Evolving Crude Trade Flows

6th Joint IEA-IEF-OPEC Workshop

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Vienna
15 March 2018

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Contents

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Global Supply

Supply (MMBD)	2016	2017Q1	2017Q2	2017Q3	2017Q4	2018Q1	2018Q2	2018Q3	2018Q4
Canada	4.47	4.93	4.47	4.86	4.95	5.03	4.85	5.19	
Mexico	2.47	2.33	2.31	2.16	2.13	2.11	2.07	2.04	
Europe	3.52	3.66	3.49	3.36	3.42	3.53	3.51	3.41	
U.S. (50 States)	12.53	12.70	13.00	13.15	14.00	14.18	14.64	14.78	
Total OECD	**23.42**	**24.00**	**23.65**	**23.94**	**24.91**	**25.26**	**25.50**	**25.84**	**26.60**
China	3.98	3.96	3.91	3.83	3.84	3.81	3.79	3.76	
Brazil	2.61	2.75	2.74	2.73	2.73	2.78	2.88	2.87	
Colombia	0.88	0.85	0.86	0.86	0.86	0.85	0.84	0.83	
Russia	11.34	11.46	11.34	11.30	11.32	11.32	11.32	11.33	
Total Non-OECD	**29.34**	**29.51**	**29.34**	**29.19**	**29.35**	**29.32**	**29.33**	**29.23**	**29.40**
Processing Gains	2.27	2.29	2.29	2.29	2.29	2.32	2.32	2.32	2.32
Global Biofuels	2.34	1.99	2.45	2.82	2.41	2.04	2.51	2.78	2.50
Total Non-OPEC	**57.37**	**57.79**	**57.73**	**58.24**	**58.96**	**58.94**	**59.66**	**60.17**	**60.82**
OPEC Crude Oil	32.80	32.11	32.30	32.68	32.33				
OPEC NGLs	6.78	6.86	6.90	6.90	6.85	6.91	6.94	6.98	6.98
Call on OPEC	32.09	31.97	33.37	33.27	32.36	31.95	32.34	32.50	32.56
Total World Supply	**96.96**	**96.76**	**96.93**	**97.82**	**98.14**				

