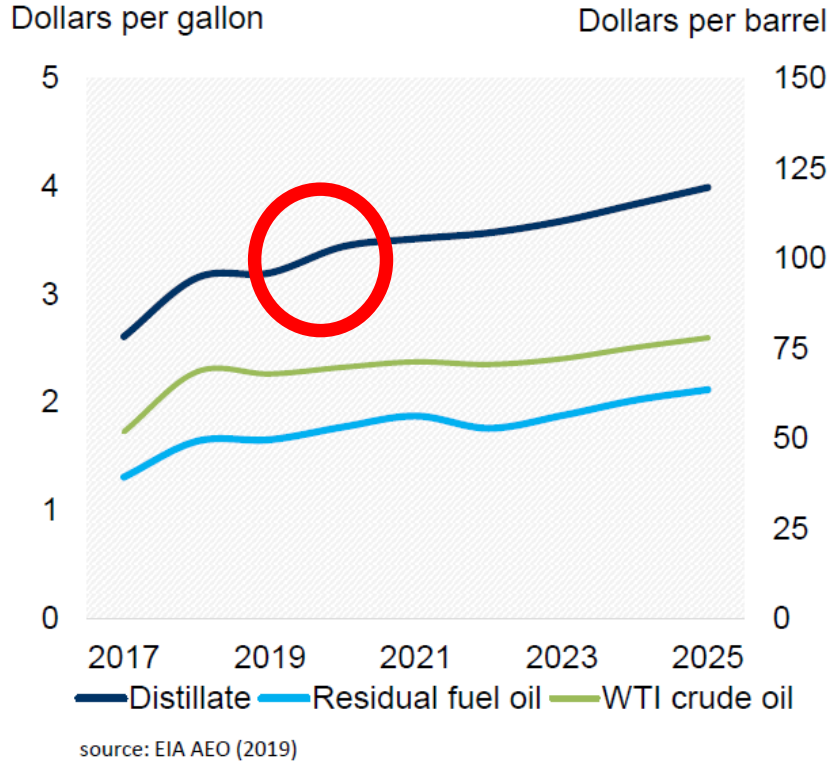
- Marine market is a small % of urea tons
- NA producers have capacity
- Has been in highway and off-highway use for years

- Infrastructure investments for “on highway” DEF can be used for 40%.
- New locations will crop up as underserved areas demand increases.
- 40% marine preferred as more efficient for volume stored

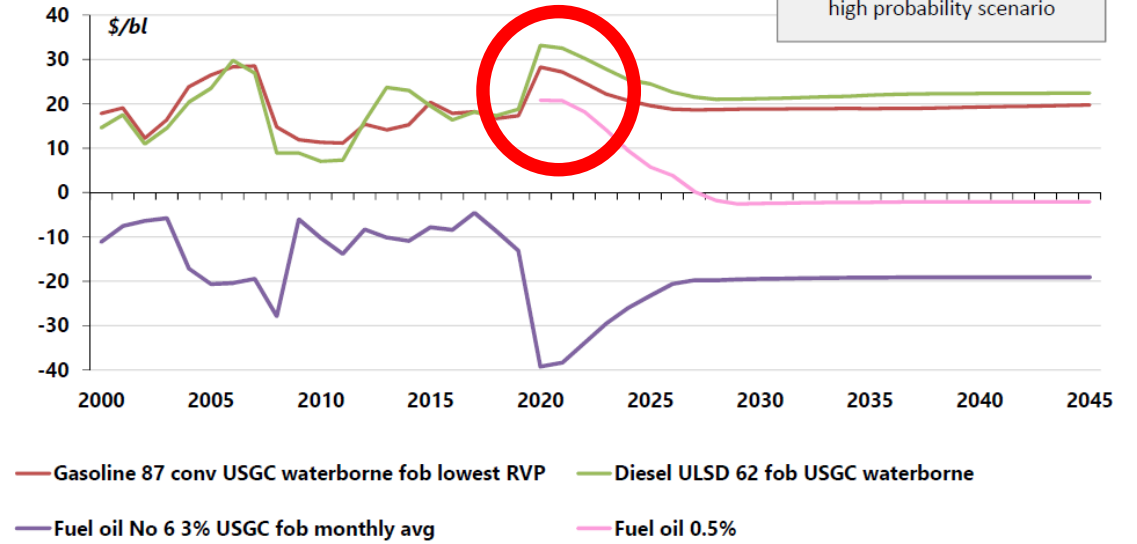
- Distributors exist who can deliver DEF to the inland marine vessels.
- Experience in delivering to this market is key to ensure customers receive **high quality product** and reliable service.

