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responsive maritime partners

KPI Bridge Oil & Marpol 2020

Industry: Impact To This Point

Bunker Industry Prior to & Post 2020

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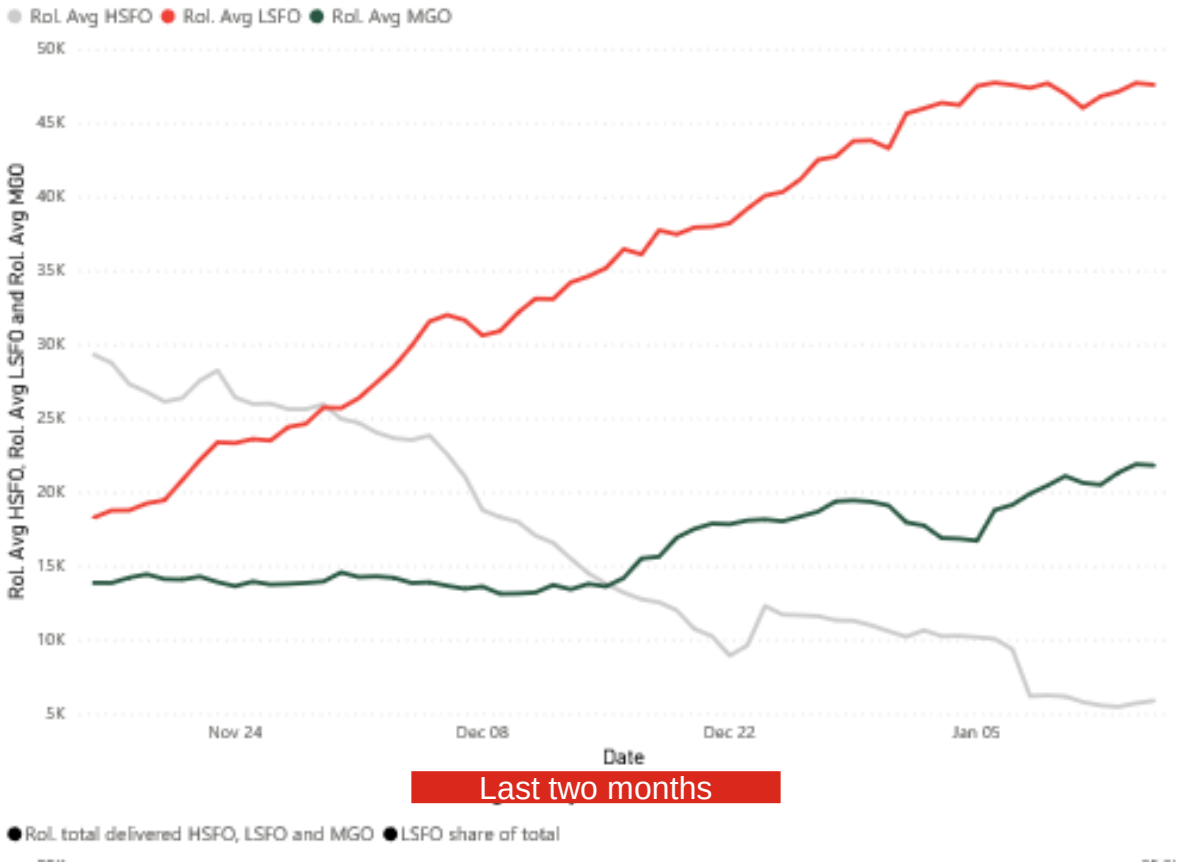

Bunker Industry Prior to 2020

- **Simple** product selection & well **balanced** market
- Relationship mainly based on price (**transactional**)
- **Credit** environment supportive of customers needs
- Crowded **competitor** landscape

Bunker Industry 2020 already in Full Implementation

- Price impact (**spreads**) Big swings at major ports
- Managing **multiple grades** (diverse range of Specs within the 0.5% fuels)
- **Quality** renewed interest from shipowners on understanding specifications on product
- **Shift from price to service / solution** provider relationship with suppliers
- **Supply availability** less predictable – too many factors to consider
- From transactional to strategic with focus on reliability and trust (emotional)
- Credit environment – challenging, not as flexible / liquid

What About Pricing? Spread Analysis

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Projections based on our analysis –Summer 2018