*Includes crude oil, condensates, NGLs and oil from non-conventional sources

Source: IEA OMR 13-Feb 2018

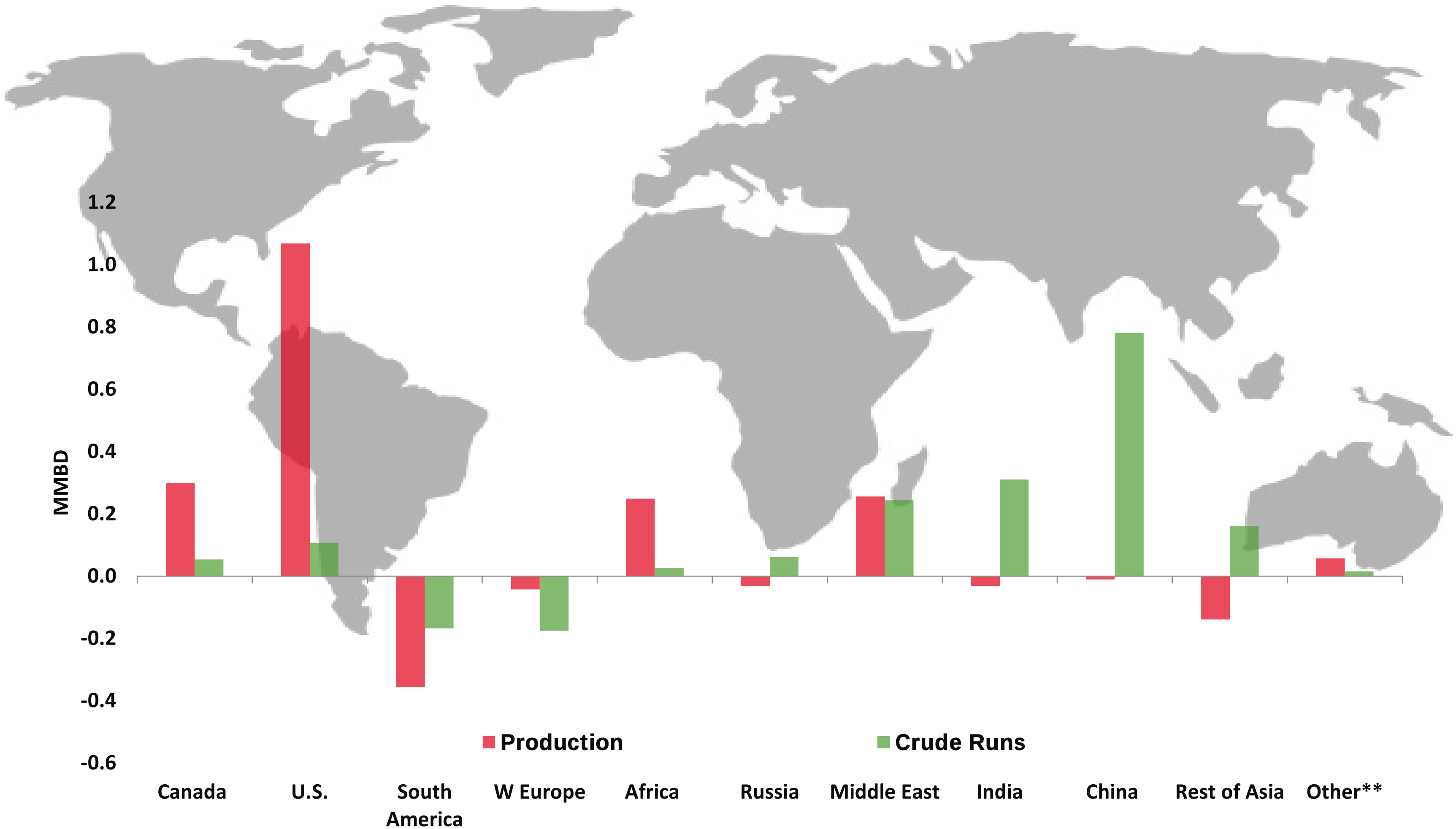
Global Demand

Demand (MMBD)	2016	2017Q1	2017Q2	2017Q3	2017Q4	2018Q1	2018Q2	2018Q3	2018Q4
OECD Europe	14.04	13.95	14.31	14.74	14.32	13.94	14.34	14.75	14.59
Japan	4.03	4.33	3.64	3.69	4.13	4.26	3.47	3.55	3.94
Korea	2.63	2.69	2.56	2.64	2.72	2.70	2.62	2.58	2.69
U.S. (50 States)	19.69	19.49	20.01	19.92	19.96	19.61	20.06	20.14	20.22
Total OECD	**46.90**	**46.98**	**47.03**	**47.62**	**47.76**	**47.00**	**46.93**	**47.60**	**48.10**
China	11.85	12.48	12.64	12.19	12.49	12.76	12.86	12.61	13.08
FSU	4.71	4.55	4.72	5.04	4.87	4.62	4.77	5.10	4.92
India	4.56	4.58	4.79	4.53	4.82	4.91	5.08	4.77	5.14
Middle East	8.27	7.92	8.49	8.67	7.93	8.10	8.65	8.91	8.29
Total Non-OECD	**49.34**	**49.64**	**50.97**	**50.79**	**50.41**	**50.80**	**52.01**	**52.05**	**52.26**
Total World Demand	**96.24**	**96.62**	**98.00**	**98.41**	**98.17**	**97.80**	**98.94**	**99.65**	**100.36**

