2025 Crude and Refined Products Outlook

Spring Executive Briefing

March 2025

P.O. Box 130808 Dallas, Texas 75313

Phone: 214-754-0898

Email: contact@turnermason.com

Website: www.turnermason.com

Turner, Mason & Company
energy consulting & advisory

DISCLAIMER

Turner, Mason & Company (TM&C) provides research and consulting services utilizing reasonable care and employing methodologies consistent with industry practice and applicable professional standards. Our assessments are based on our experience in the petroleum, renewable and biofuels markets and are consistent with practices commonly used in these sectors but ultimately represent our professional judgements and, in some cases, opinions. The outlook data and other information herein, do not include, nor should they be construed as including advice, guidance, or recommendations from TM&C to take, or not to take, any actions or decisions in relation to any matter, including without limitation, relating to investments, or the purchase or sale of any securities, shares or other assets of any kind. Should you take any such action, or decision based on information contained herein, you do so entirely at your own risk. TM&C does not guarantee the accuracy or completeness of the data or our assessments and shall have no liability whatsoever for any loss, damage, costs, or expenses incurred or suffered by you as a result of your reliance on them.

Table of Contents

WHO WE ARE

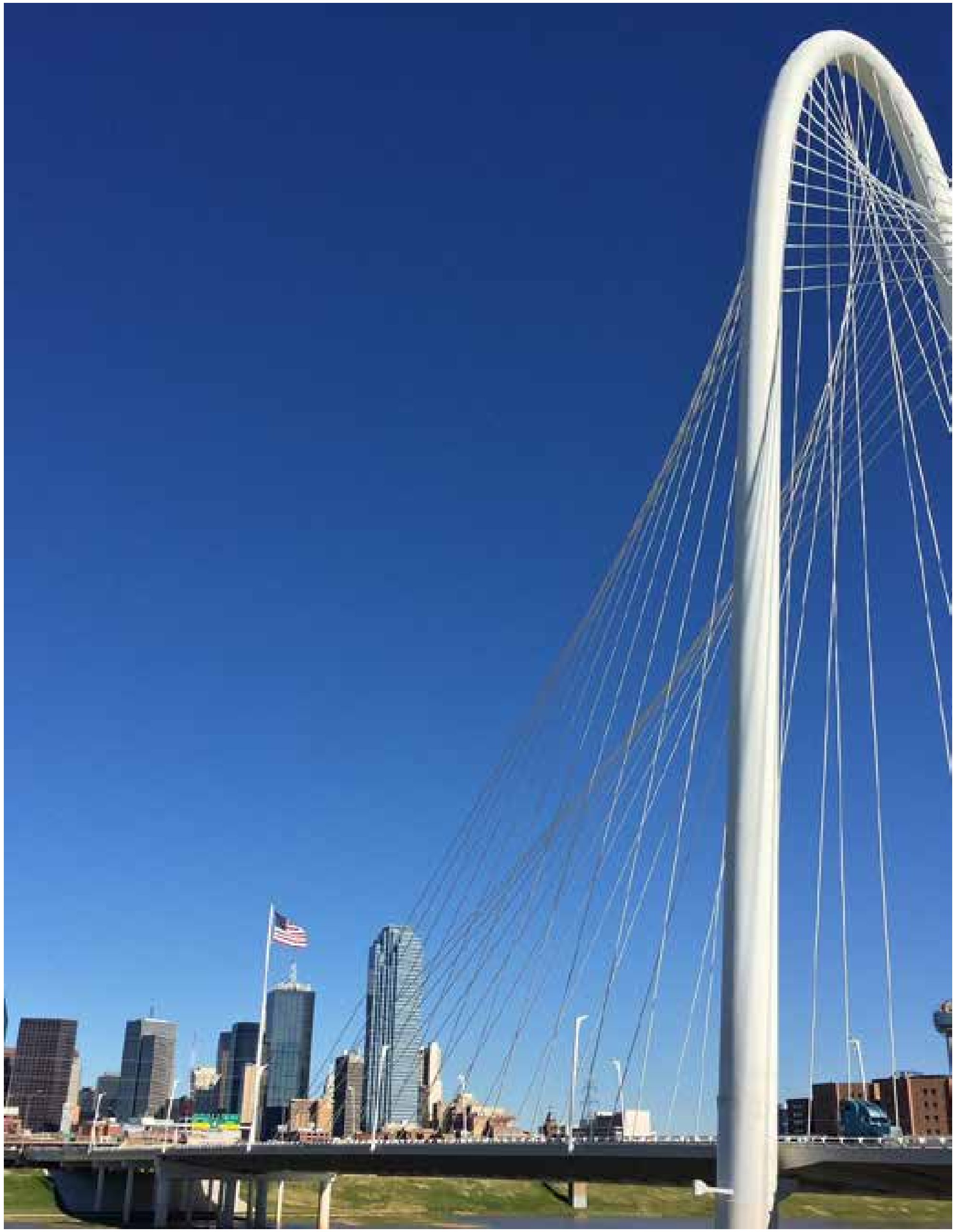
Turner, Mason & Company provides technical, commercial and strategic consulting services to worldwide clients in the crude oil, midstream, refining, refined products, petrochemicals and biofuels industries.

