

PART IV

Item 15. Exhibits and Financial Statement Schedules**(a) (1) Financial Statements**

See “Index to the Consolidated Financial Statements” set forth on Page F-1.

(2) Financial Statement Schedules

All schedules are omitted because they are either not applicable or the required information is shown in the Consolidated Financial Statements or notes thereto.

(3) Exhibits

Exhibit No.	Description
2.1*	— Share Purchase Agreement dated December 1, 2011 by and among Amoco Canada International Holdings B.V. and Plains Midstream Canada ULC (the schedules and exhibits have been omitted pursuant to Item 601(b)(2) of Regulation S-K) (incorporated by reference to Exhibit 2.1 to PAA’s Annual Report on Form 10-K for the year ended December 31, 2011).
2.2	— Agreement and Plan of Merger dated as of October 21, 2013, by and among Plains All American Pipeline, L.P., PAA Acquisition Company LLC, PAA Natural Gas Storage, L.P. and PNGS GP LLC (incorporated by reference to Exhibit 2.1 to PAA’s Current Report on Form 8-K filed October 24, 2013).
2.3**	— Simplification Agreement, dated as of July 11, 2016, by and among PAA GP Holdings LLC, Plains GP Holdings, L.P., Plains All American GP LLC, Plains AAP, L.P., PAA GP LLC and Plains All American Pipeline, L.P. (incorporated by reference to Exhibit 2.1 to PAA’s Current Report on Form 8-K filed July 14, 2016).
2.4**	— Securities Purchase Agreement dated as of January 19, 2017 by and between COG Operating LLC, as seller, and Plains Pipeline, L.P., as purchaser (the schedules and exhibits have been omitted pursuant to Item 601(b)(2) of Regulation S-K) (incorporated by reference to Exhibit 2.1 to PAA’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2017).
2.5**	— Securities Purchase Agreement dated as of January 19, 2017 by and between Frontier Midstream Solutions, LLC, as seller, and Plains Pipeline, L.P., as purchaser (the schedules and exhibits have been omitted pursuant to Item 601(b)(2) of Regulation S-K) (incorporated by reference to Exhibit 2.2 to PAA’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2017).
3.1	— Seventh Amended and Restated Agreement of Limited Partnership of Plains All American Pipeline, L.P. dated as of October 10, 2017 (incorporated by reference to Exhibit 3.1 to PAA’s Current Report on Form 8-K filed October 12, 2017).
3.2	— Seventh Amended and Restated Limited Liability Company Agreement of Plains All American GP LLC dated November 15, 2016 (incorporated by reference to Exhibit 3.3 to our Current Report on Form 8-K filed November 21, 2016).
3.3	— Eighth Amended and Restated Limited Partnership Agreement of Plains AAP, L.P. dated November 15, 2016 (incorporated by reference to Exhibit 3.4 to our Current Report on Form 8-K filed November 21, 2016).
3.4	— Amendment No. 1 dated September 26, 2018 to the Eighth Amended and Restated Limited Partnership Agreement of Plains AAP, L.P. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed October 2, 2018).
3.5	— Limited Liability Company Agreement of PAA GP LLC dated December 28, 2007 (incorporated by reference to Exhibit 3.3 to PAA’s Current Report on Form 8-K filed January 4, 2008).
3.6	— Certificate of Limited Partnership of Plains GP Holdings, L.P. (incorporated by reference to Exhibit 3.1 to our Registration Statement on Form S-1 (333-190227) filed July 29, 2013).

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- 3.7 — [Second Amended and Restated Agreement of Limited Partnership of Plains GP Holdings, L.P. dated as of November 15, 2016 \(incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed November 21, 2016\).](#)
- 3.8 — [Certificate of Formation of PAA GP Holdings LLC \(incorporated by reference to Exhibit 3.3 to our Registration Statement on Form S-1 \(333-190227\) filed July 29, 2013\).](#)
- 3.9 — [Third Amended and Restated Limited Liability Company Agreement of PAA GP Holdings LLC dated as of February 16, 2017 \(incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed February 21, 2017\).](#)
- 3.10 — [Amendment No. 1 dated October 1, 2018 to the Third Amended and Restated Limited Liability Company Agreement of PAA GP Holdings LLC \(incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed August 20, 2018\).](#)
- 3.11 — [Amendment No. 2 dated December 10, 2018 to the Third Amended and Restated Limited Liability Company Agreement of PAA GP Holdings LLC \(incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed December 11, 2018\).](#)
- 4.1 — [Indenture dated September 25, 2002 among Plains All American Pipeline, L.P., PAA Finance Corp. and Wachovia Bank, National Association, as trustee \(incorporated by reference to Exhibit 4.1 to PAA's Quarterly Report on Form 10-Q for the quarter ended September 30, 2002\).](#)
- 4.2 — [Sixth Supplemental Indenture \(Series A and Series B 6.70% Senior Notes due 2036\) dated May 12, 2006 among Plains All American Pipeline, L.P., PAA Finance Corp., the Subsidiary Guarantors named therein and Wachovia Bank, National Association, as trustee \(incorporated by reference to Exhibit 4.1 to PAA's Current Report on Form 8-K filed May 12, 2006\).](#)
- 4.3 — [Tenth Supplemental Indenture \(Series A and Series B 6.650% Senior Notes due 2037\) dated October 30, 2006 among Plains All American Pipeline, L.P., PAA Finance Corp., the Subsidiary Guarantors named therein and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.2 to PAA's Current Report on Form 8-K filed October 30, 2006\).](#)
- 4.4 — [Seventeenth Supplemental Indenture \(5.75% Senior Notes due 2020\) dated September 4, 2009 among Plains All American Pipeline, L.P., PAA Finance Corp., the Subsidiary Guarantors named therein and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.1 to PAA's Current Report on Form 8-K filed September 4, 2009\).](#)
- 4.5 — [Nineteenth Supplemental Indenture \(5.00% Senior Notes due 2021\) dated January 14, 2011 among Plains All American Pipeline, L.P., PAA Finance Corp., the Subsidiary Guarantors named therein and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.1 to PAA's Current Report on Form 8-K filed January 11, 2011\).](#)
- 4.6 — [Twentieth Supplemental Indenture \(3.65% Senior Notes due 2022\) dated March 22, 2012 among Plains All American Pipeline, L.P., PAA Finance Corp. and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.1 to PAA's Current Report on Form 8-K filed March 26, 2012\).](#)
- 4.7 — [Twenty-First Supplemental Indenture \(5.15% Senior Notes due 2042\) dated March 22, 2012 among Plains All American Pipeline, L.P., PAA Finance Corp. and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.3 to PAA's Current Report on Form 8-K filed March 26, 2012\).](#)
- 4.8 — [Twenty-Second Supplemental Indenture \(2.85% Senior Notes due 2023\) dated December 10, 2012, by and among Plains All American Pipeline, L.P., PAA Finance Corp. and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.1 to PAA's Current Report on Form 8-K filed December 12, 2012\).](#)
- 4.9 — [Twenty-Third Supplemental Indenture \(4.30% Senior Notes due 2043\) dated December 10, 2012, by and among Plains All American Pipeline, L.P., PAA Finance Corp. and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.3 to PAA's Current Report on Form 8-K filed December 12, 2012\).](#)
- 4.10 — [Twenty-Fourth Supplemental Indenture \(3.85% Senior Notes due 2023\) dated August 15, 2013, by and among Plains All American Pipeline, L.P., PAA Finance Corp. and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.1 to our Current Report on Form 8-K filed August 15, 2013\).](#)

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- 4.11 — [Twenty-Fifth Supplemental Indenture \(4.70% Senior Notes due 2044\) dated April 23, 2014, by and among Plains All American Pipeline, L.P., PAA Finance Corp. and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.1 to our Current Report on Form 8-K filed April 29, 2014\).](#)
- 4.12 — [Twenty-Sixth Supplemental Indenture \(3.60% Senior Notes due 2024\) dated September 9, 2014, by and among Plains All American Pipeline, L.P., PAA Finance Corp. and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.1 to our Current Report on Form 8-K filed September 11, 2014\).](#)
- 4.13 — [Twenty-Seventh Supplemental Indenture \(2.60% Senior Notes due 2019\) dated December 9, 2014, by and among Plains All American Pipeline, L.P., PAA Finance Corp. and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.1 to PAA's Current Report on Form 8-K filed December 11, 2014\).](#)
- 4.14 — [Twenty-Eighth Supplemental Indenture \(4.90% Senior Notes due 2045\) dated December 9, 2014, by and among Plains All American Pipeline, L.P., PAA Finance Corp. and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.3 to our Current Report on Form 8-K filed December 11, 2014\).](#)
- 4.15 — [Twenty-Ninth Supplemental Indenture \(4.65% Senior Notes due 2025\) dated August 24, 2015, by and among Plains All American Pipeline, L.P., PAA Finance Corp. and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.1 to PAA's Current Report on Form 8-K filed August 26, 2015\).](#)
- 4.16 — [Thirtieth Supplemental Indenture \(4.50% Senior Notes due 2026\) dated November 22, 2016, by and among Plains All American Pipeline, L.P., PAA Finance Corp. and U.S. Bank National Association, as trustee \(incorporated by reference to Exhibit 4.1 to PAA's Current Report on Form 8-K filed November 29, 2016\).](#)
- 4.17 — [Shareholder and Registration Rights Agreement dated October 21, 2013 by and among Plains GP Holdings, L.P. and the other parties signatory thereto \(incorporated by reference to Exhibit 4.1 to our Current Report on Form 8-K filed October 25, 2013\).](#)
- 10.1 — [Credit Agreement dated as of August 19, 2011 among Plains All American Pipeline, L.P., as Borrower; certain subsidiaries of Plains All American Pipeline, L.P. from time to time party thereto, as Designated Borrowers; Bank of America, N.A., as Administrative Agent; and the other Lenders party thereto \(incorporated by reference to Exhibit 10.1 to PAA's Current Report on Form 8-K filed August 25, 2011\).](#)
- 10.2 — [First Amendment to Credit Agreement dated as of June 27, 2012, among Plains All American Pipeline, L.P. and Plains Midstream Canada ULC, as Borrowers; Bank of America, N.A., as Administrative Agent, Swing Line Lender and L/C Issuer; Wells Fargo Bank, National Association, as an L/C Issuer; and the other Lenders party thereto \(incorporated by reference to Exhibit 10.2 to PAA's Current Report on Form 8-K filed July 3, 2012\).](#)
- 10.3 — [Second Amendment to Credit Agreement dated as of August 16, 2013, among Plains All American Pipeline, L.P. and Plains Midstream Canada ULC, as Borrowers; Bank of America, N.A., as Administrative Agent, Swing Line Lender and L/C Issuer; Wells Fargo Bank, National Association, as an L/C Issuer; and the other Lenders party thereto \(incorporated by reference to Exhibit 10.2 to PAA's Current Report on Form 8-K filed August 20, 2013\).](#)
- 10.4 — [Third Amendment to Credit Agreement dated as of August 11, 2016, among Plains All American Pipeline, L.P. and Plains Midstream Canada ULC, as Borrowers; Bank of America, N.A., as Administrative Agent, Swing Line Lender and L/C Issuer; Wells Fargo Bank, National Association, as an L/C Issuer; and the other Lenders party thereto \(incorporated by reference to Exhibit 10.1 to PAA's Current Report on Form 8-K filed August 17, 2016\).](#)
- 10.5 — [Third Amended and Restated Credit Agreement dated as of August 19, 2011 by and among Plains Marketing, L.P., as Borrower, Plains All American Pipeline, L.P., as Guarantor, Bank of America, N.A., as Administrative Agent, and the other Lenders party thereto \(incorporated by reference to Exhibit 10.2 to PAA's Current Report on Form 8-K filed August 25, 2011\).](#)
- 10.6 — [First Amendment to Third Amended and Restated Credit Agreement dated as of June 27, 2012, among Plains Marketing, L.P. and Plains Midstream Canada ULC, as Borrowers; Plains All American Pipeline, L.P., as Guarantor; Bank of America, N.A., as Administrative Agent, Swing Line Lender and L/C Issuer; and the other Lenders and L/C Issuers party thereto \(incorporated by reference to Exhibit 10.1 to PAA's Current Report on Form 8-K filed July 3, 2012\).](#)