*Includes crude oil, condensates, NGLs and oil from non-conventional sources

Source: IEA OMR 13-Feb 2018

World Crude Oil Production and Crude Runs 2018 vs 2017



*Crude and condensate

**Other includes FSU ex-Russia and Eastern Europe

Source: S&P Global Platts

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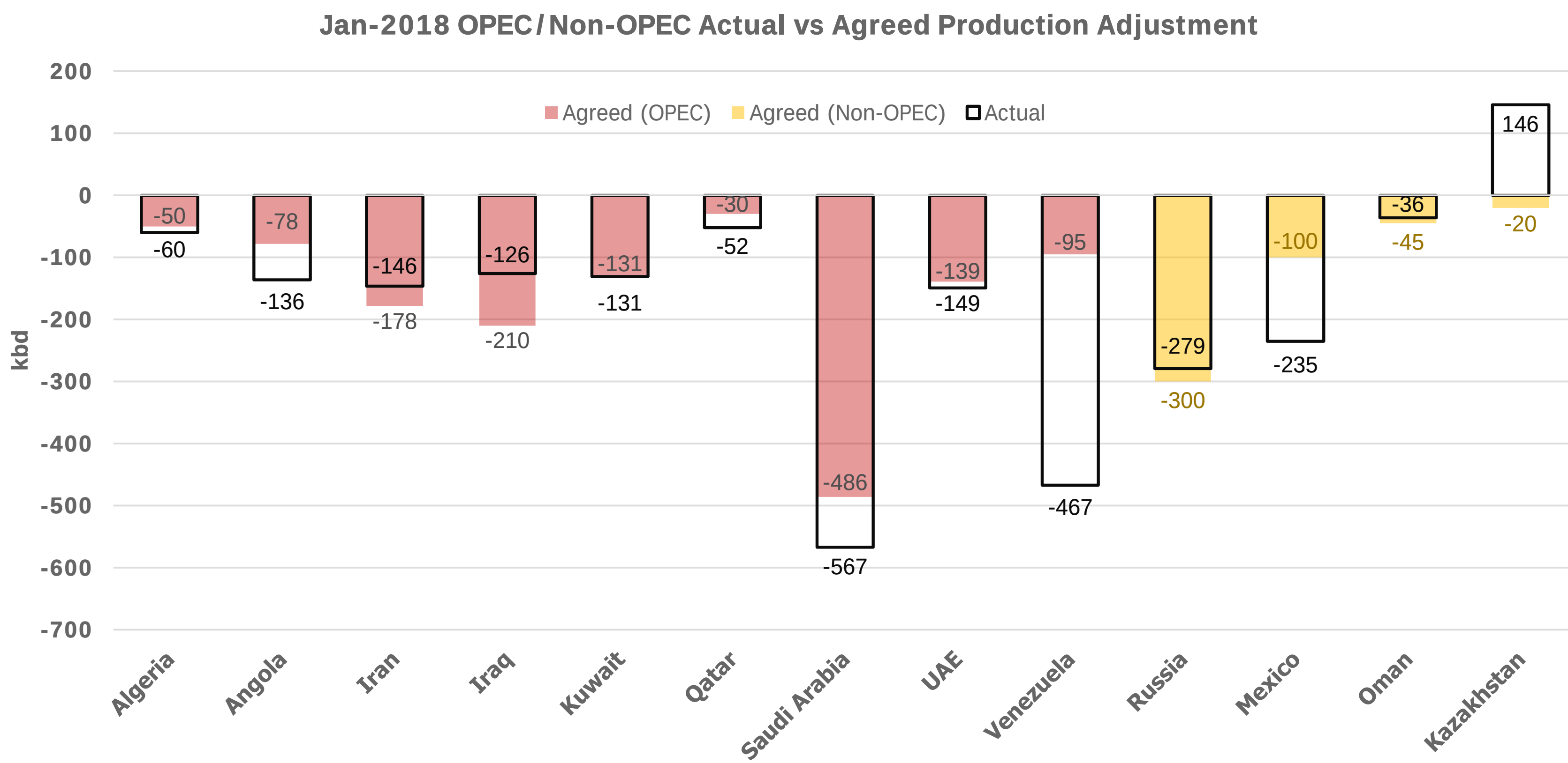
OPEC / Non OPEC Actual vs Agreed Production Adjustment



-10	-58	32	84	0	-22	-81	-10	-372	21	-135	9	166	-376

Source: OPEC Monthly Oil Market Report 12-Feb 2018, secondary-source estimates; IEA, non-OPEC nations estimates; Bloomberg

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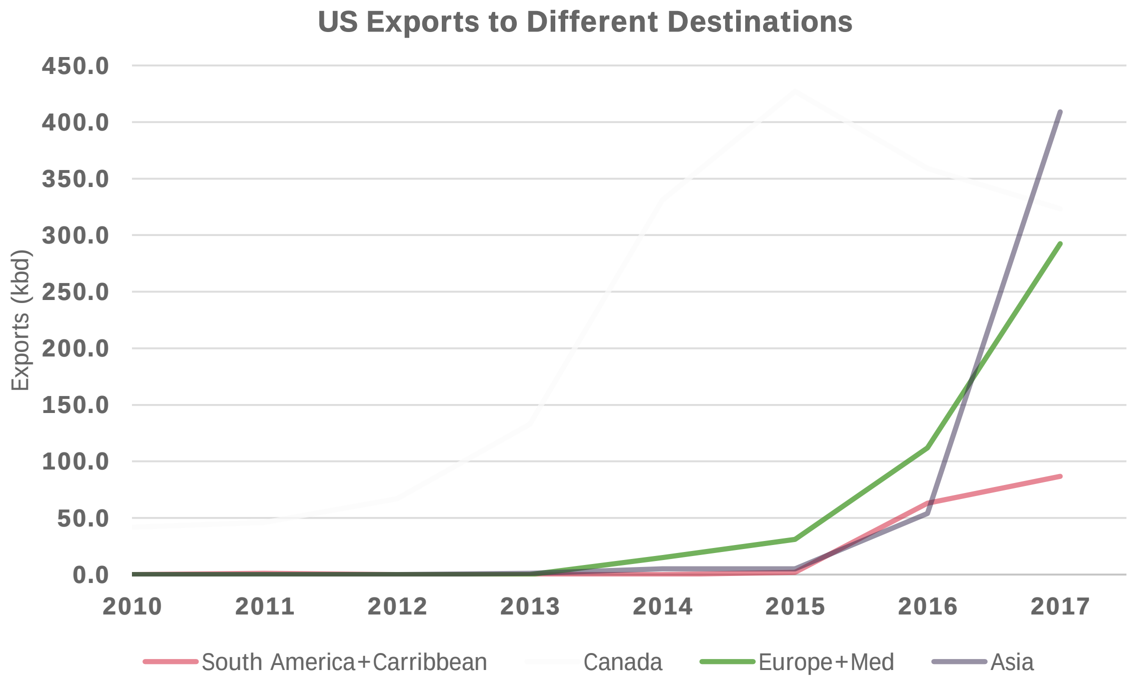
US Export Destinations