Founded: 1971

Offices: Dallas-Houston-London

Contact: Sam Davis (Houston)
Phone: (214) 754-0898
Email: sdavis@turnermason.com

Turner, Mason & Company
energy consulting & advisory



Crude and Refined Products Outlook
Spring 2025
Demand Outlook
Appendix 1

Appendix 1 - Table 1
Petroleum Products Demand Outlook
United States

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (excluding BBD)																															
Jet/Kero (including SAF)																															
Biomass Based Diesel																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (excluding BBD)																															
Jet/Kero (including SAF)																															
Biomass Based Diesel																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from US DOE/EIA.
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 1-1
Petroleum Products Demand Outlook
PADD 1

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Gasoline / Naphtha																															
Diesel (excluding BBD)																															
Jet/Kero (including SAF)																															
Biomass Based Diesel																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Middle Distillates (including SAF/BBD)																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from US DOE/EIA.
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 1-2
Petroleum Products Demand Outlook
PADD 2

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Gasoline / Naphtha																															
Diesel (excluding BBD)																															
Jet/Kero (including SAF)																															
Biomass Based Diesel																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Middle Distillates (including SAF/BBD)																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from US DOE/EIA.
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 1-3
Petroleum Products Demand Outlook
PADD 3

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Gasoline / Naphtha																															
Diesel (excluding BBD)																															
Jet/Kero (including SAF)																															
Biomass Based Diesel																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Middle Distillates (including SAF/BBD)																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from US DOE/EIA.
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 1-4
Petroleum Products Demand Outlook
PADD 4

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Gasoline / Naphtha																															
Diesel (excluding BBD)																															
Jet/Kero (including SAF)																															
Biomass Based Diesel																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Middle Distillates (including SAF/BBD)																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from US DOE/EIA.
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 1-5
Petroleum Products Demand Outlook
PADD 5

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Gasoline / Naphtha																															
Diesel (excluding BBD)																															
Jet/Kero (including SAF)																															
Biomass Based Diesel																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Middle Distillates (including SAF/BBD)																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from US DOE/EIA.
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 2
Petroleum Products Demand Outlook
Canada

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from BP Statistical Review and JODI
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Petroleum Products Demand Outlook
Mexico
Appendix 1 - Table 2

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from BP Statistical Review and JODI
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 3
Petroleum Products Demand Outlook
South and Central America

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from BP Statistical Review and JODI
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 4
Petroleum Products Demand Outlook
Europe

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[3]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[4]																															
Ethane and LPGs																															
Other[5]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[3]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[4]																															
Ethane and LPGs																															
Other[5]																															
Total Petroleum Products																															

(1) Excludes CIS; Includes Turkey
(2) Historical data from BP Statistical Review and JODI
(3) Naphtha feedstock and aviation gasoline.
(4) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(5) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 5
Petroleum Products Demand Outlook
Africa

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from BP Statistical Review and JODI
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 6
Petroleum Products Demand Outlook
Middle East

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from BP Statistical Review and JODI
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 7
Petroleum Products Demand Outlook
Commonwealth of Independent States (CIS)

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from BP Statistical Review and JODI
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 8
Petroleum Products Demand Outlook
Asia Pacific

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from BP Statistical Review and JODI
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 1 - Table 9
Petroleum Products Demand Outlook
Total World

	Actual[1]															Forecast															
Thousands of Barrels per Day	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															
Average Annual Growth Rates																															
Gasoline (including ethanol)																															
Other Gasoline / Naphtha[2]																															
Total Light Distillates																															
Diesel (including BBD)																															
Jet/Kero (including SAF)																															
Total Middle Distillates																															
Residual Fuels[3]																															
Ethane and LPGs																															
Other[4]																															
Total Petroleum Products																															

(1) Historical data from BP Statistical Review and JODI
(2) Naphtha feedstock and aviation gasoline.
(3) Includes resid bunker fuels, No. 6 oil and crude oil used directly as fuel.
(4) Includes other petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Crude and Refined Products Outlook
Spring 2025
Probable Refining Projects
Appendix 2

Turner, Mason & Company
energy consulting & advisory

Appendix 2 - Table 1
Probable Refinery Projects
Crude and Product Capacity Increases

(Unit Capacities in Thousands of Barrels per Day)

	Crude Capacity									Total	New	Total	Total
	Heavy	Medium	Lt. Sour	Lt. Swt.	Total	Gasoline	Mid. Dist.	Resid	Other Prod.	Products	Refineries	Projects	Cost - $MM
U.S.													
Canada/Mexico													
Latin America													
Europe													
Middle East													
Africa													
CIS													
Asia Pacific													
World Total													

Fall 2024 Outlook

Appendix 2 - Table 2
Probable Refinery Projects
Conversion Unit Capacity Changes
(Unit Capacities in Thousands of Barrels per Day)