Price differentials/ spreads ($USD)	2020 6-12 Months	2021	2022	2023	2024
MGO to VLSFO	45 – 80	40 – 70	30 – 60	20 – 30	20 – 30
MGO to HSFO	275 - 380	250 – 350	200 – 300	180-280	<250
VLSFO to HSFO	200 – 240	170 – 185	170 – 185	180 – 200	180 - 200

BW Posted prices 25.11.2019

Port	IFO380	IFO180	MGO	LSMGO	MDO	ULSFO	Barge
Algeciras	(SYM:PUAFA00) 485.00 ▲ +65.00	(SYM:PUACT00) 509.00 ▲ +65.00	(SYM:AARSH00) 690.00 ▲ +19.00	(SYM:AARSH00) 690.00 ▲ +19.00	-	-	F.O.B.
Fujairah	(SYM:PUAXP00) 482.75 ▼ -46.50	(SYM:PUAXQ00) 488.75 ▼ -47.50	(SYM:AARKH00) 690.00 ▼ -33.00	695.00 ▼ -33.00	-	-	F.O.B.
Gibraltar	(SYM:AAKAB00) 485.00 ▲ +65.00	(SYM:AAJZZ00) 509.00 ▲ +65.00	(SYM:AARSU00) 690.00 ▲ +19.00	(SYM:AARSU00) 690.00 ▲ +19.00	-	-	F.O.B.
Houston	(SYM:PUAES00) 480.00 ▼ -15.00	(SYM:PUACE00) 548.00 ▼ -15.00	(SYM:AAWYQ00) 665.00 ▲ +5.00	(SYM:AAWYQ00) 665.00 ▲ +5.00	-	-	$25.00
Rotterdam	(SYM:PUAFN00) 410.00 ▲ +20.00	(SYM:PUADN00) 434.00 ▲ +20.00	(SYM:AARTG00) 615.00 ▲ +5.00	(SYM:AARTG00) 615.00 ▲ +5.00	-	560.00 ▼ -20.00	F.O.B.
Singapore	(SYM:PUAFT00) 535.00 ▼ -60.00	(SYM:PUADW00) 541.00 ▼ -61.00	(SYM:AALMZ00) 611.50 ▼ -30.00	612.00 ▼ -33.00	601.50 ▼ -30.00	-	F.O.B.

Projections based on BH analysis

Forecast price differentials ($USD/mt)	*2020*	*2021*	*2022*	*2023*	*2024*
MGO > VLSFO	45-80	40-70	30-60	20-30	20-30
MGO > HSFO	275-380	250-350	200-300	180-280	<250
VLSFO > HSFO	200-240	170-185	170-185	180-200	180-200

18.09.2019 BW price indications ($USD/mt)	*Fujairah*	*Houston*	*Rotterdam*	*Singapore*	*Gibraltar*
HSFO 3.5	483	480	410	535	485
MGO 0.1	690	665	690	612	690
VLSFO 0.5 (80/20 blend)	649	628	634	597	649

18.09.2019 spreads in numbers ($USD/mt)	*Fujairah*	*Houston*	*Rotterdam*	*Singapore*	*Gibraltar*
MGO > VLSFO	41	37	56	15	41
MGO > HSFO	**207**	**185**	**280**	**77**	**205**
VLSFO > HSFO	166	148	224	62	164

18.09..2019 spreads in percent (%)	*Fujairah*	*Houston*	*Rotterdam*	*Singapore*	*Gibraltar*
MGO > VLSFO	6%	6%	8%	3%	6%
MGO > HSFO	43%	39%	68%	14%	42%
VLSFO > HSFO	34%	31%	55%	12%	34%

Crude Brent Price $63.74
Singapore last known indication for VLSFO 25.11.2019 $553.00 ($254.00 premium to HSFO & $25.00 discount to MGO)
Fujairah last known indication for VLSFO 25.11.2019 $570.00 ($320.00 premium to HSFO & $100.00 discount to MGO)