Total US crude oil export flows averaged 465 kbd in 2015, 591 kbd in 2016 and 1,119 kbd in 2017



Top Importers (kbd)	2017	2016	2015	2014	2013
Canada	323	359	427	331	133
China	252	22	1	1	1
Netherlands	84	43	5	0	0
Korea	57	11	3	2	0
Italy	43	20	4	3	0
France	30	8	2	0	0
Japan	28	8	0	0	0
India	22	0	1	0	0
Spain	22	9	7	3	0

Source: EIA

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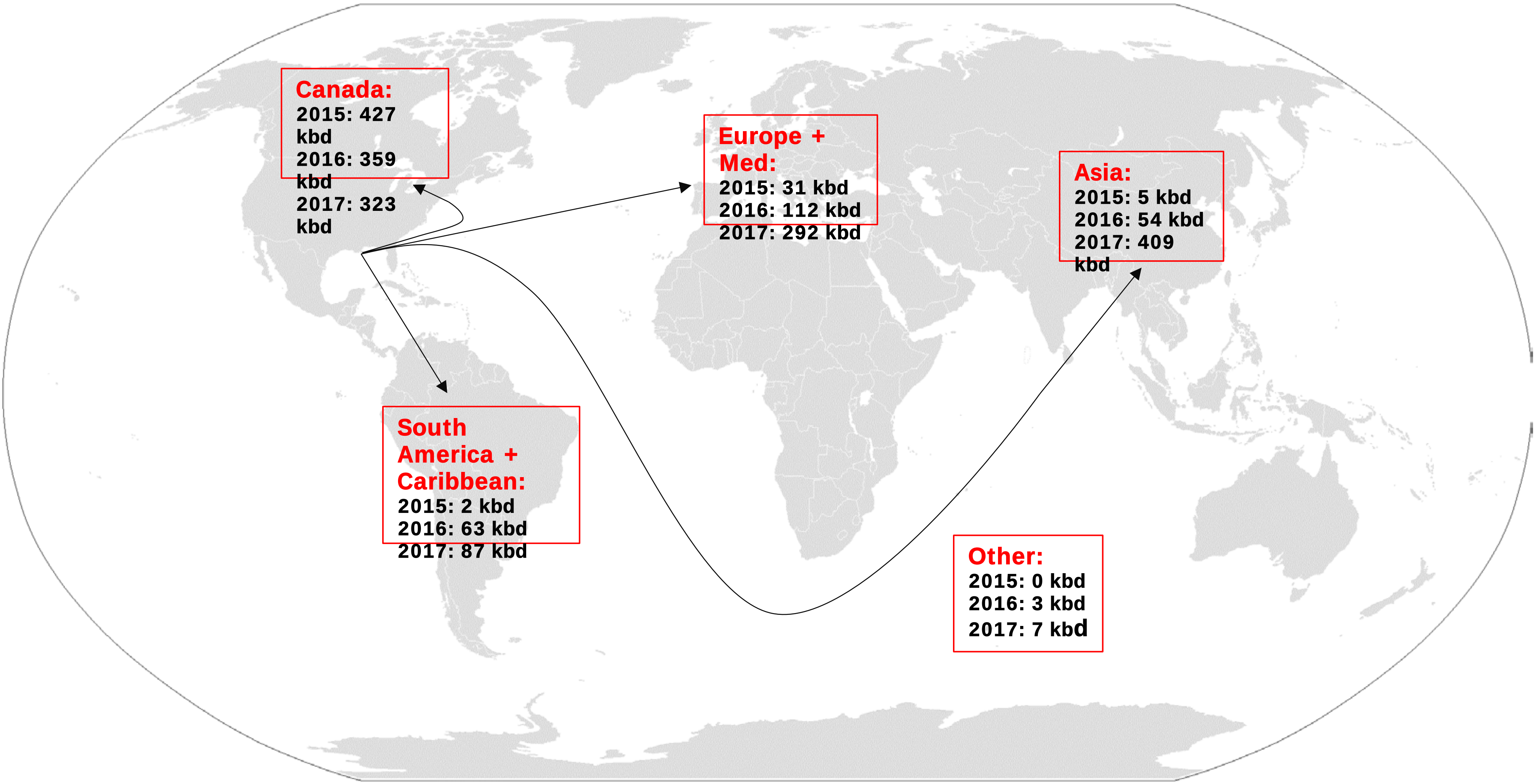
US Export Destinations