	Coking	FCC	Hydrocracking	Total Conv. Units
U.S.				
Canada/Mexico				
Latin America				
Europe				
Middle East				
Africa				
CIS				
Asia Pacific				
World Total				

Fall 2024 Outlook

Appendix 2 - Table 3
Probable Refinery Projects
Octane Unit Capacity Changes
(Unit Capacities in Thousands of Barrels per Day)

	Reforming	Alky/Poly	C5/C6 Isomerization	Total Octane Units
U.S.				
Canada/Mexico				
Latin America				
Europe				
Middle East				
Africa				
CIS				
Asia Pacific				
World Total				

Fall 2024 Outlook

Appendix 2 - Table 4
Probable Refinery Projects
Other Unit Capacity Changes

(Unit Capacities in Thousands of Barrels per Day)

	Hydrotreating	Asphalt	Hydrogen MMSCF/D	Sulfur LT/D
U.S.				
Canada/Mexico				
Latin America				
Europe				
Middle East				
Africa				
CIS				
Asia Pacific				
World Total				

Fall 2024 Outlook

Appendix 2 - Table 5a
Probable Refinery Projects
Crude Capacity Increases By Year
(Unit Capacities in Thousands of Barrels per Day)

	2025	2026	2027	2028	2029
U.S. PADD I					
U.S. PADD II					
U.S. PADD III					
U.S. PADD IV					
U.S. PADD V					
U.S. PADD VI					
Total U.S.					
Canada/Mexico					
Latin America					
Europe					
Middle East					
Africa					
CIS					
Asia Pacific					
Total non-U.S.					
World Total					

Appendix 2 - Table 5b
Probable Refinery Projects
Heavy Crude Capacity Increases By Year
(Unit Capacities in Thousands of Barrels per Day)

	2025	2026	2027	2028	2029
U.S. PADD I					
U.S. PADD II					
U.S. PADD III					
U.S. PADD IV					
U.S. PADD V					
U.S. PADD VI					
Total U.S.					
Canada/Mexico					
Latin America					
Europe					
Middle East					
Africa					
CIS					
Asia Pacific					
Total non-U.S.					
World Total					

Turner, Mason & Company
energy consulting & advisory

Appendix 2 - Table 6a
Planned Construction Outlook
United States

(Unit Capacities in Thousands of Barrels per Day)

			Expected	Change to Crude Capacity					Change to Product Make					Cost
State	Company	Location	Compl'n	Heavy	Medium	Lt. Sour	Lt. Swt.	Total	Gasoline[1]	Distillates	Resid.	Other[2]	Total	$MM
PADD I														
PADD II														
OK														
PADD III														
PADD IV														
PADD V														
PADD VI														
Total														

(1) Includes naphtha and aviation gasoline.
(2) Includes LPGs, petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.
(3) Port Arthur coker expansion also allows for 21 MBPD increase in resid purchases and reduction of 47 MBPD of VGO purchases.

Appendix 2 - Table 6b
Planned Construction Outlook
United States
(Unit Capacities in Thousands of Barrels per Day)

State	Company	Location	Expected Compl'n	New Refinery?	Vacuum	Coking	FCC	HCU	Reform	Alky/Poly	C5/C6 Isom	HDS	Asphalt	Hydrogen MMSCF/D	Sulfur LT/D
PADD I															
PADD II															
OK															
PADD III															
PADD IV															
PADD V															
PADD VI[3]															
Total															

(1) Includes naphtha and aviation gasoline.
(2) Includes LPGs, petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.
(3) Port Arthur coker expansion also allows for 21 MBPD increase in resid purchases and reduction of 47 MBPD of VGO purchases.

Turner, Mason & Company
energy consulting & advisory

Appendix 2 - Table 7a
Planned Construction Outlook
Canada & Mexico

(Unit Capacities in Thousands of Barrels per Day)

			Expected	Change to Crude Capacity					Change to Product Make					Cost
Country	Company	Location	Compl'n	Heavy	Medium	Lt. Sour	Lt. Swt.	Total	Gasoline[1]	Distillates	Resid.	Other[2]	Total	$MM

(1) Includes naphtha and aviation gasoline.

(2) Includes LPGs, petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 2 - Table 7b
Planned Construction Outlook
Canada & Mexico

(Unit Capacities in Thousands of Barrels per Day)

Country	Company	Location	Expected Compl'n	New Refinery?	Vacuum	Coking	FCC	HCU	Reform	Alky/Poly	C5/C6 Isom	HDS	Asphalt	Hydrogen MMSCF/D	Sulfur LT/D

Appendix 2 - Table 8a
Planned Construction Outlook
Europe (excl. Former Soviet Union)

(Unit Capacities in Thousands of Barrels per Day)

			Expected	Change to Crude Capacity					Change to Product Make					Cost
Country	Company	Location	Compl'n	Heavy	Medium	Lt. Sour	Lt. Swt.	Total	Gasoline[1]	Distillates	Resid.	Other[2]	Total	$MM

(1) Includes naphtha and aviation gasoline.