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- 10.7 — [Second Amendment to Third Amended and Restated Credit Agreement dated as of August 16, 2013, among Plains Marketing, L.P. and Plains Midstream Canada ULC, as Borrowers; Plains All American Pipeline, L.P., as Guarantor; Bank of America, N.A., as Administrative Agent, Swing Line Lender and L/C Issuer; Wells Fargo Bank, National Association, as an L/C Issuer; and the other Lenders and L/C Issuers party thereto \(incorporated by reference to Exhibit 10.1 to PAA's Current Report on Form 8-K filed August 20, 2013\).](#)
- 10.8 — [Third Amendment to Third Amended and Restated Credit Agreement dated as of August 11, 2016, among Plains Marketing, L.P. and Plains Midstream Canada ULC, as Borrowers; Plains All American Pipeline, L.P., as Guarantor; Bank of America, N.A., as Administrative Agent, Swing Line Lender and L/C Issuer; Wells Fargo Bank, National Association, as an L/C Issuer; and the other Lenders and L/C Issuers party thereto \(incorporated by reference to Exhibit 10.3 to PAA's Current Report on Form 8-K filed August 17, 2016\).](#)
- 10.9 — [Fourth Amendment to Third Amended and Restated Credit Agreement dated as of August 16, 2017, among Plains Marketing, L.P. and Plains Midstream Canada ULC, as Borrowers; Plains All American Pipeline, L.P., as Guarantor; Bank of America, N.A., as Administrative Agent, Swing Line Lender and L/C Issuer; Wells Fargo Bank, National Association, as an L/C Issuer; and the other Lenders and L/C Issuers party thereto \(incorporated by reference to Exhibit 10.6 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2017\).](#)
- 10.10 — [Contribution, Conveyance and Assumption Agreement among Plains All American Pipeline, L.P. and certain other parties dated as of November 23, 1998. \(incorporated by reference to Exhibit 10.3 to PAA's Annual Report on Form 10-K for the year ended December 31, 1998\).](#)
- 10.11 — [First Amendment to Contribution, Conveyance and Assumption Agreement dated as of December 15, 1998 \(incorporated by reference to Exhibit 10.13 to PAA's Annual Report on Form 10-K for the year ended December 31, 1998\).](#)
- 10.12 — [Contribution, Assignment and Amendment Agreement dated as of June 27, 2001, among Plains All American Pipeline, L.P., Plains Marketing, L.P., All American Pipeline, L.P., Plains AAP, L.P., Plains All American GP LLC and Plains Marketing GP Inc. \(incorporated by reference to Exhibit 10.1 to PAA's Current Report on Form 8-K filed June 27, 2001\).](#)
- 10.13 — [Contribution, Assignment and Amendment Agreement dated as of June 8, 2001, among Plains All American Inc., Plains AAP, L.P. and Plains All American GP LLC \(incorporated by reference to Exhibit 10.1 to PAA's Current Report on Form 8-K filed June 11, 2001\).](#)
- 10.14 — [Separation Agreement dated as of June 8, 2001 among Plains Resources Inc., Plains All American Inc., Plains All American GP LLC, Plains AAP, L.P. and Plains All American Pipeline, L.P. \(incorporated by reference to Exhibit 10.2 to PAA's Current Report on Form 8-K filed June 11, 2001\).](#)
- 10.15*** — [Pension and Employee Benefits Assumption and Transition Agreement dated as of June 8, 2001 among Plains Resources Inc., Plains All American Inc. and Plains All American GP LLC \(incorporated by reference to Exhibit 10.3 to PAA's Current Report on Form 8-K filed June 11, 2001\).](#)
- 10.16 — [Contribution and Assumption Agreement dated December 28, 2007, by and between Plains AAP, L.P. and PAA GP LLC \(incorporated by reference to Exhibit 10.2 to PAA's Current Report on Form 8-K filed January 4, 2008\).](#)
- 10.17 — [Asset Purchase and Sale Agreement dated February 28, 2001 between Murphy Oil Company Ltd. and Plains Marketing Canada, L.P. \(incorporated by reference to Exhibit 99.1 to PAA's Current Report on Form 8-K filed May 10, 2001\).](#)
- 10.18 — [Transportation Agreement dated July 30, 1993, between All American Pipeline Company and Exxon Company, U.S.A. \(incorporated by reference to Exhibit 10.9 to PAA's Registration Statement on Form S-1 filed September 23, 1998, File No. 333-64107\).](#)
- 10.19 — [Transportation Agreement dated August 2, 1993, among All American Pipeline Company, Texaco Trading and Transportation Inc., Chevron U.S.A. and Sun Operating Limited Partnership \(incorporated by reference to Exhibit 10.10 to PAA's Registration Statement on Form S-1 filed September 23, 1998, File No. 333-64107\).](#)
- 10.20 — [Agreement for Purchase and Sale of Membership Interest in Scurlock Permian LLC between Marathon Ashland LLC and Plains Marketing, L.P. dated as of March 17, 1999 \(incorporated by reference to Exhibit 10.16 to PAA's Annual Report on Form 10-K for the year ended December 31, 1998\).](#)

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- 10.21 — [Membership Interest Purchase Agreement by and between Sempra Energy Trading Corporation and PAA/Vulcan Gas Storage, LLC dated August 19, 2005 \(incorporated by reference to Exhibit 1.2 to PAA's Current Report on Form 8-K filed September 19, 2005\).](#)
- 10.22 — [Contribution Agreement dated as of April 29, 2010 by and among PAA Natural Gas Storage, L.P., PNGS GP LLC, Plains All American Pipeline, L.P., PAA Natural Gas Storage, LLC, PAA/Vulcan Gas Storage, LLC, Plains Marketing, L.P. and Plains Marketing GP Inc. \(incorporated by reference to Exhibit 10.1 to PNG's Current Report on Form 8-K filed May 4, 2010\).](#)
- 10.23 — [Omnibus Agreement dated May 5, 2010 by and among Plains All American GP LLC, Plains All American Pipeline, L.P., PNGS GP LLC and PAA Natural Gas Storage, L.P. \(incorporated by reference to Exhibit 10.1 to PNG's Current Report on Form 8-K filed May 11, 2010\).](#)
- 10.24 — [Omnibus Agreement by and among PAA GP Holdings LLC, Plains GP Holdings, L.P., Plains All American GP LLC, Plains AAP, L.P., PAA GP LLC and Plains All American Pipeline, L.P., dated November 15, 2016 \(incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed November 21, 2016\).](#)
- 10.25 — [Amended and Restated Administrative Agreement by and among PAA GP Holdings LLC, Plains GP Holdings, L.P., Plains All American GP LLC, Plains AAP, L.P., PAA GP LLC, and Plains All American Pipeline, L.P., dated November 15, 2016 \(incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed November 21, 2016\).](#)
- 10.26*** — [Amended and Restated Employment Agreement between Plains All American GP LLC and Greg L. Armstrong dated as of June 30, 2001 \(incorporated by reference to Exhibit 10.1 to PAA's Quarterly Report on Form 10-Q for the quarter ended September 30, 2001\).](#)
- 10.27*** — [First Amendment to Amended and Restated Employment Agreement dated December 4, 2008 between Plains All American GP LLC and Greg L. Armstrong \(incorporated by reference to Exhibit 10.49 to PAA's Annual Report on Form 10-K for the year ended December 31, 2008\).](#)
- 10.28*** — [Waiver Agreement dated as of December 23, 2010 between Plains All American GP LLC and Greg L. Armstrong \(incorporated by reference to Exhibit 10.31 to PAA's Annual Report on Form 10-K for the year ended December 31, 2010\).](#)
- 10.29*** — [Waiver Agreement dated October 21, 2013 to the Amended and Restated Employment Agreement dated June 30, 2001 of Greg L. Armstrong \(incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed October 25, 2013\).](#)
- 10.30*** — [Second Amended and Restated Employment Agreement dated effective October 1, 2018 between Plains All American GP LLC and Greg L. Armstrong \(incorporated by reference to Exhibit 10.6 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2018\).](#)
- 10.31*** — [Amended and Restated Employment Agreement between Plains All American GP LLC and Harry N. Pefanis dated as of June 30, 2001 \(incorporated by reference to Exhibit 10.2 to PAA's Quarterly Report on Form 10-Q for the quarter ended September 30, 2001\).](#)
- 10.32*** — [First Amendment to Amended and Restated Employment Agreement dated December 4, 2008 between Plains All American GP LLC and Harry N. Pefanis \(incorporated by reference to Exhibit 10.50 to PAA's Annual Report on Form 10-K for the year ended December 31, 2008\).](#)
- 10.33*** — [Waiver Agreement dated as of December 23, 2010 between Plains All American GP LLC and Harry N. Pefanis \(incorporated by reference to Exhibit 10.32 to PAA's Annual Report on Form 10-K for the year ended December 31, 2010\).](#)
- 10.34*** — [Waiver Agreement dated October 21, 2013 to the Amended and Restated Employment Agreement dated June 30, 2001 of Harry N. Pefanis \(incorporated by reference to Exhibit 10.5 to our Current Report on Form 8-K filed October 25, 2013\).](#)
- 10.35*** — [Employment Agreement between Plains All American GP LLC and Willie Chiang dated July 10, 2015 \(incorporated by reference to Exhibit 10.53 to PAA's Annual Report on Form 10-K for the year ended December 31, 2015\).](#)
- 10.36*** — [Amended and Restated Employment Agreement dated effective October 1, 2018 between Plains All American GP LLC and Willie Chiang \(incorporated by reference to Exhibit 10.7 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2018\).](#)

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- 10.37*** — [First Amendment to Plains AAP, L.P. Class B Restricted Units Agreement dated August 25, 2016 \(Willie Chiang\) \(incorporated by reference to Exhibit 10.8 to PAA’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2016\).](#)
- 10.38*** — [Second Amendment dated March 22, 2018 to Plains AAP, L.P. Class B Restricted Units Agreement \(Willie Chiang\) \(incorporated by reference to Exhibit 10.1 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018\).](#)
- 10.39*** — [Amendment dated August 25, 2016 to LTIP Grant Letter dated August 24, 2015 \(Willie Chiang\)\(incorporated by reference to Exhibit 10.7 to PAA’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2016 filed November 8, 2016\).](#)
- 10.40*** — [Amendment dated March 22, 2018 to PAA LTIP Grant Letter dated August 24, 2015 \(Willie Chiang\) \(incorporated by reference to Exhibit 10.3 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018\).](#)
- 10.41*** — [LTIP Grant Letter dated August 16, 2018 \(Willie Chiang\) incorporated by reference to Exhibit 10.8 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2018\).](#)
- 10.42*** — [Plains All American GP LLC 1998 Long-Term Incentive Plan \(incorporated by reference to Exhibit 99.1 to PAA’s Registration Statement on Form S-8, File No. 333-74920\).](#)
- 10.43*** — [First Amendment to Plains All American GP LLC 1998 Long-Term Incentive Plan dated June 27, 2003 \(incorporated by reference to Exhibit 10.1 to PAA’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2003\).](#)
- 10.44*** — [Second Amendment to Plains All American GP LLC 1998 Long-Term Incentive Plan dated December 4, 2008 \(incorporated by reference to Exhibit 10.52 to PAA’s Annual Report on Form 10-K for the year ended December 31, 2008\).](#)
- 10.45*** — [Plains All American GP LLC 2005 Long-Term Incentive Plan \(incorporated by reference to Exhibit 10.1 to PAA’s Current Report on Form 8-K filed January 26, 2005\).](#)
- 10.46*** — [First Amendment to Plains All American GP LLC 2005 Long-Term Incentive Plan dated December 4, 2008 \(incorporated by reference to Exhibit 10.51 to PAA’s Annual Report on Form 10-K for the year ended December 31, 2008\).](#)
- 10.47*** — [Plains All American PPX Successor Long-Term Incentive Plan \(incorporated by reference to Exhibit 10.45 to PAA’s Annual Report on Form 10-K for the year ended December 31, 2006\).](#)
- 10.48*** — [Plains All American 2013 Long-Term Incentive Plan \(incorporated by reference to Exhibit A to PAA’s Definitive Proxy Statement filed on October 3, 2013\).](#)
- 10.49*** — [Plains All American PNG Successor Long-Term Incentive Plan \(incorporated by reference to Exhibit 4.4 to PAA’s Registration Statement on Form S-8 \(333-193139\) filed December 31, 2013\).](#)
- 10.50*** — [PAA Natural Gas Storage, L.P. 2010 Long-Term Incentive Plan \(incorporated by reference to Exhibit 10.2 to PNG’s Current Report on Form 8-K filed May 11, 2010\).](#)
- 10.51*** — [Plains GP Holdings, L.P. Long Term Incentive Plan, \(incorporated by reference to Exhibit 10.3 to our Current Report on Form 8-K filed October 25, 2013\).](#)
- 10.52*** — [Form of Plains AAP, L.P. Class B Restricted Units Agreement \(incorporated by reference to Exhibit 10.1 to PAA’s Current Report on Form 8-K filed January 4, 2008\).](#)
- 10.53*** — [Form of Amendment to the Plains AAP, L.P. Class B Restricted Units Agreement, dated October 18, 2013 \(incorporated by reference to Exhibit 10.6 to our Current Report on Form 8-K filed October 25, 2013\).](#)
- 10.54*** — [Form of Amendment to Plains AAP, L.P. Class B Restricted Units Agreement dated August 25, 2016 \(incorporated by reference to Exhibit 10.6 to PAA’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2016 filed November 8, 2016\).](#)
- 10.55*** — [Form of First Amendment dated March 22, 2018 to Amended and Restated Plains AAP, L.P. Class B Restricted Units Agreement dated August 25, 2016 \(Officers\) \(incorporated by reference to Exhibit 10.2 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018\).](#)

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10.56***	—	Form of PAA LTIP Grant Letter for Officers (August 2016) (incorporated by reference to Exhibit 10.5 to PAA’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2016).
10.57***	—	Form of Amendment dated March 22, 2018 to PAA LTIP Grant Letter dated August 25, 2016 (Officers) (incorporated by reference to Exhibit 10.4 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018).
10.58***	—	Form of LTIP Grant Letter for Officers (July 2017) (incorporated by reference to Exhibit 10.4 to PAA’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2017).
10.59***	—	Form of PAA LTIP Grant Letter for Officers (March 2018) (incorporated by reference to Exhibit 10.5 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018).
10.60***	—	Form of Director LTIP Grant Letter (February 2017) - Director Grant - Designated Directors and Audit Committee Members (PAA Plan) (incorporated by reference to Exhibit 10.1 to PAA’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2017).
10.61***	—	Form of Director LTIP Grant Letter (February 2017) - Audit Committee Supplement (PAA Plan) (incorporated by reference to Exhibit 10.2 to PAA’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2017).
10.62***	—	Form of Director LTIP Grant Letter (February 2017) - Independent Director Grant (PAA Plan) (incorporated by reference to Exhibit 10.3 to PAA’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2017).
10.63***	—	Form of Director LTIP Grant Letter (February 2017) - Director Grant - Designated Directors and Audit Committee Members (PAGP Plan) (incorporated by reference to Exhibit 10.1 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2017).
10.64***	—	Form of Director LTIP Grant Letter (February 2017) - Audit Committee Supplement (PAGP Plan) (incorporated by reference to Exhibit 10.2 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2017).
10.65***	—	Form of Director LTIP Grant Letter (February 2017) - Independent Director Grant (PAGP Plan) (incorporated by reference to Exhibit 10.3 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2017).
10.66***†	—	Form of Director LTIP Grant Letter (August 2018).
10.67***†	—	Director LTIP Grant Letter (December 2018).
10.68	—	Contribution Agreement dated October 21, 2013, by and among Plains GP Holdings, L.P., PAA GP Holdings LLC and the other parties signatory thereto (incorporated by reference to Exhibit 10.2 to our Current Report on Form 8-K filed October 25, 2013).
21.1 †	—	List of Subsidiaries of Plains GP Holdings, L.P.
23.1 †	—	Consent of PricewaterhouseCoopers LLP.
31.1 †	—	Certification of Principal Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a).
31.2 †	—	Certification of Principal Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a).
32.1 ††	—	Certification of Principal Executive Officer pursuant to 18 U.S.C. 1350.
32.2 ††	—	Certification of Principal Financial Officer pursuant to 18 U.S.C. 1350.
101.INS†	—	XBRL Instance Document
101.SCH†	—	XBRL Taxonomy Extension Schema Document
101.CAL†	—	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF†	—	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB†	—	XBRL Taxonomy Extension Label Linkbase Document

101.PRE† — XBRL Taxonomy Extension Presentation Linkbase Document

† Filed herewith.