Source: EIA

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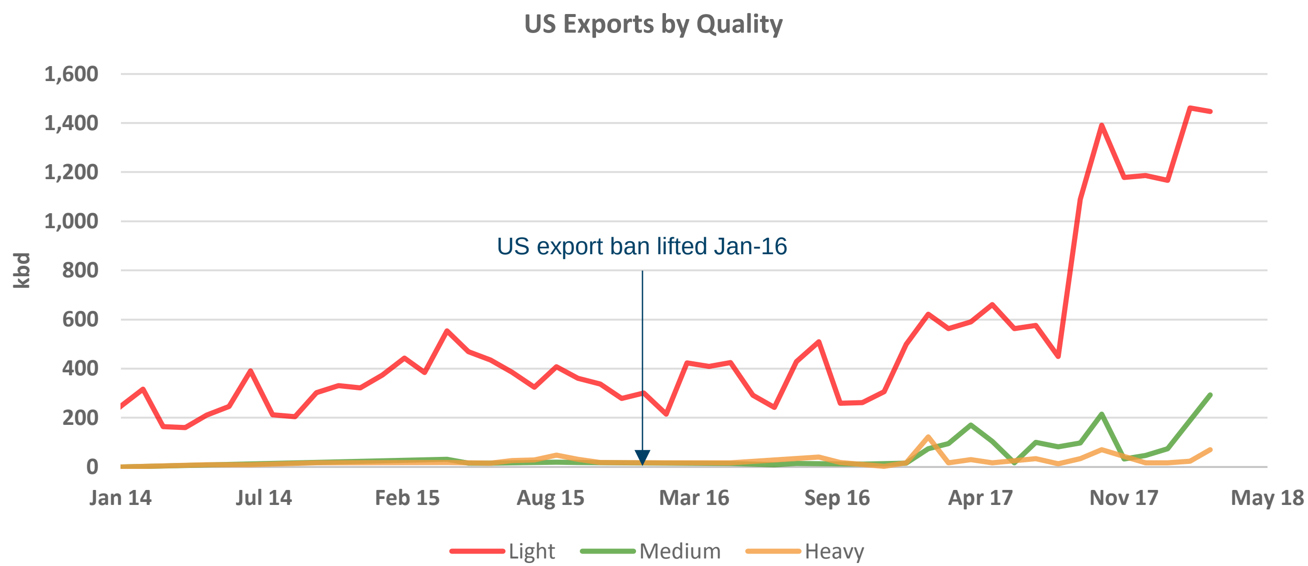
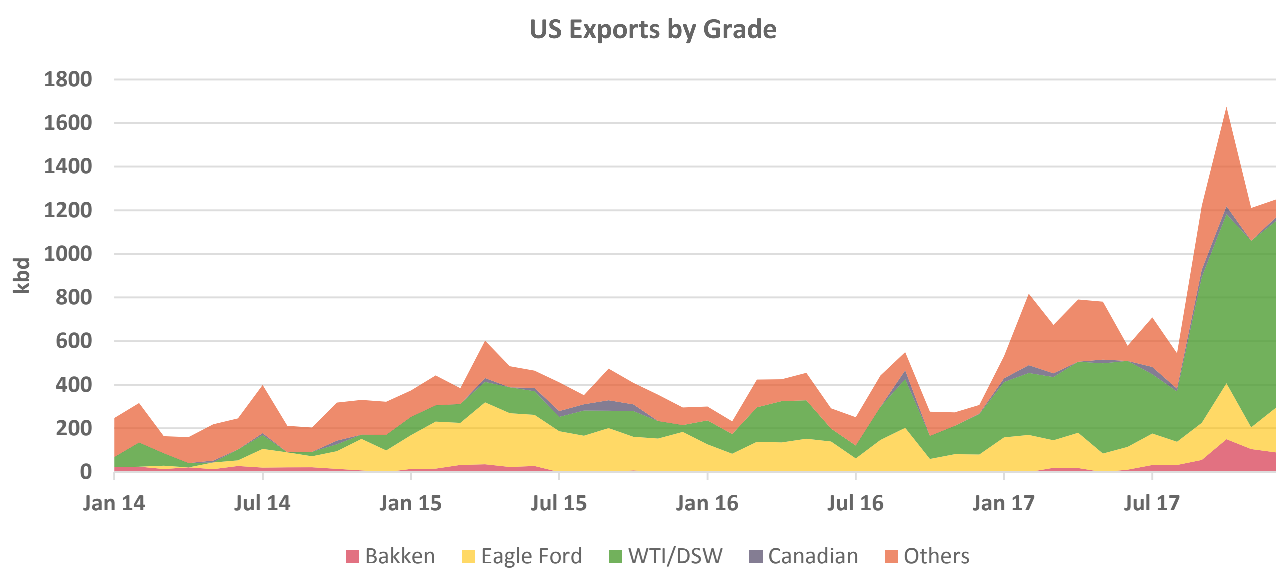
US Export Quality