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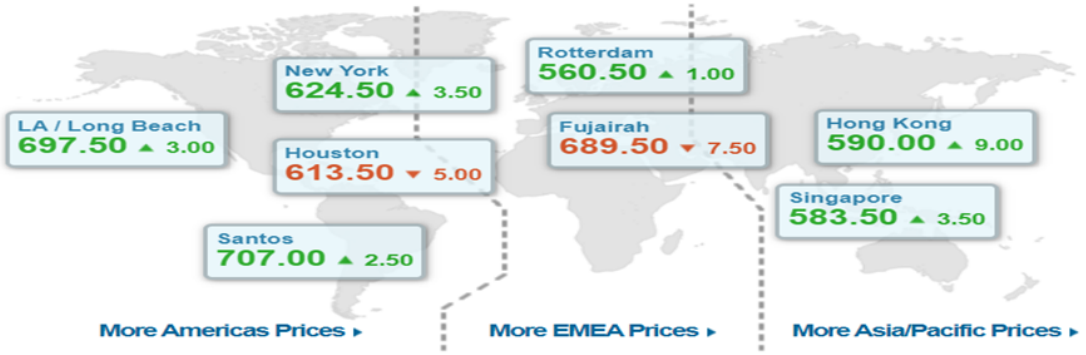
MGO



	Price $/mt	Change	High	Low	Spread
Global 20 Ports Average	646.50 ▲	+1.50	646.50	646.50	0.00
Global 4 Ports Average	611.50 ▼	-2.50	611.50	611.50	0.00
Global Average Bunker Price	686.00 ▲	+2.50	686.00	686.00	0.00

VLSFO

	Price $/mt	Change	High	Low	Spread
Global 20 Ports Average	561.50 ▲	+1.00	561.50	561.50	0.00
Global 4 Ports Average	552.00 ▲	+0.50	552.00	552.00	0.00
Global Average Bunker Price	574.50 ▲	+1.00	574.50	574.50	0.00