†† Furnished herewith.

* Certain confidential portions of this exhibit have been omitted pursuant to an Application for Confidential Treatment under Rule 24b-2 under the Exchange Act. This exhibit, with the omitted language, has been filed separately with the Securities and Exchange Commission.

** Certain schedules have been omitted pursuant to Item 601(b)(2) of Regulation S-K. A copy of any omitted schedule will be furnished supplementally to the SEC upon request.

*** Management compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

PLAINS GP HOLDINGS, L.P.

By: PAA GP HOLDINGS LLC,
its general partner

By: /s/ Willie Chiang

Willie Chiang,
Chief Executive Officer of PAA GP Holdings LLC
(Principal Executive Officer)

February 26, 2019

By: /s/ Al Swanson

Al Swanson,
Executive Vice President and Chief Financial Officer
of PAA GP Holdings LLC
(Principal Financial Officer)

February 26, 2019

By: /s/ Chris Herbold

Chris Herbold,
Senior Vice President and Chief Accounting Officer of PAA GP Holdings LLC
(Principal Accounting Officer)

February 26, 2019

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Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Willie Chiang</u> Willie Chiang	Director and Chief Executive Officer of PAA GP Holdings LLC (Principal Executive Officer)	February 26, 2019
<u>/s/ Harry N. Pefanis</u> Harry N. Pefanis	Director, President and Chief Commercial Officer of PAA GP Holdings LLC	February 26, 2019
<u>/s/ Al Swanson</u> Al Swanson	Executive Vice President and Chief Financial Officer of PAA GP Holdings LLC (Principal Financial Officer)	February 26, 2019
<u>/s/ Chris Herbold</u> Chris Herbold	Senior Vice President and Chief Accounting Officer of PAA GP Holdings LLC (Principal Accounting Officer)	February 26, 2019
<u>/s/ Greg L. Armstrong</u> Greg L. Armstrong	Chairman of the Board of PAA GP Holdings LLC	February 26, 2019
<u>/s/ Oscar K. Brown</u> Oscar K. Brown	Director of PAA GP Holdings LLC	February 26, 2019
<u>/s/ Victor Burk</u> Victor Burk	Director of PAA GP Holdings LLC	February 26, 2019
<u>/s/ Everardo Goyanes</u> Everardo Goyanes	Director of PAA GP Holdings LLC	February 26, 2019
<u>/s/ Gary R. Petersen</u> Gary R. Petersen	Director of PAA GP Holdings LLC	February 26, 2019
<u>/s/ Alexandra D. Pruner</u> Alexandra D. Pruner	Director of PAA GP Holdings LLC	February 26, 2019
<u>/s/ John T. Raymond</u> John T. Raymond	Director of PAA GP Holdings LLC	February 26, 2019
<u>/s/ Bobby S. Shackouls</u> Bobby S. Shackouls	Director of PAA GP Holdings LLC	February 26, 2019
<u>/s/ Robert V. Sinnott</u> Robert V. Sinnott	Director of PAA GP Holdings LLC	February 26, 2019
<u>/s/ J. Taft Symonds</u> J. Taft Symonds	Director of PAA GP Holdings LLC	February 26, 2019
<u>/s/ Christopher M. Temple</u> Christopher M. Temple	Director of PAA GP Holdings LLC	February 26, 2019

**PLAINS GP HOLDINGS, L.P. AND SUBSIDIARIES
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MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Plains GP Holdings, L.P.'s management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles.

Internal control over financial reporting has inherent limitations. Internal control over financial reporting is a process that involves human diligence and compliance and is subject to lapses in judgment and breakdowns resulting from human failures. Internal control over financial reporting also can be circumvented by collusion or improper management override. Because of such limitations, there is a risk that material misstatements may not be prevented or detected on a timely basis by internal control over financial reporting. However, these inherent limitations are known features of the financial reporting process. Therefore, it is possible to design into the process safeguards to reduce, though not eliminate, this risk.

Management has used the framework set forth in the report entitled "Internal Control—Integrated Framework" (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") to evaluate the effectiveness of the Partnership's internal control over financial reporting. Based on that evaluation, management has concluded that the Partnership's internal control over financial reporting was effective as of December 31, 2018.

The effectiveness of the Partnership's internal control over financial reporting as of December 31, 2018 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears on Page F-3.

/s/ Willie Chiang

Willie Chiang

Chief Executive Officer and Director of PAA GP Holdings LLC

(Principal Executive Officer)

/s/ Al Swanson

Al Swanson

Executive Vice President and Chief Financial Officer of PAA GP Holdings LLC

(Principal Financial Officer)

February 26, 2019

Report of Independent Registered Public Accounting Firm

To the Board of Directors of PAA GP Holdings LLC and Shareholders of
Plains GP Holdings, L.P.:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Plains GP Holdings, L.P. and its subsidiaries (the “Partnership”) as of December 31, 2018 and 2017, and the related consolidated statements of operations, of comprehensive income, of changes in accumulated other comprehensive income/(loss), of changes in partners’ capital, and of cash flows for each of the three years in the period ended December 31, 2018, including the related notes (collectively referred to as the “consolidated financial statements”). We also have audited the Partnership’s internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Partnership as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Partnership maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Partnership’s management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Report on Internal Control over Financial Reporting. Our responsibility is to express opinions on the Partnership’s consolidated financial statements and on the Partnership’s internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Partnership in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP
Houston, Texas
February 26, 2019

We have served as the Partnership’s auditor since 2013.

PLAINS GP HOLDINGS, L.P. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(in millions, except share data)

	December 31, 2018	December 31, 2017
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	\$ 69	\$ 40
Trade accounts receivable and other receivables, net	2,454	3,029
Inventory	640	713
Other current assets	373	221
Total current assets	<u>3,536</u>	<u>4,003</u>
PROPERTY AND EQUIPMENT		
Accumulated depreciation	(3,103)	(2,796)
Property and equipment, net	<u>14,802</u>	<u>14,105</u>
OTHER ASSETS		
Goodwill	2,521	2,566
Investments in unconsolidated entities	2,702	2,756
Deferred tax asset	1,304	1,386
Linefill and base gas	916	872
Long-term inventory	136	164
Other long-term assets, net	913	901
Total assets	<u>\$ 26,830</u>	<u>\$ 26,753</u>
LIABILITIES AND PARTNERS' CAPITAL		
CURRENT LIABILITIES		
Trade accounts payable	\$ 2,705	\$ 3,324
Short-term debt	66	737
Other current liabilities	687	472
Total current liabilities	<u>3,458</u>	<u>4,533</u>
LONG-TERM LIABILITIES		
Senior notes, net	8,941	8,933
Other long-term debt, net	202	250
Other long-term liabilities and deferred credits	910	679
Total long-term liabilities	<u>10,053</u>	<u>9,862</u>
COMMITMENTS AND CONTINGENCIES (NOTE 18)		
PARTNERS' CAPITAL		
Class A shareholders (159,485,588 and 156,111,139 shares outstanding, respectively)	1,846	1,695
Noncontrolling interests	11,473	10,663
Total partners' capital	<u>13,319</u>	<u>12,358</u>
Total liabilities and partners' capital	<u>\$ 26,830</u>	<u>\$ 26,753</u>

The accompanying notes are an integral part of these consolidated financial statements.

PLAINS GP HOLDINGS, L.P. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(in millions, except per share data)

	Year Ended December 31,		
	2018	2017	2016
REVENUES			
Supply and Logistics segment revenues	\$ 32,819	\$ 25,056	\$ 19,004
Transportation segment revenues	648	612	632
Facilities segment revenues	588	555	546
Total revenues	<u>34,055</u>	<u>26,223</u>	<u>20,182</u>
COSTS AND EXPENSES			
Purchases and related costs	29,793	22,985	17,233
Field operating costs	1,263	1,183	1,182
General and administrative expenses	320	280	282
Depreciation and amortization	521	519	515
(Gains)/losses on asset sales and asset impairments, net	(114)	109	(20)
Total costs and expenses	<u>31,783</u>	<u>25,076</u>	<u>19,192</u>
OPERATING INCOME	2,272	1,147	990
OTHER INCOME/(EXPENSE)			
Equity earnings in unconsolidated entities	375	290	195
Gain on sale of investment in unconsolidated entities	200	—	—
Interest expense (net of capitalized interest of \$30, \$35 and \$47, respectively)	(431)	(510)	(480)
Other income/(expense), net	(7)	(31)	33
INCOME BEFORE TAX	2,409	896	738
Current income tax expense	(66)	(28)	(85)
Deferred income tax (expense)/benefit	(236)	(909)	7
NET INCOME/(LOSS)	2,107	(41)	660
Net income attributable to noncontrolling interests	(1,773)	(690)	(566)
NET INCOME/(LOSS) ATTRIBUTABLE TO PAGP	<u>\$ 334</u>	<u>\$ (731)</u>	<u>\$ 94</u>
BASIC NET INCOME/(LOSS) PER CLASS A SHARE	<u>\$ 2.12</u>	<u>\$ (5.03)</u>	<u>\$ 0.94</u>
DILUTED NET INCOME/(LOSS) PER CLASS A SHARE	<u>\$ 2.11</u>	<u>\$ (5.03)</u>	<u>\$ 0.94</u>
BASIC WEIGHTED AVERAGE CLASS A SHARES OUTSTANDING	<u>158</u>	<u>145</u>	<u>99</u>
DILUTED WEIGHTED AVERAGE CLASS A SHARES OUTSTANDING	<u>282</u>	<u>145</u>	<u>99</u>

The accompanying notes are an integral part of these consolidated financial statements.

PLAINS GP HOLDINGS, L.P. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in millions)

	Year Ended December 31,		
	2018	2017	2016
Net income/(loss)	\$ 2,107	\$ (41)	\$ 660
Other comprehensive income/(loss)	(260)	239	72
Comprehensive income	1,847	198	732
Comprehensive income attributable to noncontrolling interests	(1,570)	(881)	(618)
Comprehensive income/(loss) attributable to PAGP	\$ 277	\$ (683)	\$ 114

The accompanying notes are an integral part of these consolidated financial statements.

PLAINS GP HOLDINGS, L.P. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN ACCUMULATED
OTHER COMPREHENSIVE INCOME/(LOSS)
(in millions)

	Derivative Instruments	Translation Adjustments	Other	Total
Balance at December 31, 2015	\$ (203)	\$ (878)	\$ —	\$ (1,081)
Reclassification adjustments	8	—	—	8
Unrealized loss on hedges	(33)	—	—	(33)
Currency translation adjustments	—	96	—	96
Other	—	—	1	1
2016 Activity	(25)	96	1	72
Balance at December 31, 2016	\$ (228)	\$ (782)	\$ 1	\$ (1,009)
Reclassification adjustments	21	—	—	21
Unrealized loss on hedges	(16)	—	—	(16)
Currency translation adjustments	—	234	—	234
2017 Activity	5	234	—	239
Balance at December 31, 2017	\$ (223)	\$ (548)	\$ 1	\$ (770)
Reclassification adjustments	8	—	—	8
Unrealized gain on hedges	38	—	—	38
Currency translation adjustments	—	(305)	—	(305)
Other	—	—	(1)	(1)
2018 Activity	46	(305)	(1)	(260)
Balance at December 31, 2018	\$ (177)	\$ (853)	\$ —	\$ (1,030)

The accompanying notes are an integral part of these consolidated financial statements.