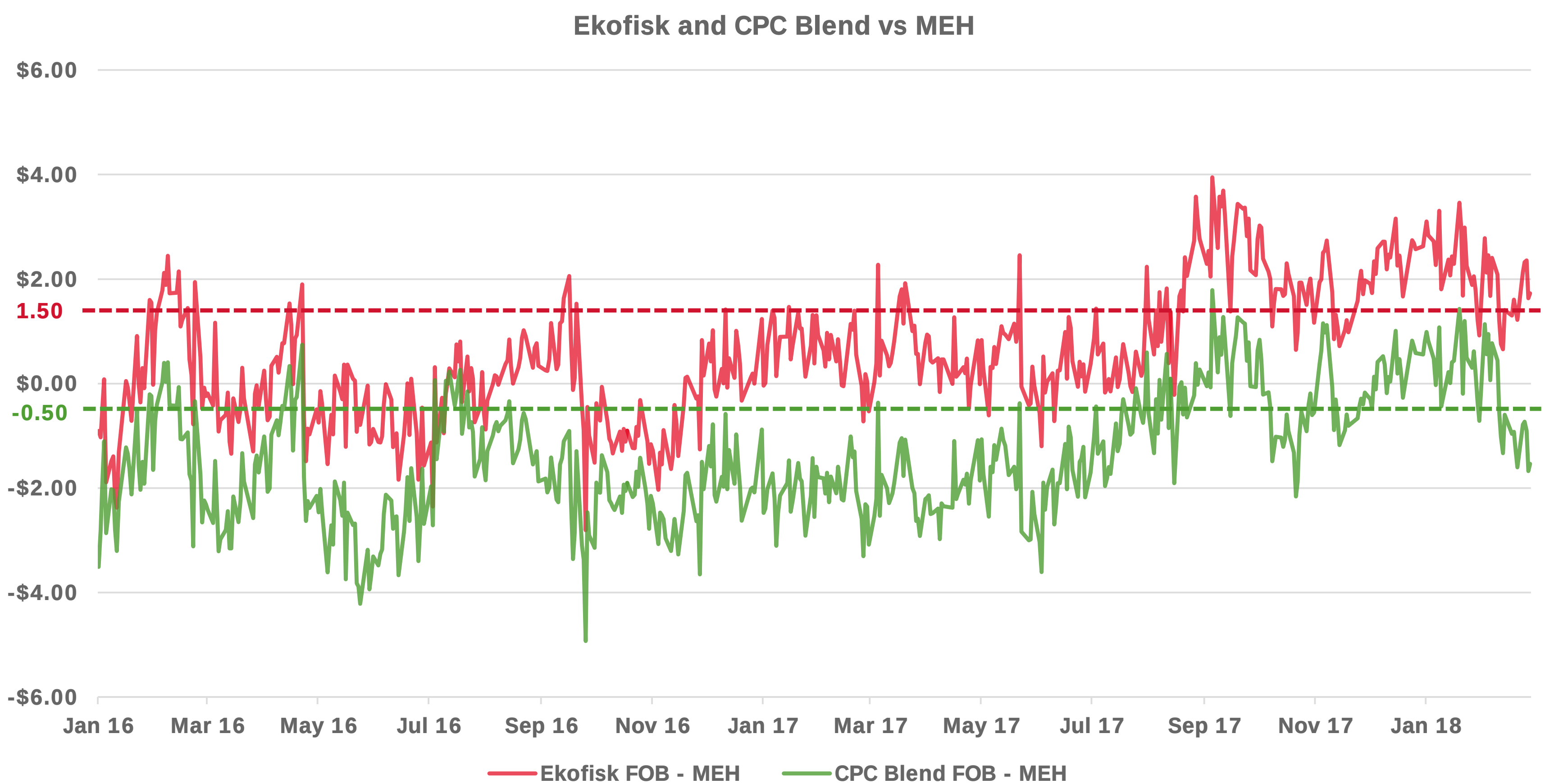
Source: Clipper Data

Grade Comparison

Grade	API	Sulphur (%)
WTI Midland East Houston (MEH)	43	0.2
Domestic Sweet (DSW)	42	0.5
Ekofisk	39	0.2
CPC Blend	45	0.6
Murban	40	0.8
Forties	39	0.8
Bonny Light	35	0.2