(2) Includes LPGs, petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 2 - Table 8b
Planned Construction Outlook
Europe (excl. Former Soviet Union)

(Unit Capacities in Thousands of Barrels per Day)

Country	Company	Location	Expected Compl'n	New Refinery?	Vacuum	Coking	FCC	HCU	Reform	Alky/Poly	C5/C6 Isom	HDS	Asphalt	Hydrogen MMSCF/D	Sulfur LT/D

Appendix 2 - Table 9a
Planned Construction Outlook
Latin America

(Unit Capacities in Thousands of Barrels per Day)

			Expected	Change to Crude Capacity					Change to Product Make					Cost
Country	Company	Location	Compl'n	Heavy	Medium	Lt. Sour	Lt. Swt.	Total	Gasoline[1]	Distillates	Resid.	Other[2]	Total	$MM

Appendix 2 - Table 9b
Planned Construction Outlook
Latin America

(Unit Capacities in Thousands of Barrels per Day)

Country	Company	Location	Expected Compl'n	New Refinery?	Vacuum	Coking	FCC	HCU	Reform	Alky/Poly	C5/C6 Isom	HDS	Asphalt	Hydrogen MMSCF/D	Sulfur LT/D

Turner, Mason & Company
energy consulting & advisory

Appendix 2 - Table 10a
Planned Construction Outlook
Middle East

(Unit Capacities in Thousands of Barrels per Day)

			Expected	Change to Crude Capacity					Change to Product Make					Cost
Country	Company	Location	Compl'n	Heavy	Medium	Lt. Sour	Lt. Swt.	Total	Gasoline[1]	Distillates	Resid.	Other[2]	Total	$MM

Appendix 2 - Table 10b
Planned Construction Outlook
Middle East

(Unit Capacities in Thousands of Barrels per Day)

Country	Company	Location	Expected Compl'n	New Refinery?	Vacuum	Coking	FCC	HCU	Resid HCU	Reform	Alky/Poly	C5/C6 Isom	HDS	Asphalt	Hydrogen MMSCF/D	Sulfur LT/D

Appendix 2 - Table 11a
Planned Construction Outlook
Africa

(Unit Capacities in Thousands of Barrels per Day)

			Expected	Change to Crude Capacity					Change to Product Make					Cost
Country	Company	Location	Compl'n	Heavy	Medium	Lt. Sour	Lt. Swt.	Total	Gasoline[1]	Distillates	Resid.	Other[2]	Total	$MM

(1) Includes naphtha and aviation gasoline.
(2) Includes LPGs, petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 2 - Table 11b
Planned Construction Outlook
Africa

(Unit Capacities in Thousands of Barrels per Day)

Country	Company	Location	Expected Compl'n	New Refinery?	Vacuum	Coking	FCC	HCU	Reform	Alky/Poly	C5/C6 Isom	HDS	Asphalt	Hydrogen MMSCF/D	Sulfur LT/D

Appendix 2 - Table 12a
Planned Construction Outlook
Commonwealth of Independent States

(Unit Capacities in Thousands of Barrels per Day)

Country	Company	Location	Expected Compl'n	Change to Crude Capacity					Change to Product Make					Cost $MM
				Heavy	Medium	Lt. Sour	Lt. Swt.	Total	Gasoline[1]	Distillates	Resid.	Other[2]	Total	

Appendix 2 - Table 12b
Planned Construction Outlook
Commonwealth of Independent States

(Unit Capacities in Thousands of Barrels per Day)

Country	Company	Location	Expected Compl'n	New Refinery?	Vacuum	Coking	FCC	HCU	Reform	Alky/Poly	C5/C6 Isom	HDS	Asphalt	Hydrogen MMSCF/D	Sulfur LT/D

Appendix 2 - Table 13a
Planned Construction Outlook
Asia Pacific

(Unit Capacities in Thousands of Barrels per Day)

			Expected	Change to Crude Capacity					Change to Product Make					Cost
Country	Company	Location	Completion	Heavy	Medium	Lt. Sour	Lt. Swt.	Total	Gasoline[1]	Distillates	Resid.	Other[2]	Total	$MM

Appendix 2 - Table 13a
Planned Construction Outlook
Asia Pacific

(Unit Capacities in Thousands of Barrels per Day)

			Expected	Change to Crude Capacity					Change to Product Make					Cost
Country	Company	Location	Completion	Heavy	Medium	Lt. Sour	Lt. Swt.	Total	Gasoline[1]	Distillates	Resid.	Other[2]	Total	$MM

(1) Includes naphtha and aviation gasoline.
(2) Includes LPGs, petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Appendix 2 - Table 13b
Planned Construction Outlook
Asia Pacific

(Unit Capacities in Thousands of Barrels per Day)

Country	Company	Location	Expected Completion	New Refinery?	Vacuum	Coking	FCC	HCU	Resid HCU	Reform	Alky/Poly	C5/C6 Isom	HDS	Asphalt	Hydrogen MMSCF/D	Sulfur LT/D

Appendix 2 - Table 13b
Planned Construction Outlook
Asia Pacific

(Unit Capacities in Thousands of Barrels per Day)

Country	Company	Location	Expected Completion	New Refinery?	Vacuum	Coking	FCC	HCU	Resid HCU	Reform	Alky/Poly	C5/C6 Isom	HDS	Asphalt	Hydrogen MMSCF/D	Sulfur LT/D

(1) Includes naphtha and aviation gasoline.