PLAINS GP HOLDINGS, L.P. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in millions)

	Year Ended December 31,		
	2018	2017	2016
CASH FLOWS FROM OPERATING ACTIVITIES			
Net income/(loss)	\$ 2,107	\$ (41)	\$ 660
Reconciliation of net income to net cash provided by operating activities:			
Depreciation and amortization	521	519	515
(Gains)/losses on asset sales and asset impairments, net	(114)	109	(20)
Equity-indexed compensation expense	79	41	60
Inventory valuation adjustments (Note 5)	8	35	3
Deferred income tax expense/(benefit)	236	909	(7)
Settlement of terminated interest rate hedging instruments	14	(29)	(29)
Change in fair value of Preferred Distribution Rate Reset Option (Note 13)	14	(13)	(30)
Equity earnings in unconsolidated entities	(375)	(290)	(195)
Distributions on earnings from unconsolidated entities	422	304	216
Gain on sale of investment in unconsolidated entities	(200)	—	—
Other	25	10	25
Changes in assets and liabilities, net of acquisitions:			
Trade accounts receivable and other	309	(511)	(524)
Inventory	(75)	605	(463)
Trade accounts payable and other current liabilities	(367)	848	507
Net cash provided by operating activities	<u>2,604</u>	<u>2,496</u>	<u>718</u>
CASH FLOWS FROM INVESTING ACTIVITIES			
Cash paid in connection with acquisitions, net of cash acquired (Note 7)	—	(1,280)	(282)
Investments in unconsolidated entities (Note 9)	(468)	(416)	(301)
Additions to property, equipment and other	(1,634)	(1,024)	(1,334)
Proceeds from sales of assets (Note 7)	1,334	1,083	654
Return of investment from unconsolidated entities (Note 9)	10	21	—
Cash received from sales of linefill and base gas	—	49	—
Cash paid for purchases of linefill and base gas	(45)	(2)	(7)
Other investing activities	(10)	(1)	(3)
Net cash used in investing activities	<u>(813)</u>	<u>(1,570)</u>	<u>(1,273)</u>
CASH FLOWS FROM FINANCING ACTIVITIES			
Net repayments under PAA commercial paper program (Note 11)	(123)	(690)	(564)
Net borrowings/(repayments) under PAA senior secured hedged inventory facility (Note 11)	(778)	36	447
Net repayments under AAP senior secured revolving credit facility (Note 11)	—	—	(9)
Repayment of AAP term loan (Note 11)	—	—	(550)
Proceeds from PAA GO Zone term loans (Note 11)	200	—	—
Proceeds from the issuance of PAA senior notes (Note 11)	—	—	748
Repayments of PAA senior notes (Note 11)	—	(1,350)	(175)
Net proceeds from the sale of Class A shares (Note 12)	—	1,535	—
Net proceeds from the sale of preferred units by a subsidiary (Note 12)	—	788	1,569
Net proceeds from the sale of common units by a subsidiary (Note 12)	—	129	796
Distributions paid to Class A shareholders (Note 12)	(189)	(271)	(234)
Distributions paid to noncontrolling interests (Note 12)	(843)	(1,122)	(1,419)
Other financing activities	(20)	5	(38)
Net cash provided by/(used in) financing activities	<u>(1,753)</u>	<u>(940)</u>	<u>571</u>
Effect of translation adjustment on cash	(9)	4	4
Net increase/(decrease) in cash and cash equivalents	29	(10)	20
Cash and cash equivalents, beginning of period	40	50	30
Cash and cash equivalents, end of period	<u>\$ 69</u>	<u>\$ 40</u>	<u>\$ 50</u>
Cash paid for:			
Interest, net of amounts capitalized	\$ 400	\$ 486	\$ 462

The accompanying notes are an integral part of these consolidated financial statements.

PLAINS GP HOLDINGS, L.P. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN PARTNERS' CAPITAL
(in millions)

	Class A Shareholders	Noncontrolling Interests	Total Partners' Capital
Balance at December 31, 2015	\$ 1,762	\$ 7,472	\$ 9,234
Net income	94	566	660
Distributions (Note 12)	(234)	(1,419)	(1,653)
Deferred tax asset (Note 14)	92	—	92
Change in ownership interest in connection with Exchange Right exercises (Note 12)	(18)	18	—
Sale of Series A preferred units by a subsidiary	—	1,509	1,509
Sales of common units by a subsidiary	37	759	796
Other comprehensive income (Note 12)	20	52	72
Equity-indexed compensation expense	2	24	26
Other	(18)	(11)	(29)
Balance at December 31, 2016	\$ 1,737	\$ 8,970	\$ 10,707
Net income/(loss)	(731)	690	(41)
Distributions (Note 12)	(271)	(1,128)	(1,399)
Deferred tax asset (Note 14)	403	—	403
Sales of Class A shares (Note 12)	462	1,073	1,535
Change in ownership interest in connection with Exchange Right exercises (Note 12)	9	(9)	—
Sale of Series B preferred units by a subsidiary	—	788	788
Sales of common units by a subsidiary	13	116	129
Issuance of common units by a subsidiary for acquisition of interest in Advantage Joint Venture (Note 7)	5	35	40
Sale of interest in SLC Pipeline LLC by a subsidiary (Note 7)	—	(57)	(57)
Other comprehensive income (Note 12)	48	191	239
Equity-indexed compensation expense	5	17	22
Other	15	(23)	(8)
Balance at December 31, 2017	\$ 1,695	\$ 10,663	\$ 12,358
Impact of adoption of ASU 2017-05 (Note 2)	24	89	113
Balance at January 1, 2018	1,719	10,752	12,471
Net income	334	1,773	2,107
Distributions (Note 12)	(189)	(880)	(1,069)
Deferred tax asset (Note 14)	22	—	22
Change in ownership interest in connection with Exchange Right exercises (Note 12)	7	(7)	—
Other comprehensive loss (Note 12)	(57)	(203)	(260)
Equity-indexed compensation expense	10	46	56
Other	—	(8)	(8)
Balance at December 31, 2018	\$ 1,846	\$ 11,473	\$ 13,319

The accompanying notes are an integral part of these consolidated financial statements.

PLAINS GP HOLDINGS, L.P. AND SUBSIDIARIES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Note 1—Organization and Basis of Consolidation and Presentation

Organization

Plains GP Holdings, L.P. (“PAGP”) is a Delaware limited partnership formed in July 2013 that has elected to be taxed as a corporation for United States federal income tax purposes. PAGP does not directly own any operating assets; as of December 31, 2018, its principal sources of cash flow are derived from an indirect investment in Plains All American Pipeline, L.P. (“PAA”), a publicly traded Delaware limited partnership. As used in this Form 10-K and unless the context indicates otherwise (taking into account the fact that PAGP has no operating activities apart from those conducted by PAA and its subsidiaries), the terms “Partnership,” “we,” “us,” “our,” “ours” and similar terms refer to PAGP and its subsidiaries.

As of December 31, 2018, PAGP owned (i) a 100% managing member interest in Plains All American GP LLC (“GP LLC”), an entity that has also elected to be taxed as a corporation for United States federal income tax purposes and (ii) an approximate 57% limited partner interest in Plains AAP, L.P. (“AAP”) through our direct ownership of approximately 158.5 million Class A units of AAP (“AAP units”) and indirect ownership of approximately 1.0 million AAP units through GP LLC. GP LLC is a Delaware limited liability company that also holds the non-economic general partner interest in AAP. AAP is a Delaware limited partnership that, as of December 31, 2018, directly owned a limited partner interest in PAA through its ownership of approximately 280.5 million PAA common units (approximately 35% of PAA’s total outstanding common units and Series A preferred units combined (together, “PAA Common Unit Equivalents”). AAP is the sole member of PAA GP LLC (“PAA GP”), a Delaware limited liability company that directly holds the non-economic general partner interest in PAA.

PAA is a publicly traded master limited partnership that owns and operates midstream energy infrastructure and provides logistics services primarily for crude oil, natural gas liquids (“NGL”) and natural gas. PAA owns an extensive network of pipeline transportation, terminalling, storage and gathering assets in key crude oil and NGL producing basins and transportation corridors and at major market hubs in the United States and Canada. Our business activities are conducted through three operating segments: Transportation, Facilities and Supply and Logistics. See Note 20 for further discussion of our operating segments.

PAA GP Holdings LLC, a Delaware limited liability company, is our general partner. Our general partner manages our operations and activities and is responsible for exercising on our behalf any rights we have as the sole and managing member of GP LLC, including responsibility for conducting the business and managing the operations of AAP and PAA. GP LLC employs our domestic officers and personnel involved in the operation and management of AAP and PAA. PAA’s Canadian officers and personnel are employed by our subsidiary, Plains Midstream Canada ULC.

References to the “Plains Entities” include us, our general partner, GP LLC, AAP, PAA GP and PAA and its subsidiaries.

Simplification Transactions

On November 15, 2016, the Plains Entities closed a series of transactions and executed several organizational and ancillary documents (the “Simplification Transactions”) intended to simplify our capital structure, better align the interests of our stakeholders and improve our overall credit profile. The Simplification Transactions included, among other things:

- the permanent elimination of PAA’s incentive distribution rights (“IDRs”) and the economic rights associated with its 2% general partner interest in exchange for the issuance by PAA to AAP of 245.5 million PAA common units (including approximately 0.8 million units to be issued in the future) and the assumption by PAA of all of AAP’s outstanding debt (\$642 million);
- the implementation of a unified governance structure pursuant to which the board of directors of GP LLC was eliminated and an expanded board of directors of our general partner assumed oversight responsibility over both us and PAA;

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- the provision for annual shareholder elections beginning in 2018 for the purpose of electing certain directors, and the participation of PAA's common unitholders and Series A preferred unitholders in such elections through PAA's ownership of our Class C shares, which provide PAA, as the sole holder of such Class C shares, the right to vote, as directed by PAA's common and Series A preferred unitholders, in elections of eligible directors together with the holders of our Class A and Class B shares;
- the execution by AAP of a reverse split to adjust the number of AAP units such that the number of outstanding AAP units (assuming the conversion of AAP Class B units (the "AAP Management Units") into AAP units) equaled the number of PAA common units received by AAP at the closing of the Simplification Transactions. Simultaneously, we executed reverse splits to adjust the number of (i) Class A shares outstanding to equal the number of AAP units we owned following AAP's reverse unit split and (ii) Class B shares outstanding to equal the number of AAP units owned by AAP's unitholders other than us following AAP's reverse unit split. These reverse splits, along with the Omnibus Agreement, resulted in economic alignment between our Class A shareholders and PAA's common unitholders, such that the number of outstanding Class A shares equals the number of AAP units owned by us, which in turn equals the number of PAA common units held by AAP that are attributable to our interest in AAP. The Plains Entities also entered into an Omnibus Agreement, pursuant to which such one-to-one relationship will be maintained subsequent to the closing of the Simplification Transactions; and
- the creation of a right for certain holders of the AAP units to cause AAP to redeem such AAP units in exchange for an equal number of PAA common units held by AAP. Holders of AAP units other than us and GP LLC continue to have the right to exchange their AAP units (together with the corresponding Class B shares and, if applicable, units of our general partner) for our Class A shares on a one-for-one basis.

The Simplification Transactions were between and among consolidated subsidiaries of PAGP that are considered entities under common control. These equity transactions did not result in a change in the carrying value of the underlying assets and liabilities. In addition, the Simplification Transactions did not result in a change in ownership interest of PAGP in PAA as described in Accounting Standards Codification ("ASC") 810-10-45-22, but instead were designed to be an exchange of equal economic ownership interests.

As part of the Simplification Transactions, as discussed above, we effected a reverse split of our Class A and Class B shares, in each case, at a ratio of approximately 1-for-2.663. The effect of the reverse split has been retroactively applied to all share and per-share amounts presented in this Form 10-K.

Definitions

Additional defined terms are used in the following notes and shall have the meanings indicated below:

AOCI	=	Accumulated other comprehensive income/(loss)
ASC	=	Accounting Standards Codification
ASU	=	Accounting Standards Update
Bcf	=	Billion cubic feet
CAD	=	Canadian dollar
DERs	=	Distribution equivalent rights
EBITDA	=	Earnings before interest, taxes, depreciation and amortization
EPA	=	United States Environmental Protection Agency
FASB	=	Financial Accounting Standards Board
GAAP	=	Generally accepted accounting principles in the United States
ICE	=	Intercontinental Exchange
ISDA	=	International Swaps and Derivatives Association
LIBOR	=	London Interbank Offered Rate
LTIP	=	Long-term incentive plan
Mcf	=	Thousand cubic feet
NGL	=	Natural gas liquids, including ethane, propane and butane
NYMEX	=	New York Mercantile Exchange
Oxy	=	Occidental Petroleum Corporation or its subsidiaries
PLA	=	Pipeline loss allowance
USD	=	United States dollar
WTI	=	West Texas Intermediate

Basis of Consolidation and Presentation

The accompanying financial statements and related notes present and discuss our consolidated financial position as of December 31, 2018 and 2017, and the consolidated results of our operations, cash flows, changes in partners' capital, comprehensive income and changes in accumulated other comprehensive income/(loss) for the years ended December 31, 2018, 2017 and 2016. All significant intercompany transactions have been eliminated in consolidation, and certain reclassifications have been made to information from previous years to conform to the current presentation.

Effective for the fourth quarter of 2018, we present "(Gains)/losses on asset sales and asset impairments, net" as a separate line item on our Consolidated Statements of Operations. To conform to the current year presentation, amounts related to gains and losses on asset sales and asset impairments previously presented in "Depreciation and amortization" are now presented in "(Gains)/losses on asset sales and asset impairments, net" on our Consolidated Statements of Operations. This change was applied retrospectively and does not affect Operating income, Net income or Net income attributable to PAGP.

Also effective for the fourth quarter of 2018, we began presenting "Trade accounts payable" as a separate line item within Current Liabilities on our Consolidated Balance Sheets. To conform to the current year presentation, approximately \$135 million previously reported in "Accounts payable and accrued liabilities" is now presented in "Other current liabilities" as of December 31, 2017. This change does not affect Total Current Liabilities, Total Liabilities or working capital.

The accompanying consolidated financial statements include the accounts of PAGP and all of its wholly owned subsidiaries and those entities that it controls. Investments in entities over which we have significant influence but not control are accounted for by the equity method. We apply proportionate consolidation for pipelines and other assets in which we own undivided joint interests.