Source: S&P Global Platts; Argus Media

Ekofisk and CPC Blend vs WTI Midland East Houston (MEH)



Source: S&P Global Platts; Argus Media

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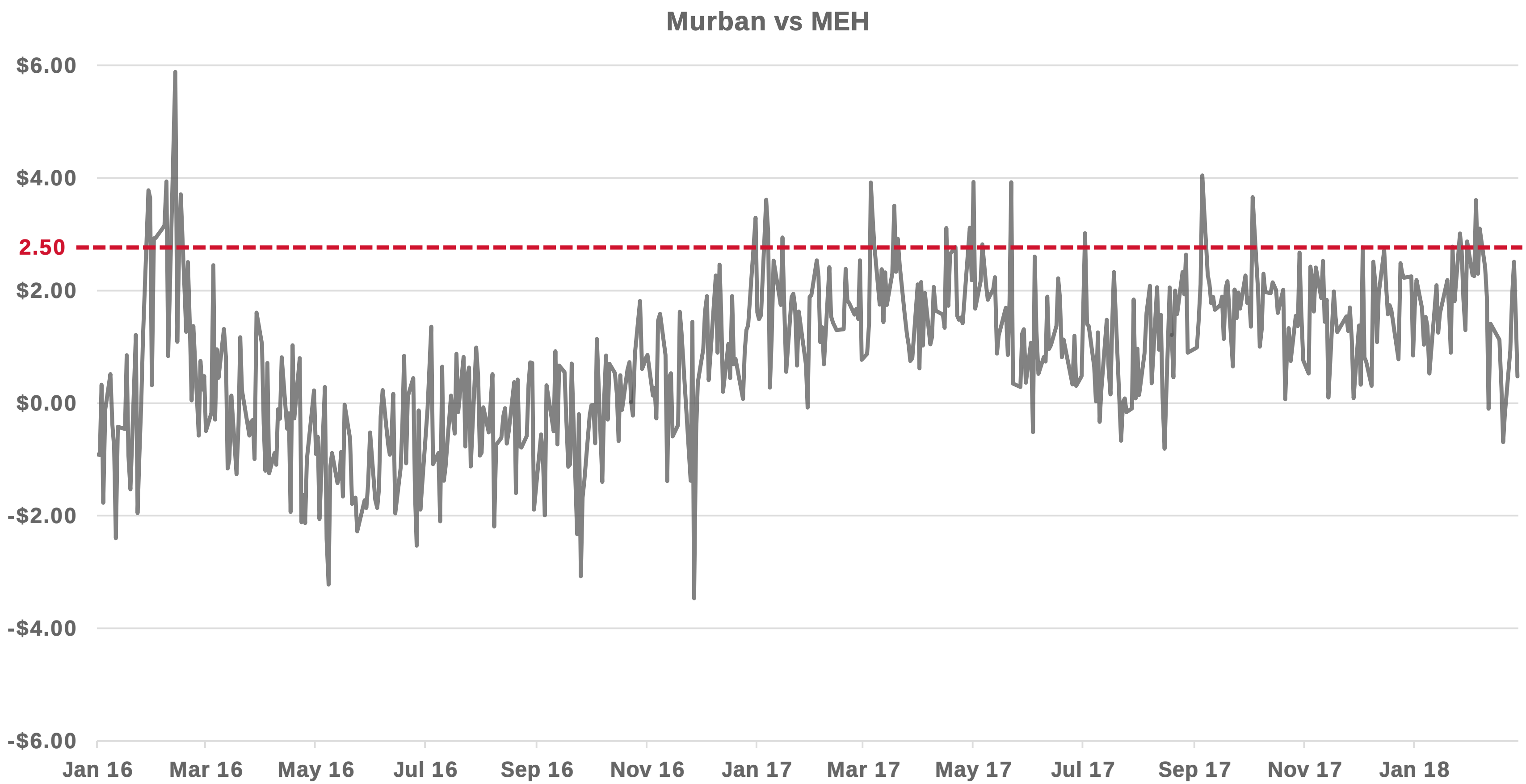
Murban vs WTI Midland East Houston (MEH)