(2) Includes LPGs, petrochemical feedstocks, lubricants/waxes, petroleum coke, asphalt, refinery gas and other miscellaneous products.

Turner, Mason & Company
energy consulting & advisory

Crude and Refined Products Outlook
Spring 2025
Price Outlook
Appendix 3

Appendix 3 – Table 1
Price Outlook
Crudes

(current dollars per barrel)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
KEY BENCHMARKS																
Brent (Sullom Voe)																
LLS (St. James)																
WTI (Cushing)																
WTI (Midland)																
WTI (Houston/MEH)																
WTS (Midland)																
Bakken (Clearbrook)																
Mars (Clovelly)																
Maya (FOB)																
Canadian WCS (Hardisty)																
Dubai (FOB)																
ANS																
Bonny Light																
Castilla																
DELIVERED CRUDE PRICING																
U.S. Gulf Coast																
WTI (Cushing Quality)																
LLS																
Bakken																
Mars																
Maya																
Castilla																
WCS																
Arab Light																
Arab Medium																
Arab Heavy																
U.S. Atlantic Coast																
Brent																
Bakken																
Bonny Light																
Arab Light																
Arab Medium																
Arab Heavy																
U.S. Midcontinent (Chicago)																
WTI (Cushing Quality)																
WTS																
Bakken																
WCS																
U.S. West Coast (Los Angeles)																
ANS																
Arab Light																
Castilla																
Northwest Europe																
Brent																
Arab Light																
Arab Medium																
Arab Heavy																
Urals																
Mediterranean																
Arab Light																
Arab Medium																
Arab Heavy																
Urals																
Singapore																
Arab Light																
Arab Medium																
Arab Heavy																
Dubai																

Appendix 3 – Table 2
Price Outlook
U.S. Gulf Coast

(current dollars per barrel)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Conventional Regular																
Conventional Premium																
RBOB Regular																
RBOB Premium																
Ethanol																
Jet - 54																
ULS Diesel																
High Sulfur Diesel																
Marine Gasoil (0.1% S)																
Marine Gasoil (0.5% S)																
Marine Fuel Oil (0.1% S)																
Marine Fuel Oil (0.5% S)																
GC No. 6 Fuel Oil (1% S)																
GC No. 6 Fuel Oil (3% S)																
Naphtha																
VGO (LS)																
VGO (MS)																
VGO (HS)																
LCO																
Propane																
Normal Butane																
Isobutane																
Natural Gasoline																
Benzene																
Toluene																
Xylene																
Propylene - Refinery Grade																
Natural Gas, $/MMBTU																
Petroleum Coke (Fuel Grade), $/Ton																
Asphalt, $/Ton																
Sulfur, $/Ton																
Electricity, $/MWh																
RFS Compliance Cost per Barrel																

Appendix 3 – Table 3
Price Outlook
U.S. Atlantic Coast (New York Harbor)

(current dollars per barrel)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Conventional Regular																
Conventional Premium																
RBOB Regular																
RBOB Premium																
Ethanol																
Jet - 54																
ULS Diesel																
High Sulfur Diesel																
Marine Gasoil (0.1% S)																
Marine Gasoil (0.5% S)																
Marine Fuel Oil (0.1% S)																
Marine Fuel Oil (0.5% S)																
No. 6 Fuel Oil (0.7% S)																
No. 6 Fuel Oil (1.0% S)																
No. 6 Fuel Oil (2.2% S)																
No. 6 Fuel Oil (3.0% S)																
Natural Gas, $/MMBTU																
Electricity, $/MWh																
RFS Compliance Cost per Barrel																

Appendix 3 – Table 4
Price Outlook
U.S. Midcontinent (Chicago)
(current dollars per barrel)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
CBOB Regular																
CBOB Premium																
RBOB Regular																
RBOB Premium																
Ethanol																
Jet - 54																
ULS Diesel																
Propane																
Normal Butane																
Isobutane																
Natural Gasoline																
RFS Compliance Cost per Barrel																

Appendix 3 – Table 5
Price Outlook
Group 3
(current dollars per barrel)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
CBOB Regular																
CBOB Premium																
Jet - 54																
ULS Diesel																
RFS Compliance Cost per Barrel																

Appendix 3 – Table 6
Price Outlook
U.S. West Coast (Los Angeles)
(current dollars per barrel)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Conventional Regular																
Conventional Premium																
CARBOB Regular																
CARBOB Premium																
Ethanol																
Jet - 54 Grade																
CARB Diesel																
Marine Gasoil (0.1% S)																
Marine Gasoil (0.5% S)																
Marine Fuel Oil (0.1% S)																
Marine Fuel Oil (0.5% S)																
MFO 180 CST (3.5% S)																
MFO 380 CST (3.0% S)																
Asphalt																
Natural Gas, $/MMBTU																
Elecricity, $/MWh																
RFS Compliance Cost per Barrel																