Management judgment is required to evaluate whether PAGP controls an entity. Key areas of that evaluation include (i) determining whether an entity is a variable interest entity ("VIE"); (ii) determining whether PAGP is the primary beneficiary of a VIE, including evaluating which activities of the VIE most significantly impact its economic performance and the degree of power that PAGP and its related parties have over those activities through variable interests; and (iii) identifying events that require reconsideration of whether an entity is a VIE and continuously evaluating whether PAGP is a VIE's primary beneficiary.

We have determined that our subsidiaries, PAA and AAP, are VIEs and should be consolidated by PAGP because:

- The limited partners of PAA and AAP lack (i) substantive "kick-out rights" (i.e., the right to remove the general partner) based on a simple majority or lower vote and (ii) substantive participation rights and thus lack the ability to block actions of the general partner that most significantly impact the economic performance of PAA and AAP, respectively.
- AAP is the primary beneficiary of PAA because it has the power to direct the activities that most significantly impact PAA's performance and the right to receive benefits, and obligation to absorb losses, that could be significant to PAA.
- PAGP is the primary beneficiary of AAP because it has the power to direct the activities that most significantly impact AAP's performance and the right to receive benefits, and obligation to absorb losses, that could be significant to AAP.

With the exception of a deferred tax asset of \$1,304 million and \$ 1,386 million as of December 31, 2018 and 2017, respectively, substantially all assets and liabilities presented on PAGP's Consolidated Balance Sheets are those of PAA. Only the assets of each respective VIE can be used to settle the obligations of that individual VIE, and the creditors of each/either of those VIEs do not have recourse against the general credit of PAGP. PAGP did not provide any financial support to PAA or AAP during the years ended December 31, 2018, 2017 or 2016. See Note 16 for information regarding the Omnibus Agreement entered into in connection with the Simplification Transactions.

Subsequent events have been evaluated through the financial statements issuance date and have been included in the following footnotes where applicable.

Note 2 —Summary of Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, as well as the disclosure of contingent assets and liabilities at the date of the financial statements. Such estimates and assumptions also affect the reported amounts of revenues and expenses during the reporting period. We make significant estimates with respect to (i) estimated fair value of assets and liabilities acquired and identification of associated goodwill and intangible assets, (ii) impairment assessments of goodwill and intangible assets, (iii) fair value of derivatives, (iv) accruals and contingent liabilities, (v) equity-indexed compensation plan accruals, (vi) property and equipment, depreciation and amortization expense, asset retirement obligations and impairments, (vii) allowance for doubtful accounts and (viii) inventory valuations. Although we believe these estimates are reasonable, actual results could differ from these estimates.

Purchases and Related Costs

Purchases and related costs include (i) the weighted average cost of crude oil, NGL and natural gas sold to customers, (ii) fees incurred for storage and transportation, whether by pipeline, truck, rail, ship or barge and (iii) performance-related bonus costs. These costs are recognized when incurred except in the case of products sold, which are recognized at the time title transfers to our customers. Inventory exchanges under buy/sell transactions are presented net in “Purchases and related costs” in our Consolidated Statements of Operations.

Field Operating Costs and General and Administrative Expenses

Field operating costs consist of various field operating expenses, including payroll, compensation and benefits costs for operations personnel; fuel and power costs (including the impact of gains and losses from derivative related activities); third-party trucking transportation costs for our U.S. crude oil operations; maintenance and integrity management costs; regulatory compliance; environmental remediation; insurance; costs for usage of third-party owned pipeline, rail and storage assets; vehicle leases; and property taxes. General and administrative expenses consist primarily of payroll, compensation and benefits costs; certain information systems and legal costs; office rent; contract and consultant costs; and audit and tax fees.

Foreign Currency Transactions/Translation

Certain of our subsidiaries use the Canadian dollar as their functional currency. Assets and liabilities of subsidiaries with a Canadian dollar functional currency are translated at period-end rates of exchange, and revenues and expenses are translated at average exchange rates prevailing for each month. The resulting translation adjustments are made directly to a separate component of other comprehensive income, which is reflected in Partners’ Capital on our Consolidated Balance Sheets.

Certain of our subsidiaries also enter into transactions and have monetary assets and liabilities that are denominated in a currency other than the entities’ respective functional currencies. Gains and losses from the revaluation of foreign currency transactions and monetary assets and liabilities are included in the Consolidated Statements of Operations. The revaluation of foreign currency transactions and monetary assets and liabilities resulted in a net gain of \$1 million and \$21 million for the years ended December 31, 2018 and 2017, respectively, and a net loss of \$8 million for the year ended December 31, 2016 .

Cash and Cash Equivalents

Cash and cash equivalents consist of all unrestricted demand deposits and funds invested in highly liquid instruments with original maturities of three months or less and typically exceed federally insured limits. We periodically assess the financial condition of the institutions where these funds are held and believe that our credit risk is minimal.

In accordance with our policy, unless they may be covered by funds on deposit, outstanding checks are classified as trade accounts payable rather than negative cash. As of December 31, 2018 and 2017 , trade accounts payable included \$57 million and \$61 million , respectively, of outstanding checks that were reclassified from cash and cash equivalents.

Noncontrolling Interests

Noncontrolling interest represents the portion of assets and liabilities in a consolidated subsidiary that is owned by a third party. FASB guidance requires all entities to report noncontrolling interests in subsidiaries as a component of equity in the consolidated financial statements. See Note 12 for additional discussion regarding our noncontrolling interests.

Asset Retirement Obligations

FASB guidance establishes accounting requirements for retirement obligations associated with tangible long-lived assets, including estimates related to (i) the time of the liability recognition, (ii) initial measurement of the liability, (iii) allocation of asset retirement cost to expense, (iv) subsequent measurement of the liability and (v) financial statement disclosures. FASB guidance also requires that the cost for asset retirement should be capitalized as part of the cost of the related long-lived asset and subsequently allocated to expense using a systematic and rational method.

Some of our assets, primarily related to our Transportation and Facilities segments, have contractual or regulatory obligations to perform remediation and, in some instances, dismantlement and removal activities when the assets are abandoned. These obligations include varying levels of activity including disconnecting inactive assets from active assets, cleaning and purging assets, and in some cases, completely removing the assets and returning the land to its original state. These assets have been in existence for many years and with regular maintenance will continue to be in service for many years to come. It is not possible to predict when demand for these transportation or storage services will cease, and we do not believe that such demand will cease for the foreseeable future. Accordingly, we believe the date when these assets will be abandoned is indeterminate. With no reasonably determinable abandonment date, we cannot reasonably estimate the fair value of the associated asset retirement obligations. We will record asset retirement obligations for these assets in the period in which sufficient information becomes available for us to reasonably determine the settlement dates.

A small portion of our contractual or regulatory obligations is related to assets that are inactive or that we plan to take out of service and, although the ultimate timing and costs to settle these obligations are not known with certainty, we have recorded a reasonable estimate of these obligations. The following table presents the change in the liability for asset retirement obligations, of which \$107 million, \$99 million and \$33 million were reflected in "Other long-term liabilities and deferred credits" with the remaining portion reflected in "Other current liabilities" on our Consolidated Balance Sheets as of December 31, 2018, 2017 and 2016, respectively (in millions):

	December 31,		
	2018	2017	2016
Beginning balance	\$ 103	\$ 44	\$ 35
Liabilities incurred	3	33	20
Liabilities settled	(3)	(4)	(3)
Accretion expense	4	3	1
Revisions in estimated cash flows	2	27	(9)
Ending balance	<u>\$ 109</u>	<u>\$ 103</u>	<u>\$ 44</u>

Fair Value Measurements

Financial assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. Our assessment of the significance of a particular input to the fair value measurement requires judgment, which affects the placement of assets and liabilities within the fair value hierarchy levels. The determination of the fair values includes not only the credit standing of the counterparties involved and the impact of credit enhancements (such as cash deposits and letters of credit) but also the impact of our nonperformance risk on our liabilities. The fair value of our commodity derivatives, interest rate derivatives and foreign currency derivatives includes adjustments for credit risk. Our credit adjustment methodology uses market observable inputs and requires judgment. There were no changes to any of our valuation techniques during the period. See Note 13 for further discussion.

Other Significant Accounting Policies

See the respective footnotes for our accounting policies regarding (i) revenues and accounts receivable, (ii) net income per Class A share, (iii) inventory, linefill and base gas and long-term inventory, (iv) property and equipment, (v) acquisitions, (vi) goodwill, (vii) investments in unconsolidated entities, (viii) other long-term assets, net, (ix) derivatives and risk management activities, (x) income taxes, (xi) equity-indexed compensation and (xii) legal and environmental matters.

Recent Accounting Pronouncements

In October 2018, the FASB issued ASU 2018-17, *Consolidation (Topic 810): Targeted Improvements to Related Party Guidance for Variable Interest Entities*, in response to stakeholder observations that improvements could be made by requiring reporting entities to consider indirect interests held through related parties under common control on a proportional basis rather than as the equivalent of a direct interest in its entirety as currently required in GAAP. This guidance is effective for interim and annual periods beginning after December 15, 2019, with early adoption permitted. We expect to adopt this guidance on January 1, 2020, and do not currently anticipate that our adoption will have a material impact on our financial position, results of operations or cash flows.

In October 2018, the FASB issued ASU 2018-16, *Derivatives and Hedging (Topic 815): Inclusion of the Secured Overnight Financing Rate (SOFR) Overnight Index Swap (OIS) Rate as a Benchmark Interest Rate for Hedge Accounting Purposes*, to include the OIS rate based on SOFR as an eligible benchmark interest rate during the early stages of the marketplace transition to facilitate the LIBOR to SOFR transition and provide sufficient lead time for entities to prepare for changes to interest rate risk hedging strategies for both risk management and hedge accounting purposes. This guidance is effective for interim and annual periods beginning after December 15, 2018, and must be adopted concurrently with the amendments in ASU 2017-12 (see below). We will adopt this ASU effective January 1, 2019 and will apply the new guidance to applicable transactions occurring after that date.

In August 2018, the FASB issued ASU 2018-15, *Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract* (a consensus of the FASB Emerging Issues Task Force), to address the accounting for implementation costs of a hosting arrangement that is a service contract and to align the accounting for implementation costs for hosting arrangements, regardless of whether they convey a license to the hosted software. This guidance is effective for interim and annual periods beginning after December 15, 2019, with early adoption permitted. We expect to adopt this guidance on January 1, 2020, and we are currently evaluating the effect that our adoption of this guidance will have on our financial position, results of operations and cash flows.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement*, modifying the disclosure requirements on fair value measurements in Topic 820. This guidance is effective for interim and annual periods beginning after December 15, 2019, with early adoption permitted. We expect to adopt this guidance on January 1, 2020, and we are currently evaluating the effect that our adoption of this guidance will have on our disclosures.

In July 2018, the FASB issued ASU 2018-09, *Codification Improvements*, which makes updates for clarifications, technical corrections and other minor improvements to a wide variety of Topics to make the ASC easier to understand and to apply. The transition and effective date is based on the facts and circumstances of each amendment with some amendments effective upon issuance. The remaining amendments are effective for annual periods beginning after December 15, 2018. We will adopt this guidance effective January 1, 2019 and do not anticipate that the adoption will have a material impact on our financial position, results of operations or cash flows.

In June 2018, the FASB issued ASU 2018-07, *Compensation—Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting*, which expands the scope of Topic 718 to include share-based payment awards to nonemployees and eliminates the classification differences for employee and nonemployee share-based payment awards. This guidance is effective for interim and annual periods beginning after December 15, 2018, with early adoption permitted. We will adopt this guidance effective January 1, 2019 and do not anticipate that the adoption will have a material impact on our financial position, results of operations or cash flows.

In August 2017, the FASB issued ASU 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities* to better align an entity’s risk management activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results. Under the new guidance, (i) more financial and nonfinancial hedging strategies will be eligible for hedge accounting, (ii) presentation and disclosure requirements are amended and (iii) companies will change the way they assess effectiveness. This guidance is effective for interim and annual periods beginning after December 15, 2018, with early adoption permitted. We will adopt this guidance effective January 1, 2019 and do not anticipate that the adoption will have a material impact on our financial position, results of operations or cash flows.

In May 2017, the FASB issued ASU 2017-09, *Compensation—Stock Compensation (Topic 718): Scope of Modification Accounting* to provide guidance about which changes to the terms or conditions of a share-based payment award require an entity to apply modification accounting. Under the new guidance, modification accounting is required only if the fair value (or calculated value or intrinsic value, if such alternative method is used), the vesting conditions, or the classification of the award (equity or liability) changes as a result of the change in terms or conditions. This guidance is effective for interim and annual periods beginning after December 15, 2017, with early adoption permitted, and prospective application required. We adopted this ASU on January 1, 2018. Our adoption did not have a material impact on our financial position, results of operations or cash flows.

In February 2017, the FASB issued ASU 2017-05, *Other Income—Gains and Losses from the Derecognition of Nonfinancial Assets (Subtopic 610-20): Clarifying the Scope of Asset Derecognition Guidance and Accounting for Partial Sales of Nonfinancial Assets*. The ASU clarifies what type of transactions involving nonfinancial assets are covered by the scope of the standard and provides guidance on how to account for those transactions, including partial sales of real estate. Within this guidance, all sales and partial sales of businesses, which may have previously been accounted for using the in-substance real estate guidance, should follow the consolidation guidance. This guidance is effective for interim and annual periods beginning after December 15, 2017, and must be adopted at the same time as Topic 606 (defined below). We adopted this ASU on January 1, 2018, using the modified retrospective approach. The cumulative effect of our adoption resulted in increases in both the carrying value of investments in unconsolidated entities and retained earnings of \$113 million related to the retained non-controlling interest in those entities from partial sales of businesses accounted for under in-substance real estate guidance (FASB ASC 360-20) during 2016 and 2017.