Source: S&P Global Platts; Argus Media

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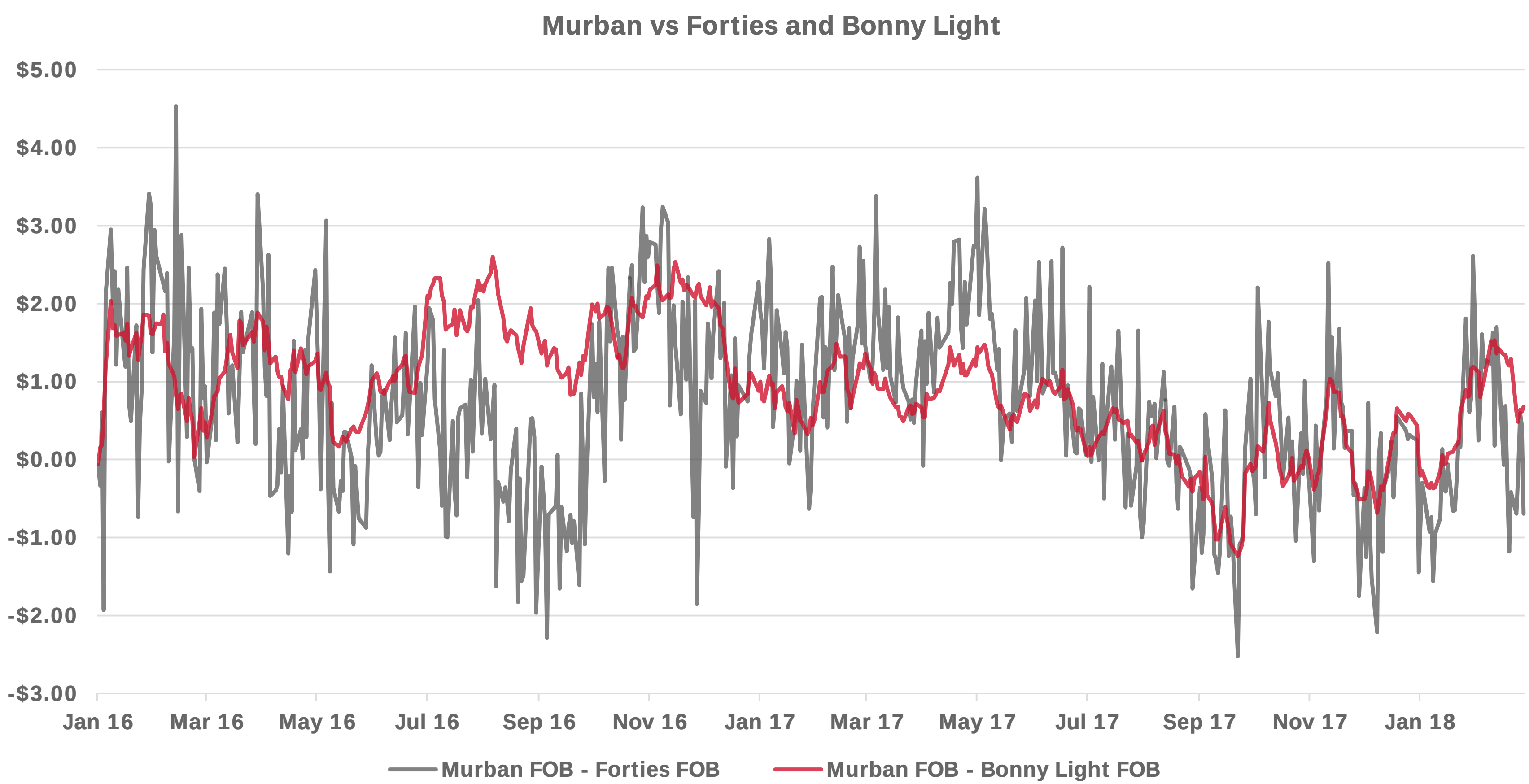
Murban vs Forties and Bonny Light



Source: S&P Global Platts

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Other Points

1. US Export Capacity Constraints
2. Shale Oil Production Profile
3. Lack of Traditional Production Investment
4. IMO 2020

Thank you

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