Appendix 3 – Table 7
Price Outlook
Northwest Europe
(current dollars per barrel)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Regular Unleaded - 91 RON																
Premium Unleaded - 95 RON																
Premium Unleaded - 98 RON																
ULS Diesel - 10 PPM																
High Sulfur Diesel																
Gasoil 0.1% S																
Jet Kerosene																
Naphtha																
VGO (0.5% S)																
VGO (2% S)																
Marine Gasoil (0.1% S)																
Marine Gasoil (0.5% S)																
Marine Fuel Oil (0.1% S)																
Marine Fuel Oil (0.5% S)																
No. 6 Fuel Oil (1.0% S)																
No. 6 Fuel Oil (3.5% S)																
MFO 180 CST																
MFO 380 CST																
Propane																
Butane																
Propylene, Chem Grade																
Benzene																
MTBE																

Appendix 3 – Table 8
Price Outlook
Mediterranean
(current dollars per barrel)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Regular Unleaded																
Premium Unleaded																
ULS Diesel - 10 PPM																
ULS Diesel - 50 PPM																
Gasoil 0.1% S																
Jet Kerosene																
Naphtha																
VGO (0.5% S)																
VGO (2% S)																
Marine Gasoil (0.1% S)																
Marine Gasoil (0.5% S)																
Marine Fuel Oil (0.1% S)																
Marine Fuel Oil (0.5% S)																
No. 6 Fuel Oil (1.0% S)																
No. 6 Fuel Oil (3.5% S)																
MFO 180 CST																
MFO 380 CST																
Propane																
Butane																
Propylene, Chem Grade																

Appendix 3 – Table 9
Price Outlook
Singapore
(current dollars per barrel)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Mogas 92																
Mogas 95																
Mogas 97																
Gasoil 10 ppm S																
Gasoil 50 ppm S																
Gasoil 0.05% S																
Gasoil 0.25% S																
Gasoil 0.50% S																
Jet Kerosene																
Naphtha																
Marine Gasoil (0.5%S)																
Marine Fuel Oil (0.5% S)																
HSFO 180 CST (2% S)																
HSFO 180 CST (3.5% S)																
HSFO 380 CST																
Benzene																

Appendix 3 – Table 10
Price Outlook
Key Crack Spreads

(current dollars per barrel)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
USGC 3:2:1 Crack vs WTI																
USGC 3:2:1 Crack vs WTI RIN Adj																
USEC 3:2:1 Crack vs Brent																
USEC 3:2:1 Crack vs Brent RIN Adj																
USWC 3:2:1 Crack vs ANS																
USWC 3:2:1 Crack vs ANS RIN Adj																
NWE 2:1:1 Crack vs Brent																
MED 6:3:2:1 Crack vs Arab Lt.																
Singapore 6:3:2:1 Crack vs Dubai																

Crude and Refined Products Outlook
Spring 2025
Midstream Project Outlook
Appendix 4

Appendix 4 - Table 1
Pipelines to Cushing

Operating Pipelines

Operator	Origin	Name	Capacity (MBPD)	Completion
Occidental	Permian Basin	Centurion		
TransCanada	Hardisty / Steele City	Keystone		
American Midstream Partners	Cherokee, OK	Cherokee		
Blueknight	Local Gathering System	Blueknight		
American Midstream Partners	Anadarko Basin	Great Salt Plains		
Plains All American	Medford, OK	Medford		
SemGroup	Niobrara / DJ Basin	White Cliffs		
Hawthorn	Local System	Hawthorn		
Plains / P66	STACK	STACK JV		
Enbridge	Flanagan, IL	Spearhead		
TallGrass Energy	Guernsey, WY	Pony Express		
Magellan / Plains	Niobrara / DJ Basin	Saddlehorn		
SemGroup	Anadarko Basin	Glass Mountain		
Enbridge	Flanagan, IL	Flanagan South		
NGL Engery Patners	DJ Basin / Niobrara	Grand Mesa		
Total Operating				

Likely Expansions

Operator	Origin	Name	Capacity (MBPD)	Completion
Enbridge	Flanagan, IL	Flanagan South Exp		
Operating + Planned				

Appendix 4 - Table 2
Pipelines from Cushing and Patoka

Operating Pipelines - from Cushing

Operator	Destination	Name	Capacity (MBPD)	Completion
TransCanada	Houston	Keystone		
Enterprise	Houston	Seaway		
Plains / CVR	Coffeyville	Broome		
Plains / CVR	Wynnewood	Ellis		
Plains / Valero	Ardmore, OK	Red River		
MPLX	Wood River / Patoka, IL	Ozark		
Plains / Valero	Memphis, TN	Diamond		
Holly Frontier Partners / Magellan	El Dorado, KS	Osage		
Holly Frontier	Local Refining	Tulsa Refinery		
Phillips 66	Local Refining	Ponca City		
Phillips 66	Borger, TX	Line 0		
Total Operating				