In January 2017, the FASB issued ASU 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business*, which improves the guidance for determining whether a transaction involves the purchase or disposal of a business or an asset. This guidance is effective for interim and annual periods beginning after December 15, 2017, with early adoption permitted, and prospective application required. We adopted this ASU on January 1, 2018 and will apply the new guidance to applicable transactions occurring after that date.

In November 2016, the FASB issued ASU 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash (a consensus of the FASB Emerging Issues Task Force)*, requiring that a statement of cash flows explain the change in total cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents during the period. Therefore, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period total amounts shown on the statement of cash flows. This guidance is effective for interim and annual periods beginning after December 31, 2017. We adopted this ASU on January 1, 2018. Our adoption did not have an impact on our statements of cash flows.

In October 2016, the FASB issued ASU 2016-16, *Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory*, to improve the accounting for the income tax consequences of intra-entity transfers of assets other than inventory. This guidance is effective for interim and annual periods beginning after December 15, 2017, with early adoption permitted in the first interim period of an annual reporting period. We adopted this ASU on January 1, 2018. Our adoption did not have a material impact on our financial position, results of operations or cash flows.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. In order to clarify the scope of the guidance in the amendments in ASU 2016-13, the FASB issued ASU 2018-19, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses* in November 2018. Both ASUs will become effective for interim and annual periods beginning after December 15, 2019, with early adoption permitted by one year. We expect to adopt these ASUs on January 1, 2020, and we are currently evaluating the effect that our adoption will have on our financial position, results of operations and cash flows.

In February 2016, the FASB issued ASU 2016-02, *Leases*, (followed by a series of related accounting standard updates (collectively referred to as “Topic 842”)), that revises the current accounting model for leases. The most significant changes are the clarification of the definition of a lease and required lessee recognition on the balance sheet of right-of-use assets and lease liabilities with lease terms of more than 12 months (with the election of the practical expedient to exclude short-term leases on the balance sheet), including extensive quantitative and qualitative disclosures. This guidance became effective for interim and annual periods beginning after December 15, 2018. We will adopt this guidance effective January 1, 2019.

We elected the package of practical expedients permitted under the transition guidance within the new standard, which among other things, allowed us to carry forward the historical accounting related to lease identification, classification and indirect costs. We also elected the practical expedient related to land easements, allowing us to carry forward our accounting treatment for land easements on existing agreements. Further, we elected the practical expedient which provides us with an

optional transitional method, thereby applying the new guidance at the effective date, without adjusting the comparative periods and, if necessary, recognizing a cumulative-effect adjustment to the opening balance of Partners' Capital upon adoption at January 1, 2019. We did not elect the practical expedient related to using hindsight in determining the lease term as this was not relevant following our election of the optional transitional method. We also did not elect the non-lease component separation practical expedient. We have implemented a process to evaluate the impact of adopting this guidance on each type of lease contract we have entered into with counterparties. Our implementation team determined appropriate changes to our business processes, systems and controls to support recognition and disclosure under the new standard. Based upon our lease portfolio as of December 31, 2018, we currently anticipate recording both right-of-use assets and lease liabilities of approximately \$550 million to \$600 million related to several asset categories including land, railcars, vehicles and trailers, and office buildings to our Consolidated Balance Sheet. Further we expect an increase in disclosures related to leases. We do not anticipate a material impact to our Consolidated Statement of Operations or Cash Flows. In addition to the above, which primarily relates to our accounting as a lessee, our accounting from a lessor perspective remains substantially unchanged under Topic 842. However, the determination of the ultimate impact of adopting this guidance will not be finalized until our implementation procedures are complete.

In May 2014, the FASB issued ASU 2014-09, Revenue from Contracts with Customers, followed by a series of related accounting standard updates (collectively referred to as "Topic 606") with the underlying principle that an entity will recognize revenue to reflect amounts expected to be received in exchange for the provision of goods and services to customers upon the transfer of control of those goods or services. We adopted Topic 606 on January 1, 2018, and applied the modified retrospective approach. See Note 3 for additional information.

Note 3 —Revenues and Accounts Receivable

Revenue Recognition

On January 1, 2018, we adopted Topic 606 using the modified retrospective approach applied to those contracts which were not completed as of January 1, 2018. Results for reporting periods beginning after January 1, 2018 are presented under Topic 606, while prior period amounts are not adjusted and continue to be reported in accordance with our historic accounting under ASC Topic 605, *Revenue Recognition*.

There was no material impact to opening retained earnings as of January 1, 2018 due to the adoption of Topic 606. There also was no material impact to revenues, or any other financial statement line items, for the year ended December 31, 2018 as a result of applying Topic 606.

Under Topic 606, we disaggregate our revenues by segment and type of activity. These categories depict how the nature, amount, timing and uncertainty of revenues and cash flows are affected by economic factors.

Supply and Logistics Segment Revenues from Contracts with Customers. The following table presents our Supply and Logistics segment revenues from contracts with customers disaggregated by type of activity (in millions):

	Year Ended December 31, 2018
Supply and Logistics segment revenues from contracts with customers	
Crude oil transactions	\$ 29,592
NGL and other transactions	3,108
Total Supply and Logistics segment revenues from contracts with customers	<u>\$ 32,700</u>

Revenues from sales of crude oil, NGL and natural gas are recognized at the time title to the product sold transfers to the purchaser, which occurs upon delivery of the product to the purchaser or its designee. Sales of crude oil and NGL consist of outright sales contracts. The consideration received under these contracts is variable based on commodity prices. Inventory exchanges under buy/sell transactions are excluded from Supply and Logistics segment revenues in our Consolidated Statements of Operations. Revenues recognized by our Supply and Logistics segment primarily represent margin based activities.

In addition, we have certain crude oil sales agreements that are entered into in conjunction with storage arrangements and future inventory exchanges. The revenues under these agreements are deferred until all performance obligations associated with the related agreements are completed. The inventory that has been sold under these crude oil sales agreements is reflected

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in “Other current assets” on our Consolidated Balance Sheet until all of our performance obligations are complete. At that time, the inventory that has been sold is removed from our Consolidated Balance Sheet and recorded as “Purchases and related costs” in our Consolidated Statement of Operations. At December 31, 2018, other current assets and deferred revenue associated with these agreements was approximately \$115 million and \$116 million, respectively. See Contract Balances below for further discussion of contract liabilities associated with these agreements.

We may also utilize derivatives in connection with the transactions described above. Derivative revenue is not included as a component of revenue from contracts with customers, but is included in other items in revenue. The change in the fair value of derivatives that are not designated or do not qualify for hedge accounting is recognized in revenues each period.

Transportation Segment Revenues from Contracts with Customers. The following table presents our Transportation segment revenues from contracts with customers disaggregated by type of activity (in millions):

	Year Ended December 31, 2018
Transportation segment revenues from contracts with customers	
Tariff activities:	
Crude oil pipelines	\$ 1,724
NGL pipelines	103
Total tariff activities	1,827
Trucking	149
Total Transportation segment revenues from contracts with customers	<u>\$ 1,976</u>

Our Transportation segment operations generally consist of fee-based activities associated with transporting crude oil and NGL on pipelines, gathering systems and trucks. Revenues from pipeline tariffs and fees are associated with the transportation of crude oil and NGL at a published tariff. We primarily recognize pipeline tariff and fee revenues over time as services are rendered, based on the volumes transported. As is common in the pipeline transportation industry, our tariffs incorporate a loss allowance factor. We recognize the allowance volumes collected as part of the transaction price and record this non-cash consideration at fair value, measured as of the contract inception date.

Facilities Segment Revenues from Contracts with Customers. The following table presents our Facilities segment revenues from contracts with customers disaggregated by type of activity (in millions):

	Year Ended December 31, 2018
Facilities segment revenues from contracts with customers	
Crude oil, NGL and other terminalling and storage	\$ 688
NGL and natural gas processing and fractionation	364
Rail load / unload	84
Total Facilities segment revenues from contracts with customers	<u>\$ 1,136</u>

Our Facilities segment operations generally consist of fee-based activities associated with providing storage, terminalling and throughput services primarily for crude oil, NGL and natural gas, as well as NGL fractionation and isomerization services and natural gas and condensate processing services. Revenues generated in this segment include (i) fees that are generated when we receive liquids from one connecting source and deliver the applicable product to another connecting carrier, fees from storage capacity agreements and fees associated with natural gas storage related activities (collectively “Crude oil, NGL and other terminalling and storage”), (ii) fees from natural gas and condensate processing services and from NGL fractionation and isomerization services (collectively, “NGL and natural gas processing and fractionation”) and (iii) loading and unloading fees at our rail terminals.

We generate revenue through a combination of month-to-month and multi-year agreements and processing arrangements. Storage fees are typically recognized in revenue ratably over the term of the contract regardless of the actual storage capacity utilized as our performance obligation is to make available storage capacity for a period of time. Terminal fees (including throughput and rail fees) are recognized as the liquids enter or exit the terminal and are received from or delivered to the connecting carrier or third-party terminal, as applicable. Fees from NGL fractionation and isomerization services and gas

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processing services are recognized in the period when the services are performed. Natural gas storage related activities fees are recognized in the period the natural gas moves across our header system. We recognize rail loading and unloading fees when the volumes are delivered or received.

Reconciliation to Total Revenues of Reportable Segments. Topic 606 requires us to provide information about the relationship between the disaggregated revenues presented above and segment revenues. These disclosures only include information regarding revenues associated with consolidated entities, and revenues from entities accounted for by the equity method are not included in the disclosures. The following table presents the reconciliation of our revenues from contracts with customers (as described above for each segment) to segment revenues and total revenues as disclosed in our Consolidated Statement of Operations (in millions):

Year Ended December 31, 2018	Transportation	Facilities	Supply and Logistics	Total
Revenues from contracts with customers	\$ 1,976	\$ 1,136	\$ 32,700	\$ 35,812
Other items in revenues	14	25	122	161
Total revenues of reportable segments	\$ 1,990	\$ 1,161	\$ 32,822	\$ 35,973
Intersegment revenues				(1,918)
Total revenues				\$ 34,055

Minimum Volume Commitments. We have certain agreements that require counterparties to transport or throughput a minimum volume over an agreed upon period. Some of these agreements include make-up rights if the minimum volume is not met. We record a receivable from the counterparty in the period that services are provided or when the transaction occurs, including amounts for deficiency obligations from counterparties associated with minimum volume commitments. If a counterparty has a make-up right associated with a deficiency, we defer the revenue attributable to the counterparty's make-up right as a contract liability and subsequently recognize the revenue at the earlier of when the deficiency volume is delivered or shipped, when the make-up right expires or when it is determined that the counterparty's ability to utilize the make-up right is remote.

At December 31, 2018 and December 31, 2017, counterparty deficiencies associated with agreements (including buy/sell arrangements) that include minimum volume commitments totaled \$62 million and \$57 million, respectively, of which \$40 million and \$37 million, respectively, was recorded as a contract liability, which we refer to as deferred revenue. The remaining balance of \$22 million and \$20 million at December 31, 2018 and December 31, 2017, respectively, was related to deficiencies for which the counterparties had not met their contractual minimum commitments and were not reflected in our Consolidated Financial Statements as we had not yet billed or collected such amounts.

Contract Balances. Our contract balances consist of amounts received associated with services or sales for which we have not yet completed the related performance obligation. The following table presents the change in the contract liability balance during the year ended December 31, 2018 (in millions):

	Contract Liabilities
Balance at December 31, 2017	\$ 90
Amounts recognized as revenue	(81)
Additions ^{(1) (2)}	332
Other	(3)
Balance at December 31, 2018	\$ 338

⁽¹⁾ Includes approximately \$116 million associated with crude oil sales agreements that are entered into in conjunction with storage arrangements and future inventory exchanges. Such amount is expected to be recognized as revenue in the first quarter of 2019.

⁽²⁾ Includes \$100 million associated with long-term capacity agreements with Cactus II Pipeline LLC. See Note 9 for additional information.

Remaining Performance Obligations. Topic 606 requires a presentation of information about partially and wholly unsatisfied performance obligations under contracts that exist as of the end of the period. The information includes the amount of consideration allocated to those remaining performance obligations and the timing of revenue recognition of those remaining performance obligations. Certain contracts meet the requirements for the presentation as remaining performance obligations. These arrangements include a fixed minimum level of service, typically a set volume of service, and do not contain any variability other than expected timing within a limited range. These contracts are all within the scope of Topic 606. The following table presents the amount of consideration associated with remaining performance obligations for the population of contracts with external customers meeting the presentation requirements as of December 31, 2018 (in millions):

	2019	2020	2021	2022	2023	2024 and Thereafter
Pipeline revenues supported by minimum volume commitments and long-term capacity agreements ⁽¹⁾	\$ 157	\$ 198	\$ 189	\$ 188	\$ 188	\$ 635
Long-term storage, terminalling and throughput agreement revenues	389	312	225	168	132	436
Total	\$ 546	\$ 510	\$ 414	\$ 356	\$ 320	\$ 1,071

⁽¹⁾ Includes revenues from certain contracts for which the amount and timing of revenue is subject to the completion of underlying construction projects.

The presentation above does not include (i) expected revenues from legacy shippers not underpinned by minimum volume commitments, including pipelines where there are no or limited alternative pipeline transportation options, (ii) intersegment revenues and (iii) the amount of consideration associated with certain income generating contracts, which include a fixed minimum level of service, that are either not within the scope of Topic 606 or do not meet the requirements for presentation as remaining performance obligations under Topic 606. The following are examples of contracts that are not included in the table above because they are not within the scope of Topic 606 or do not meet the Topic 606 requirements for presentation:

- Minimum volume commitments related to the assets of equity method investees — Contracts include those related to the Eagle Ford, BridgeTex, STACK, Caddo, Saddlehorn, White Cliffs, Cheyenne, Diamond and Cactus II pipeline systems;
- Acreage dedications — Contracts include those related to the Permian Basin, Eagle Ford, Central, Rocky Mountain and Canada regions;
- Supply and Logistics buy/sell arrangements — Contracts include agreements with future committed volumes on certain Permian Basin, Eagle Ford, Central and Canada region systems;
- All other Supply and Logistics contracts, due to the election of practical expedients related to variable consideration and short-term contracts, as discussed below;
- Transportation and Facilities contracts that are short-term, as discussed below;
- Contracts within the scope of ASC Topic 840, *Leases*; and
- Contracts within the scope of ASC Topic 815, *Derivatives and Hedging*.