Shipowners started to get full exposure to price impact in December

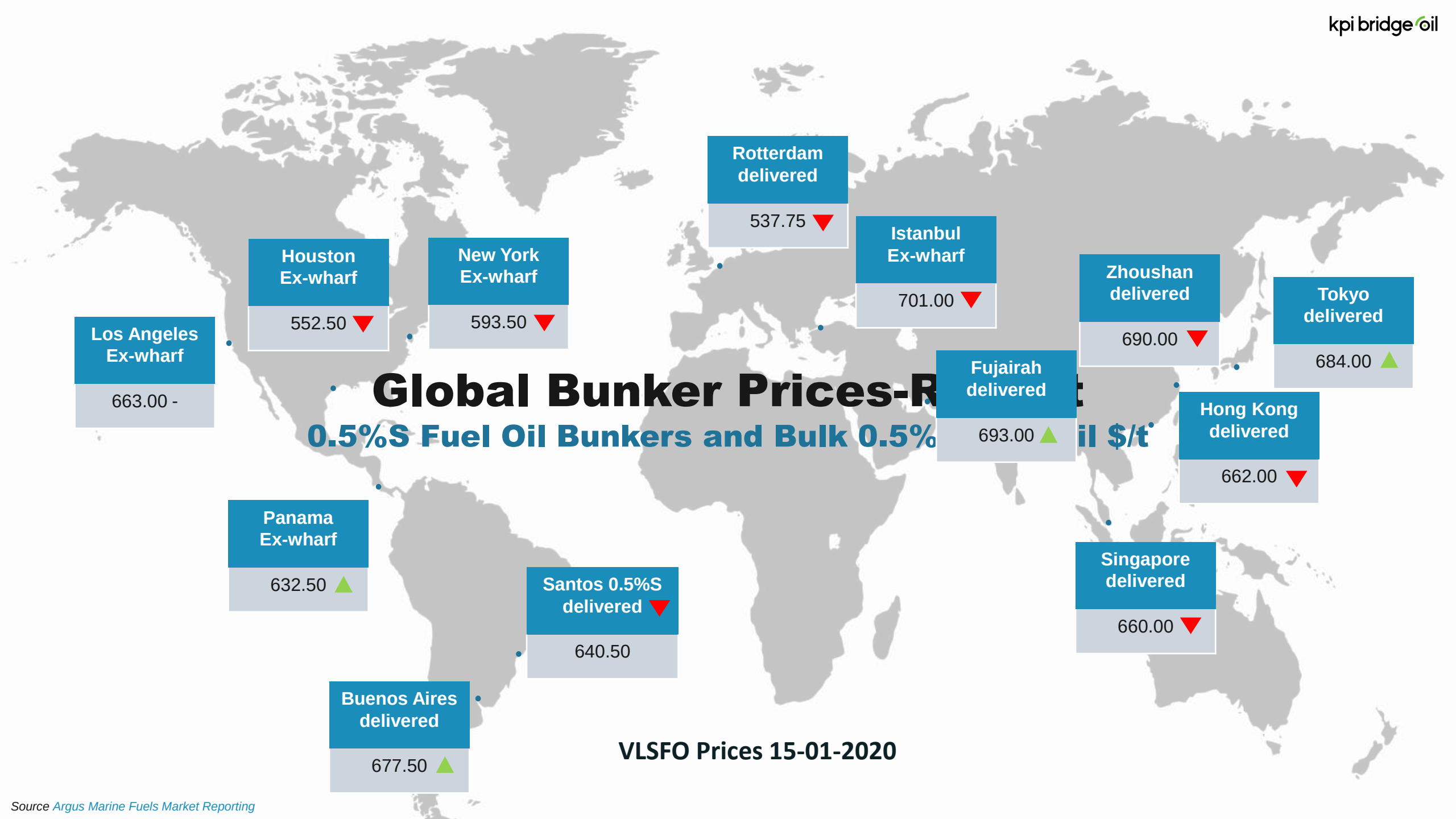
IFO 380

	Price $/mt	Change	High	Low	Spread
Global 20 Ports Average	331.50 ▲	+3.00	331.50	331.50	0.00
Global 4 Ports Average	300.00 ▲	+3.50	300.00	300.00	0.00
Global Average Bunker Price	368.50 ▲	+2.00	368.50	368.50	0.00

Pricing source: Ship & Bunker

Predictions

Summer 2018 predictions	Differential USD 2020
MGO to VLSFO (-)	**45-80**
MGO to HSFO (-)	**275-380**
VLSFO to HSFO (+)	**200-240**
Spreads based on actual Ind	**Differential USD**
MGO to VLSFO (-)	**112**
MGO to HSFO (-)	**318**
VLSFO to HSFO (+)	**206**



Global Bunker Prices-R

0.5%S Fuel Oil Bunkers and Bulk 0.5% il $/t

VLSFO Prices 15-01-2020

Source Argus Marine Fuels Market Reporting

VLSFO Projected Blends

Available Blend Components

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- Straight run sweet residue
- Straight run sour residue
- Straight run diesel
- FCC Light-cycle oil
- Treated light cycle oil
- Treated light distillate
- Treated atmospheric gas oil
- Hydro treated gas oil
- H-oil bottoms
- Treated atmospheric residue
- Visbreaker tar

- Hydrotreated kerosene
- Desulfurized jet blend
- Vacuum residue
- Vacuum gas oil
- No 6 fuel oil
- M 100
- Slurry oil
- Shale oils
- Plus more
- *All with individual characteristics as density, sulfur content, viscosity, etc. Depends of crude feeds and refinery configuration.*

How to Categorize 0.5% S Fuels

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A
Naphthenic

- High CCAI (relation between viscosity and density - High density, low viscosity)
- Presense of cat fines.
- Can hold more or less stability reserves

B
Paraffinic

- Low Density
- Very low or no MCR
- No cat fines
- High pour point
- Does not give sense to test stability reserves when no asphaltenes to precipitate

AB
Straight-Run

- Straight Run Fuel Oils (and most DMA gas oils)
- Medium density and high MCR
- High on heavy metals
- High acid number (weak acids)
- High stability reserves (Low TE)