Likely Expansions - from Cushing

Operator	Destination	Name	Capacity (MBPD)	Completion
Enbridge / Enterprise	Houston/PA	Seaway Expansion		
Operating + Planned				

Operating - from Patoka, IL / Memphis, TN

Operator	Destination	Name	Capacity (MBPD)	Completion
Plains / Valero	St. James, LA	Capline		

Likely Expansions - from Patoka, IL / Memphis, TN

Operator	Destination	Name	Capacity (MBPD)	Completion
Plains / Valero	St. James, LA	Capline Expansions		

Appendix 4 - Table 3
Permian Crude Oil Pipelines

Operating Pipelines

Operator	Destination	Name	Capacity (MBPD)	Completion
Plains All American	Wichita Falls / Cushing	Basin / Sunrise		
Lotus Midstream	Cushing	Centurion		
Kinder Morgan	El Paso	Wink		
Enterprise Product Partners	Houston	Midland-to-Echo 1		
Enterprise Product Partners	Houston	Midland-to-Echo 2[1]		
Magellan	Houston	Longhorn		
Plains / Magellan	Houston	BridgeTex		
Energy Transfer	Houston	West Texas Gulf		
Enterprise	Houston	Midland-to-Echo 3[2]		
Plains / Exxon / Others	Houston / Baytown / Nederland	Wink-to-Webster		
Energy Transfer	Nederland	Permian Express I		
Energy Transfer	Corsicana / Nederland	Perman Express II		
Energy Transfer	Nederland	Permian Express III/IV		
Plains All American	Corpus Christi	Cactus		
Plains All American	Corpus Christi	Cactus II		
Enbridge / P66 / MPLX	Corpus Christi / Freeport	Gray Oak		
EPIC	Corpus Christi	EPIC		
Local Refining Capacity	N/A	Various		
Total Operating				

[1] Also know as "Seminole - Red"; Possible conversion back to NGL service at a future date

[2] Represents undivided joint interest in Wink-to-Webster Pipeline

Appendix 4 - Table 4
Permian NGL Pipelines

Operating Pipelines

Operator	Origin	Name	Capacity (MBPD)	Completion
Energy Transfer	Mont Belvieu	Lone Star Express		
Energy Transfer	Mont Belvieu	West Texas Gateway		
DCP Midstream	Mont Belvieu	Sand Hills		
Targa	Mont Belvieu	Grand Prix		
OneOK	Mont Belvieu	West Texas NGL / Mesquite /Arbuckle II		
Enterprise	Mont Belvieu	Shin Oak		
Enterprise	Mont Belvieu	Seminole Blue		
Enterprise	Mont Belvieu	Seminole Red(1)		
Enterprise	Mont Belvieu	Chaparral		
Enterprise	Mexican Border near El Paso, TX	Rio Grande		
EPIC	Corpus Christi	EPIC		
Total Operating				

Likely Expansions

Operator	Origin	Name	Capacity (MBPD)	Completion
Enterprise	Permian	Bahia		
OneOK	Mont Belvieu	West Texas NGL / Mesquite /Arbuckle II		
Operating + Planned				

(1)Also know as Midland-to-Echo 2

(2)Expected conversion orginally planned for 2021, but now delayed indefinetely

Appendix 4 - Table 5
Permian Natural Gas Pipelines

Operating Pipelines

Operator	Destination	Name	Capacity (BCF/D)	Completion
N/A	Various	1/1/2017 Base Capacity		
Energy Transfer	Mexican Border near El Paso	Commanche Trail		
Energy Transfer	Mexican Border near Big Bend	Trans Pecos		
Kinder Morgan / Targa	Agua Dulce / Corpus	Gulf Coast Express (GCX)		
Kinder Morgan / Apache / Eagleclaw	Houston	Permian Highway (PHP)		
MPLX	Agua Dulce / Corpus	Whistler		
MPLX	Agua Dulce / Corpus	Whistler		
Kinder Morgan / Targa	Agua Dulce / Corpus	Gulf Coast Express		
Kinder Morgan / Apache / Eagleclaw	Houston	Permian Highway		
Kinder Morgan	USGC	Permian Pass Pipeline		
Various	Various	Other Expansions		
Total Operating				

Likely Expansions

Operator	Destination	Name	Capacity (BCF/D)	Completion
WhiteWater / EnLink / Devon / MPLX	Katy / Houston	Matterhorn Express		
Energy Transfer	Katy / Houston	Warrior		
Operating + Planned				

Cancelled / Deferred

Operator	Destination	Name	Capacity (BCF/D)	Completion
Namerico Energy Holdings	Copus Christi	Pecos Trail		
Williams	Houston	Bluebonnet Market Express		
Sempra / Boardwalk	Houston	Permian-Katy (P2K)		
Tellurian	Driftwood LNG Export Terminal	Permian Global Access		