We have elected practical expedients to exclude the presentation of remaining performance obligations for variable consideration which relates to wholly unsatisfied performance obligations. Certain contracts do not meet the requirements for presentation of remaining performance obligations under Topic 606 due to variability in amount of performance obligation remaining, variability in the timing of recognition or variability in consideration. Acreage dedications do require us to perform future services but do not contain a minimum level of services and are therefore excluded from this presentation. Long-term supply and logistics arrangements contain variable timing, volumes and/or consideration and are excluded from this presentation. The duration of these contracts varies across the periods presented above.

Additionally, we have elected practical expedients to exclude contracts with terms of one year or less, and therefore exclude the presentation of remaining performance obligations for short-term transportation, storage and processing services, supply and logistics arrangements, including the non-cancelable period of evergreen arrangements, and any other types of arrangements with terms of one year or less.

Trade Accounts Receivable and Other Receivables, Net

Our accounts receivable are primarily from purchasers and shippers of crude oil and, to a lesser extent, purchasers of NGL and natural gas. These purchasers include, but are not limited to, refiners, producers, marketing and trading companies and financial institutions. The majority of our accounts receivable relate to our crude oil supply and logistics activities that can generally be described as high volume and low margin activities, in many cases involving exchanges of crude oil volumes.

Prices for crude oil, natural gas and NGLs can fluctuate widely. For example, over a less than three month time period during 2018, NYMEX West Texas Intermediate oil prices decreased by 44% from a high of \$76.41 in early October 2018 to a low of \$42.53 in late December 2018. Price volatility has caused liquidity and leverage issues throughout the energy industry, which in turn has increased the potential credit risks associated with certain counterparties with which we do business. To mitigate credit risk related to our accounts receivable, we utilize a rigorous credit review process. We closely monitor market conditions and perform credit reviews of each customer to make a determination with respect to the amount, if any, of open credit to be extended to any given customer and the form and amount of financial performance assurances we require. Such financial assurances are commonly provided to us in the form of advance cash payments, standby letters of credit, credit insurance or parental guarantees. As of December 31, 2018 and December 31, 2017, we had received \$140 million and \$117 million, respectively, of advance cash payments from third parties to mitigate credit risk. We also received \$117 million and \$54 million as of December 31, 2018 and December 31, 2017, respectively, of standby letters of credit to support obligations due from third parties, a portion of which applies to future business. Additionally, in an effort to mitigate credit risk, a significant portion of our transactions with counterparties are settled on a net-cash basis. For a majority of these net-cash arrangements, we also enter into netting agreements (contractual agreements that allow us to offset receivables and payables with those counterparties against each other on our balance sheet).

We generally invoice customers in the month following that in which products or services were provided and generally require payment within 30 days of the invoice date. We review all outstanding accounts receivable balances on a monthly basis and record a reserve for amounts that we expect will not be fully recovered. We do not apply actual balances against the reserve until we have exhausted substantially all collection efforts. At December 31, 2018 and December 31, 2017, substantially all of our trade accounts receivable (net of allowance for doubtful accounts) were less than 30 days past their scheduled invoice date. Our allowance for doubtful accounts receivable totaled \$3 million at both December 31, 2018 and December 31, 2017. Although we consider our allowance for doubtful accounts receivable to be adequate, actual amounts could vary significantly from estimated amounts.

The following is a reconciliation of trade accounts receivable from revenues from contracts with customers to total Trade accounts receivable and other receivables, net as presented on our Consolidated Balance Sheet (in millions):

	December 31,	
	2018	2017
Trade accounts receivable arising from revenues from contracts with customers	\$ 2,277	\$ 2,584
Other trade accounts receivables and other receivables ⁽¹⁾	2,732	3,709
Impact due to contractual rights of offset with counterparties	(2,555)	(3,264)
Trade accounts receivable and other receivables, net	<u>\$ 2,454</u>	<u>\$ 3,029</u>

⁽¹⁾ The balance is comprised primarily of accounts receivable associated with buy/sell arrangements that are not within the scope of Topic 606.

Note 4 —Net Income/(Loss) Per Class A Share

Basic net income/(loss) per Class A share is determined by dividing net income/(loss) attributable to PAGP by the weighted average number of Class A shares outstanding during the period. Our Class B and Class C shares do not share in the earnings of the Partnership; accordingly, basic and diluted net income/(loss) per Class B and Class C share has not been presented.

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Diluted net income/(loss) per Class A share is determined by dividing net income/(loss) attributable to PAGP by the diluted weighted average number of Class A shares outstanding during the period. For purposes of calculating diluted net income/(loss) per Class A share, both the net income/(loss) attributable to PAGP and the diluted weighted average number of Class A shares outstanding consider the impact of possible future exchanges of (i) AAP units and the associated Class B shares into our Class A shares and (ii) certain AAP Management Units into our Class A shares. In addition, the calculation of the diluted weighted average number of Class A shares outstanding considers the effect of potentially dilutive awards under the Plains GP Holdings, L.P. Long-Term Incentive Plan (the “PAGP LTIP”).

All AAP Management Units that have satisfied the applicable performance conditions are considered potentially dilutive. Exchanges of potentially dilutive AAP units and AAP Management Units are assumed to have occurred at the beginning of the period and the incremental income attributable to PAGP resulting from the assumed exchanges is representative of the incremental income that would have been attributable to PAGP if the assumed exchanges occurred on that date. See Note 12 for information regarding exchanges of AAP units and AAP Management Units. PAGP LTIP awards that are deemed to be dilutive are reduced by a hypothetical share repurchase based on the remaining unamortized fair value, as prescribed by the treasury stock method in guidance issued by the FASB. See Note 17 for a complete discussion of PAGP LTIP awards.

For the year ended December 31, 2018, the possible exchange of any AAP units and certain AAP Management Units would have had a dilutive effect on basic net income per Class A share. For the years ended December 31, 2017 and 2016, the possible exchange of any AAP units and certain AAP Management Units would have had an antidilutive effect on basic net income/(loss) per Class A share. For the years ended December 31, 2018 and 2016 our PAGP LTIP awards were dilutive and for the year ended December 31, 2017, our PAGP LTIP awards were antidilutive; however, there were less than 0.1 million dilutive LTIP awards in each period.

The following table sets forth the computation of basic and diluted net income/(loss) per Class A share (in millions, except per share data):

	Year Ended December 31,		
	2018	2017	2016
Basic Net Income/(Loss) per Class A Share			
Net income/(loss) attributable to PAGP	\$ 334	\$ (731)	\$ 94
Basic weighted average Class A shares outstanding	158	145	99
Basic net income/(loss) per Class A share	<u>\$ 2.12</u>	<u>\$ (5.03)</u>	<u>\$ 0.94</u>
Diluted Net Income/(Loss) per Class A Share			
Net income/(loss) attributable to PAGP	\$ 334	\$ (731)	\$ 94
Incremental net income attributable to PAGP resulting from assumed exchange of AAP units and AAP Management Units	262	—	—
Net income/(loss) attributable to PAGP including incremental net income from assumed exchange of AAP units and AAP Management Units	<u>\$ 596</u>	<u>\$ (731)</u>	<u>\$ 94</u>
Basic weighted average Class A shares outstanding	158	145	99
Dilutive shares resulting from assumed exchange of AAP units and AAP Management Units	124	—	—
Diluted weighted average Class A shares outstanding	<u>282</u>	<u>145</u>	<u>99</u>
Diluted net income/(loss) per Class A share	<u>\$ 2.11</u>	<u>\$ (5.03)</u>	<u>\$ 0.94</u>

Note 5—Inventory, Linefill and Base Gas and Long-term Inventory

Inventory primarily consists of crude oil, NGL and natural gas in pipelines, storage facilities and railcars that are valued at the lower of cost or net realizable value, with cost determined using an average cost method within specific inventory pools. At the end of each reporting period, we assess the carrying value of our inventory and make any adjustments necessary to reduce the carrying value to the applicable net realizable value. Any resulting adjustments are a component of “Purchases and related costs” on our accompanying Consolidated Statements of Operations. During the years ended December 31, 2018 ,

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2017 and 2016, we recorded charges of \$8 million, \$35 million and \$3 million, respectively, related to the writedown of our crude oil, NGL and natural gas inventory due to declines in prices. A portion of these inventory valuation adjustments was offset by the recognition of gains on derivative instruments being utilized to hedge future sales of our crude oil and NGL inventory. Such gains were recorded to "Supply and Logistics segment revenues" in our accompanying Consolidated Statements of Operations. See Note 13 for discussion of our derivative and risk management activities.

Linefill and base gas in assets we own are recorded at historical cost and consist of crude oil, NGL and natural gas. We classify as linefill or base gas (i) our proportionate share of barrels used to fill a pipeline that we own such that when an incremental barrel is pumped into or enters a pipeline it forces product out at another location, (ii) barrels that represent the minimum working requirements in tanks and caverns that we own and (iii) natural gas required to maintain the minimum operating pressure of natural gas storage facilities we own.

Linefill and base gas carrying amounts are reviewed for impairment in accordance with FASB guidance with respect to accounting for the impairment or disposal of long-lived assets. Carrying amounts that are not expected to be recoverable through future cash flows are written down to estimated fair value. See Note 6 for further discussion regarding impairment of long-lived assets. During 2018, 2017 and 2016, we did not recognize any impairments of linefill and base gas.

Minimum working inventory requirements in third-party assets and other working inventory in our assets that are needed for our commercial operations are included within specific inventory pools in inventory (a current asset) in determining the average cost of operating inventory. At the end of each period, we reclassify the inventory not expected to be liquidated within the succeeding twelve months out of inventory, at the average cost of the applicable inventory pools, and into "Long-term inventory," which is reflected as a separate line item under "Other assets" on our Consolidated Balance Sheets.

Inventory, linefill and base gas and long-term inventory consisted of the following (barrels and natural gas volumes in thousands and carrying value in millions):

	December 31, 2018				December 31, 2017			
	Volumes	Unit of Measure	Carrying Value	Price/Unit ⁽¹⁾	Volumes	Unit of Measure	Carrying Value	Price/Unit ⁽¹⁾
Inventory								
Crude oil	9,657	barrels	\$ 367	\$ 38.00	7,800	barrels	\$ 402	\$ 51.54
NGL	10,384	barrels	262	\$ 25.23	10,774	barrels	294	\$ 27.29
Other	N/A		11	N/A	N/A		17	N/A
Inventory subtotal			640				713	
Linefill and base gas								
Crude oil	13,312	barrels	761	\$ 57.17	12,340	barrels	719	\$ 58.27
NGL	1,730	barrels	47	\$ 27.17	1,597	barrels	45	\$ 28.18
Natural gas	24,976	Mcf	108	\$ 4.32	24,976	Mcf	108	\$ 4.32
Linefill and base gas subtotal			916				872	
Long-term inventory								
Crude oil	1,890	barrels	79	\$ 41.80	1,870	barrels	105	\$ 56.15
NGL	2,368	barrels	57	\$ 24.07	2,167	barrels	59	\$ 27.23
Long-term inventory subtotal			136				164	
Total			<u>\$ 1,692</u>				<u>\$ 1,749</u>	

⁽¹⁾ Price per unit of measure is comprised of a weighted average associated with various grades, qualities and locations. Accordingly, these prices may not coincide with any published benchmarks for such products.

Note 6 —Property and Equipment

In accordance with our capitalization policy, expenditures made to expand the existing operating and/or earnings capacity of our assets are capitalized. We also capitalize certain costs directly related to the construction of such assets, including related internal labor costs, engineering costs and interest costs. For the years ended December 31, 2018, 2017 and 2016, capitalized interest recorded to property and equipment was \$21 million, \$17 million and \$34 million, respectively. In addition, we capitalize interest related to investments in certain unconsolidated entities. See Note 9 for additional information. We also capitalize expenditures for the replacement and/or refurbishment of partially or fully depreciated assets in order to maintain the operating and/or earnings capacity of our existing assets. Repair and maintenance expenditures incurred in order to maintain the day to day operation of our existing assets are expensed as incurred.

Property and equipment, net is stated at cost and consisted of the following (in millions):

	Estimated Useful Lives (Years)	December 31,	
		2018	2017
Pipelines and related facilities ⁽¹⁾	10 - 70	\$ 10,176	\$ 9,624
Storage, terminal and rail facilities	30 - 70	5,854	5,558
Trucking equipment and other	2 - 15	410	414
Construction in progress	—	795	610
Office property and equipment	2 - 50	248	255
Land and other	N/A	422	440
Property and equipment, gross		17,905	16,901
Accumulated depreciation		(3,103)	(2,796)
Property and equipment, net		\$ 14,802	\$ 14,105

⁽¹⁾ We include rights-of-way, which are intangible assets, in our Pipelines and related facilities amounts within property and equipment.

We calculate our depreciation using the straight-line method, based on estimated useful lives and salvage values of our assets. Depreciation expense for the years ended December 31, 2018, 2017 and 2016 was \$455 million, \$465 million and \$471 million, respectively (including amounts related to the discontinuation of certain capital projects). See “Impairment of Long-Lived Assets” below for a discussion of our policy for the recognition of asset impairments.