Quality Impact

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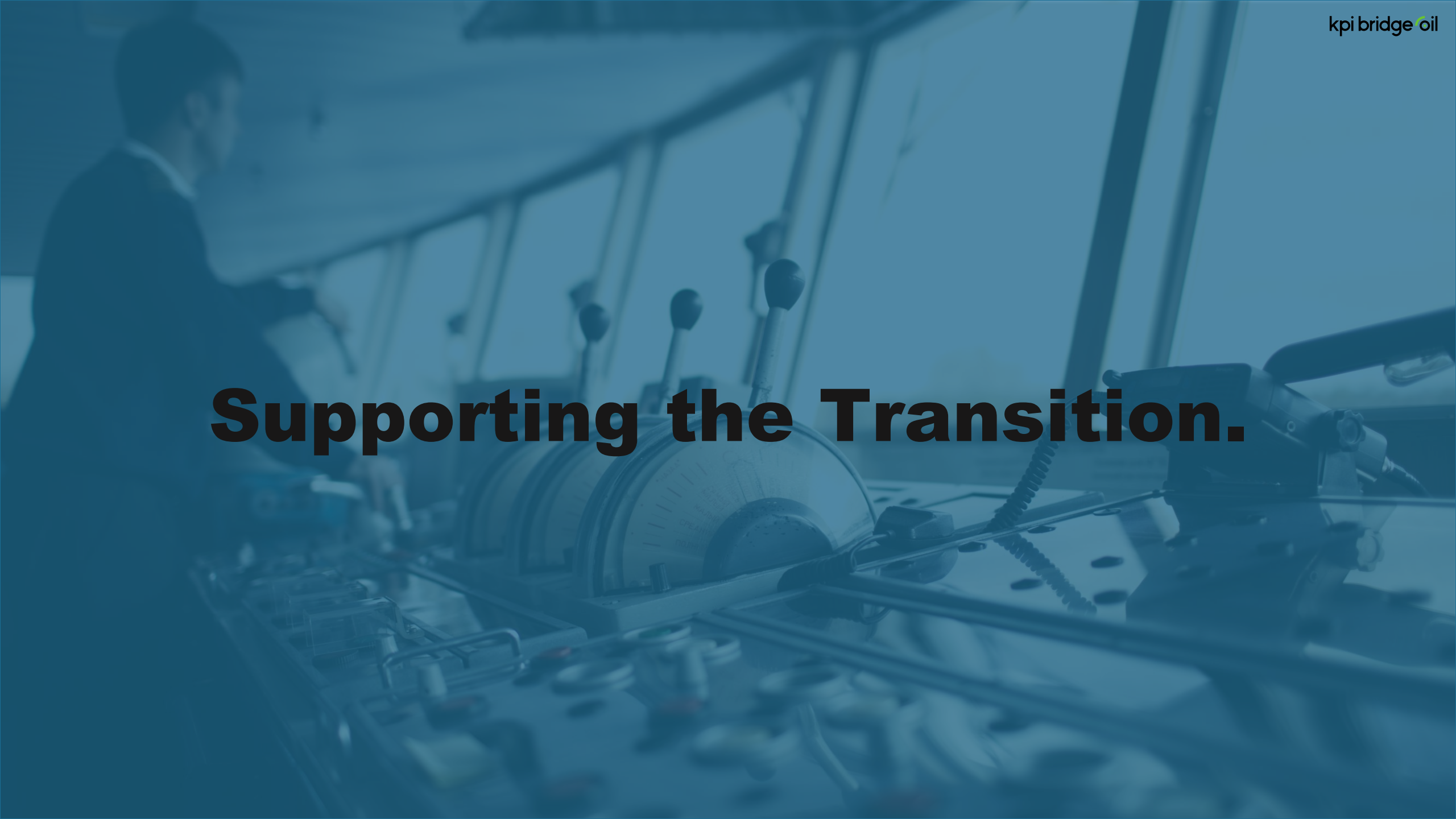
Key Points to Consider: The Supply Side

- MGO and HSFO grades should not be much different than what we handle today
- For VLSFO 0.5% the challenge is much greater;
  - Flow and secondary ports are likely to have to deal with the diverse range of VLSFO specifications:
    - ❖ Segregate based on Naphtenic vs Paraffinic, vs Straight Run
    - ❖ Minimum to zero chances to commingle product (barges and storage)
    - ❖ Incorrect test results
  - Very wide range on viscosity – <10 CST up to 300+ CST
- **High prices and spreads/differentials could result on creative blending from some suppliers**

Key Points to Consider: The Demand Side

- Easier to manage if fuel of choice is MGO or HSFO (vessels with scrubbers)
- For VLSFO 0.5% their challenges would be:
  - Preparation to shift from HSFO to VLSFO (timing to take VLSFO and to dispose ROB HSFO after Jan. 1st 2020)
  - Managing fuel change over procedures based on different blend characteristics (Paraffinic vs Naphthenic)
  - Adjustments required for different viscosity, including lube selection
  - Increase the amount of spare parts to minimize operational risks
- Approach to minimize risks
  - Increase focus on understanding product specifications prior to fixing the stems



Supporting the Transition.

Key Takeaways

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PRICE IMPACT & SPREADS

- Major impact on shipowners
- Our advice to customers - Differentiating factor
- Minimize risk to be left with the most expensive fuel option
- Credit environment is more challenging

MANAGING MULTIPLE GRADES

- Bunker procurement has become more complex
- Understanding basic product characteristics, 0.5% blends DNA
- Information sharing is very valuable

QUALITY IMPACT

- Impact to operations on board the vessels
- Collaboration when challenges arise (mitigating actions)
- KYS Know your supplier

ANY QUESTIONS?