Appendix 4 - Table 6
Bakken Crude Oil Pipelines

Operating Pipelines and other Takeaway Capacity

Operator	Destination	Name	Capacity (MBPD)	Completion
Energy Transfer / Enbridge / MPLX / P66	Patoka, IL / Nederland, TX	DAPL		
True Pipelines	Guernsey, WY	Butte		
Enbridge	Clearbrook, MN[1]	Line 81		
Enbridge	Cromer, MB[1]	Line 26		
Plains All American	Regina, SK[1]	Bakken North / Wascana		
Kinder Morgan	Guernsey, WY	Double H		
N/A	Washington State and PADD 1	Base Crude-by-Rail[2]		
Marathon	Local Refinery	Mandan Refinery		
Total Operating				

[1]Terminate at Enbridge Mainline, which provides access to downstream markets

[2]Wider regional differentials would be neccesary to incentivize sustained rail movements above ~250 MBPD

Appendix 4 - Table 7
Western Canadian Sedimentary Basin Crude Oil Pipelines

Key Operating Pipelines

Operator	Destination	Name	Capacity (MBPD)	Completion
Enbridge	US PADD II, Eastern Canada	Enbridge Mainline		
Canadian Govt	Burnaby, BC / Anacortes, WA	Trans Mountain		
Enbridge	Wyoming / Wood River, IL	Express		
TC energy	Cushing, OK / Patoka, IL	Keystone		
Various	Various	Other Pipelines		
Various	N/A	Local Refining		
Enbridge	US PADD II, Eastern Canada	Mainline Optimizations		
TC energy	Cushing, OK / Patoka, IL	Keystone Expansion		
Canadian Govt	Burnaby, BC / Anacortes, WA	Trans Mountain Expansion		
Total Operating				

Cancelled / Deferred

Operator	Origin	Name	Capacity (MBPD)	Completion
TC Energy	Cushing, OK / Patoka, IL	Keystone XL		

(1)Reperesents portion availible to WCSB crude / condensate; Includes Line 3 Replacement

(2)Reperesents portion availible to WCSB crude / condensate; 15% of total capacity is assumed to be dedicated to refined products

Crude and Refined Products Outlook
Spring 2025
Crude and NGL Production Outlook
Appendix 5

Appendix 5 – Table 1
U.S. Liquids Production Outlook
Thousand Barrels per Day

	Actual										Forecast															
	2,015	2,016	2,017	2,018	2,019	2,020	2,021	2,022	2,023	2,024	2,025	2,026	2,027	2,028	2,029	2,030	2,031	2,032	2,033	2,034	2,035	2,036	2,037	2,038	2,039	2,040
Appalachia																										
Bakken																										
Permian																										
Eagle Ford																										
Niobrara																										
Gulf of Mexico																										
Alaska																										
California																										
Other																										
U.S. Total																										

Appendix 5 – Table 2
Canada Crude Production Outlook
Thousand Barrels per Day

	Actual[1]										Forecast															
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Eastern Canada Light																										
Eastern Canada Hvy																										
Total Eastern Canada																										
W Canada Light																										
W Canada Condensate																										
W Canada Conv Hvy																										
W Canada Upgraded Bitumen(1)																										
W Canada Non-Upgraded Bitumen																										
Total Western Canada																										
Total Canada Crude Oil Production																										

(1)Includes partially and fully upgraded bitumen

Total Raw Bitumen Production	
Total Lt	
Total Med	
Total Hvy	
Heavy share	

Turner, Mason & Company
energy consulting & advisory

Appendix 5 – Table 3
Western Canada Supply (Incl. Diluent)

Thousand Barrels per Day

	Actual									Forecast															
	2.015	2.016	2.017	2.018	2.019	2.020	2.021	2.022	2.023	2.024	2.025	2.026	2.027	2.028	2.029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
W Canada Lt																										
W Canada Condensate																										
W Canada Conv Hvy																										
W Canada Fully Upgraded Bitumen																										
Synthetic / Bitumen Blend (SynBit)																										
Partially Upgraded Bitumen(1)																										
W Canada Whole Bitumen																										
W Canada DilBit																										
Total Diluent Demand																										
Refinery Diluent Production																										
Local Condensate Used as Diluent																										
Local Lt Crude Used as Diluent																										
Imported Diluent Demand																										
Total W Canadian Supply (Incl Imported Diluent)																										
Western Canadian Lt/Med Supply																										
Western Canadian Heavy Supply																										

(1)Current/Past Partially Upgraded Bitumen is Albian Heavy Synthetic

Turner, Mason & Company
energy consulting & advisory

Appendix 5 – Table 4
Global Crude Oil Production Outlook
Thousand Barrels per Day

	Actual									Forecast															
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
CIS																									
Europe																									
Middle East																									
Latin America																									
Venezuela																									
Colombia																									
Brazil																									
Guyana																									
Other Latin America																									
Asia Pacific																									
N America																									

Turner, Mason & Company
energy consulting & advisory