IMO 2020 Impact on Domestic Marine Fuel

EIA projections of U.S. distillate, residual fuel oil prices

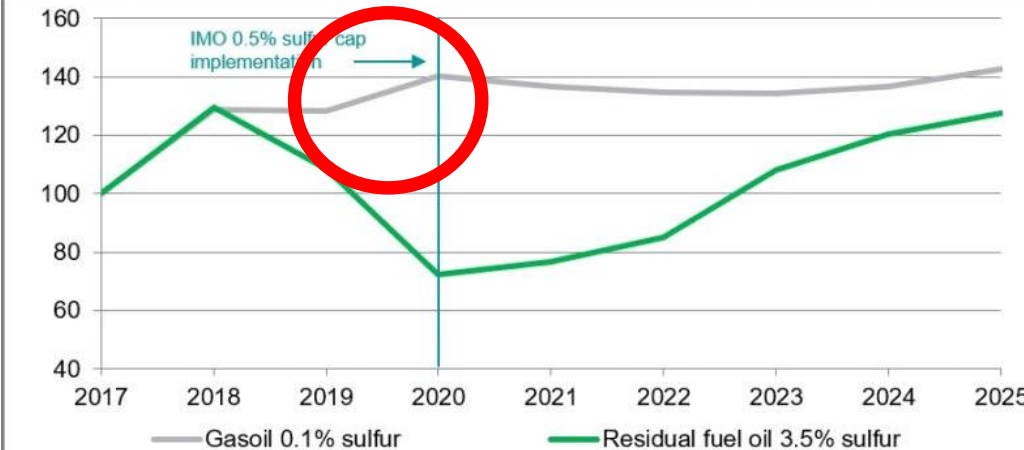


USGC products vs Mars spreads



— Prices and forecasts from Argus

Indexed gasoil and heavy sulfur fuel oil prices* 2017-2025 (NWE CIF)



Source: IHS Markit
* Prices indexed against 2017 price in constant 2017 USD per barrel

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What is AUS 40

ISO 18611 Marine Nox reduction agent

Table 1 — Quality characteristics

Characteristics	Unit	Limits		Test methods
		min.	max.	
Urea content ^a	% (m/m) ^d	39	41	ISO 18611-2, Annex B ^e ISO 18611-2, Annex C ^e
Density at 20 °C ^b	kg/m ³	1 105	1 177	ISO 3675 or ISO 12185
Refractive index at 20 °C ^c	—	1,394 7	1,398 2	ISO 18611-2, Annex C
Alkalinity as NH ₃	% (m/m) ^d	—	0,5	ISO 18611-2, Annex D
Biuret	% (m/m) ^a	—	0,8	ISO 18611-2, Annex E
Aldehydes	mg/kg	—	100	ISO 18611-2, Annex F
Insoluble matter	mg/kg	—	50	ISO 18611-2, Annex G
Phosphate (PO ₄)	mg/kg	—	1	ISO 18611-2, Annex H
Calcium	mg/kg	—	1	ISO 18611-2, Annex I
Iron	mg/kg	—	1	
Magnesium	mg/kg	—	1	
Sodium	mg/kg	—	1	
Potassium	mg/kg	—	1	
Identity	—	identical to reference		ISO 18611-2, Annex J

- 40% high purity urea / 60% high purity water
- Weight per gallons 9.28 lbs
- Crystallizes at 35 deg F (-11 deg C)
- Do not store below 35 deg F
- Non-Hazardous
- Color – clear
- Smell – slight ammonia smell
- Corrosive – stainless steel and poly should be used or a lined steel tank
- Shelf life – dependent on temperature. 1 year is typical.
- If spilled clean with soap and water
- Avoid contact with skin and eyes (refer to suppliers SDS)

Availability