Impairment of Long-Lived Assets

Long-lived assets with recorded values that are not expected to be recovered through future cash flows are written down to estimated fair value in accordance with FASB guidance with respect to the accounting for the impairment or disposal of long-lived assets. Under this guidance, a long-lived asset is tested for impairment when events or circumstances indicate that its carrying value may not be recoverable. The carrying value of a long-lived asset is not recoverable if it exceeds the sum of the undiscounted cash flows expected to result from the use and eventual disposition of the asset. If the carrying value exceeds the sum of the undiscounted cash flows, an impairment loss equal to the amount by which the carrying value exceeds the fair value of the asset is recognized.

We periodically evaluate property and equipment and other long-lived assets for impairment when events or circumstances indicate that the carrying value of these assets may not be recoverable. The evaluation is highly dependent on the underlying assumptions of related cash flows. The subjective assumptions used to determine the existence of an impairment in carrying value include:

- whether there is an indication of impairment;
- the grouping of assets;
- the intention of “holding,” “abandoning” or “selling” an asset;
- the forecast of undiscounted expected future cash flow over the asset’s estimated useful life; and
- if an impairment exists, the fair value of the asset or asset group.

In addition, when we evaluate property and equipment and other long-lived assets for recoverability, it may also be necessary to review related depreciation estimates and methods.

We recognized impairments of \$6 million during the year ended December 31, 2018 related to assets included in our Facilities segment. During the years ended December 31, 2017 and 2016, we recognized \$152 million and \$80 million, respectively, of non-cash charges related to the write-down of certain of our long-lived rail and other terminal assets included in our Facilities segment due to asset impairments and accelerated depreciation. Such charges are reflected in “(Gains)/losses on asset sales and asset impairments, net” on our Consolidated Financial Statements. The decline in demand for movements of crude oil by rail in the United States due to sustained unfavorable market conditions resulted in expected decreases in future cash flows for certain of our rail terminal assets, which was a triggering event that required us to assess the recoverability of our carrying value of such long-lived assets. As a result of our impairment review, we wrote off the portion of the carrying amount of these long-lived assets that exceeded their fair value. Our estimated fair values were based upon recent sales prices of comparable facilities, as well as management’s expectation of the market values for such assets based on their industry experience. We consider such inputs to be a Level 3 input in the fair value hierarchy.

Note 7—Acquisitions and Divestitures

Acquisitions

The following acquisitions, excluding acquired interests accounted for under the equity method of accounting mentioned specifically below, were accounted for using the acquisition method of accounting and the determination of the fair value of the assets and liabilities acquired has been estimated in accordance with the applicable accounting guidance. There were no acquisitions during the year ended December 31, 2018.

2017

Alpha Crude Connector Acquisition

On February 14, 2017, we acquired all of the issued and outstanding membership interests in Alpha Holding Company, LLC for cash consideration of \$1.215 billion, subject to working capital and other adjustments (the “ACC Acquisition”). The ACC Acquisition was initially funded through borrowings under PAA’s senior unsecured revolving credit facility. Such borrowings were subsequently repaid with proceeds from PAA’s March 2017 issuance of its common units to AAP pursuant to the Omnibus Agreement and in connection with our underwritten equity offering. See Note 12 for additional information.

Upon completion of the ACC Acquisition, we became the owner of a crude oil gathering system known as the “Alpha Crude Connector” (the “ACC System”) located in the Northern Delaware Basin in Southeastern New Mexico and West Texas. The ACC System comprises approximately 515 miles of gathering and transmission lines and five market interconnects, including to our Basin Pipeline at Wink. During 2017, we made additional interconnects to our existing Northern Delaware Basin systems as well as additional enhancements to increase the ACC System capacity to approximately 350,000 barrels per day, depending on the level of volume at each delivery point. The ACC System is supported by acreage dedications covering approximately 315,000 gross acres, including a significant acreage dedication from one of the largest producers in the region. The ACC System complements our other Permian Basin assets and enhances the services available to the producers in the Northern Delaware Basin.

The following table reflects the fair value determination (in millions):

Identifiable assets acquired and liabilities assumed:	Estimated Useful Lives (Years)	Recognized amount
Property and equipment	3 - 70	\$ 299
Intangible assets	20	646
Goodwill	N/A	269
Other assets and liabilities, net (including \$4 million of cash acquired)	N/A	1
		\$ 1,215

Intangible assets are included in “Other long-term assets, net” on our Consolidated Balance Sheets. The determination of fair value to intangible assets above is comprised of five acreage dedication contracts and associated customer relationships that will be amortized over a remaining weighted average useful life of approximately 20 years. The value assigned to such intangible assets will be amortized to earnings using methods that closely resemble the pattern in which the economic benefits will be consumed. Amortization expense was approximately \$25 million and \$10 million during the years ended December 31, 2018 and 2017, respectively, and the future amortization expense through 2022 is estimated as follows (in millions):

2019	\$	34
2020	\$	42
2021	\$	48
2022	\$	54

Goodwill is an intangible asset representing the future economic benefits expected to be derived from other assets acquired that are not individually identified and separately recognized. The goodwill arising from the ACC Acquisition, which is tax deductible, represents the anticipated opportunities to generate future cash flows from undedicated acreage and the synergies created between the ACC System and our existing assets. The assets acquired in the ACC Acquisition, as well as the associated goodwill, are primarily included in our Transportation segment.

During the year ended December 31, 2017, we incurred approximately \$6 million of acquisition-related costs associated with the ACC Acquisition. Such costs are reflected as a component of “General and administrative expenses” on our Consolidated Statements of Operations.

Pro forma financial information assuming the ACC Acquisition had occurred as of the beginning of the calendar year prior to the year of acquisition were not material for disclosure purposes.

Other Acquisitions

In February 2017, we acquired a propane marine terminal for cash consideration of approximately \$41 million. The assets acquired are included in our Facilities segment. We did not recognize any goodwill related to this acquisition.

On April 3, 2017, we and an affiliate of Noble Midstream Partners LP (“Noble”) completed the acquisition of Advantage Pipeline, L.L.C. (“Advantage”) through a newly formed 50/50 joint venture (the “Advantage Joint Venture”). We account for our interest in the Advantage Joint Venture under the equity method of accounting. See Note 9 for additional discussion of our equity method investments.

2016

During the year ended December 31, 2016, we completed two acquisitions for aggregate cash consideration of \$289 million. These acquisitions included (i) an integrated system of NGL assets in Western Canada for cash consideration of approximately \$204 million and (ii) the remaining interest in a Gulf Coast pipeline that was subsequently sold during the year. The assets acquired were primarily included in our Transportation and Facilities segments. We did not recognize any goodwill related to these acquisitions.

Divestitures

During the year ended December 31, 2018, we received proceeds from asset sales of \$1.334 billion, which included the following:

We sold a 30% interest in BridgeTex Pipeline Company, LLC for proceeds of \$868 million, resulting in a gain of \$200 million. See Note 9 for additional discussion. The other assets sold during the year ended December 31, 2018 primarily included non-core property and equipment or are associated with the formation of strategic joint ventures and were previously reported in our Facilities and Transportation segments. For the year ended December 31, 2018, we recognized a net gain on sales of assets of \$120 million, which is comprised of gains of \$146 million and losses of \$26 million. Such amounts are included in “(Gains)/losses on asset sales and asset impairments, net” on our Consolidated Statements of Operations.

During the year ended December 31, 2017, we sold certain non-core assets for total proceeds of \$1.083 billion, including:

- certain of our Bay Area terminal assets located in California;
- our Bluewater natural gas storage facility located in Michigan;
- certain non-core pipelines in the Rocky Mountain and Bakken regions, including PAA's interest in SLC Pipeline LLC;
- non-core pipeline segments primarily located in the Midwestern United States; and
- a 40% undivided interest in a segment of our Red River Pipeline extending from Cushing, Oklahoma to the Hewitt Station near Ardmore, Oklahoma for our net book value.

The Bay Area terminal assets and the Bluewater natural gas storage facility were reported in our Facilities segment. The pipeline assets were reported in our Transportation segment.

In the aggregate, including non-cash impairments recognized upon reclassifications to assets held for sale, we recognized a net gain related to pending or completed asset sales of approximately \$43 million for the year ended December 31, 2017, which is included in "(Gains)/losses on asset sales and asset impairments, net" on our Consolidated Statement of Operations. Such amount is comprised of gains of \$123 million and losses of \$80 million.

During the year ended December 31, 2016, we sold several non-core assets, including certain of our Gulf Coast pipelines and East Coast refined products terminals. In addition, we sold interests in Cheyenne Pipeline LLC and STACK Pipeline LLC. See Note 9 for additional discussion. In the aggregate, we recognized a net gain of approximately \$100 million related to these transactions, which is included in "(Gains)/losses on asset sales and asset impairments, net" on our Consolidated Statement of Operations. Such amount is comprised of gains of \$158 million and losses of \$58 million, including \$15 million of impairment of goodwill that was included in a disposal group classified as held for sale prior to the closing of such transaction.

As of December 31, 2017, we classified approximately \$80 million of assets as held for sale on our Consolidated Balance Sheet (in "Other current assets") primarily related to a definitive agreement to sell non-core property and equipment included in our Facilities segment.

Note 8 — Goodwill

Goodwill represents the future economic benefits arising from assets acquired in a business combination that are not individually identified and separately recognized.

In accordance with FASB guidance, we test goodwill to determine whether an impairment has occurred at least annually (as of June 30) and on an interim basis if it is more likely than not that a reporting unit's fair value is less than its carrying value. Goodwill is tested for impairment at a level of reporting referred to as a reporting unit. A reporting unit is an operating segment or one level below an operating segment for which discrete financial information is available and regularly reviewed by segment management. Our reporting units are our operating segments. FASB guidance provides for a quantitative approach to testing goodwill for impairment; however, we may first assess certain qualitative factors to determine whether it is necessary to perform the quantitative goodwill impairment test. In the quantitative test, we compare the fair value of the reporting unit with the respective book values, including goodwill, by using an income approach based on a discounted cash flow analysis. This approach requires us to make long-term forecasts of future revenues, expenses and other expenditures. Those forecasts require the use of various assumptions and estimates, the most significant of which are net revenues (total revenues less purchases and related costs), operating expenses, general and administrative expenses and the weighted average cost of capital. Fair value of the reporting units is determined using significant unobservable inputs, or Level 3 inputs in the fair value hierarchy. When the fair value is greater than book value, then the reporting unit's goodwill is not considered impaired. If the book value is greater than fair value, then goodwill is impaired by the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying value of goodwill.

We completed our goodwill impairment test as of June 30, 2018 using a quantitative assessment, which also includes a sensitivity analysis regarding the excess of our reporting unit's fair value over book value. We determined that the fair value of each reporting unit was greater than its respective book value; therefore, goodwill was not considered impaired. We did not recognize any impairments of goodwill during the last three years.

Goodwill by segment and changes in goodwill is reflected in the following table (in millions):

	Transportation	Facilities	Supply and Logistics	Total
Balance at December 31, 2016	\$ 806	\$ 1,034	\$ 504	\$ 2,344
Acquisitions	269	—	—	269
Foreign currency translation adjustments	16	7	4	27
Divestitures and reclassifications to assets held for sale	(21)	(53)	—	(74)
Balance at December 31, 2017	\$ 1,070	\$ 988	\$ 508	\$ 2,566
Foreign currency translation adjustments	(19)	(8)	(5)	(32)
Divestitures	(11)	(2)	—	(13)
Balance at December 31, 2018	\$ 1,040	\$ 978	\$ 503	\$ 2,521

Note 9 — Investments in Unconsolidated Entities

Investments in entities over which we have significant influence but not control are accounted for under the equity method. We do not consolidate any part of the assets or liabilities of our equity investees. Our share of net income or loss is reflected as one line item on our Consolidated Statements of Operations entitled “Equity earnings in unconsolidated entities” and will increase or decrease, as applicable, the carrying value of our investments in unconsolidated entities on our Consolidated Balance Sheets. We evaluate our equity investments for impairment in accordance with FASB guidance with respect to the equity method of accounting for investments in common stock. An impairment of an equity investment results when factors indicate that the investment’s fair value is less than its carrying value and the reduction in value is other than temporary in nature.

Our investments in unconsolidated entities consisted of the following (in millions, except percentage data):

Entity ⁽¹⁾	Type of Operation	Ownership Interest at December 31, 2018	December 31,	
			2018	2017
Advantage Pipeline Holdings LLC (“Advantage Joint Venture”)	Crude Oil Pipeline	50%	\$ 72	\$ 69
BridgeTex Pipeline Company, LLC (“BridgeTex”)	Crude Oil Pipeline	20%	435	1,093
Cactus II Pipeline LLC (“Cactus II”)	Crude Oil Pipeline ⁽²⁾	65%	455	—
Caddo Pipeline LLC	Crude Oil Pipeline	50%	65	67
Cheyenne Pipeline LLC (“Cheyenne”)	Crude Oil Pipeline	50%	44	29
Diamond Pipeline LLC (“Diamond”)	Crude Oil Pipeline	50%	479	467
Eagle Ford Pipeline LLC (“Eagle Ford Pipeline”)	Crude Oil Pipeline	50%	383	378
Eagle Ford Terminals Corpus Christi LLC (“Eagle Ford Terminals”)	Crude Oil Terminal and Dock ⁽²⁾	50%	108	75
Midway Pipeline LLC	Crude Oil Pipeline	50%	78	20
Saddlehorn Pipeline Company, LLC	Crude Oil Pipeline	40%	215	217
Settoon Towing, LLC	Barge Transportation Services	50%	58	69
STACK Pipeline LLC (“STACK”)	Crude Oil Pipeline	50%	120	73
White Cliffs Pipeline, LLC	Crude Oil Pipeline	36%	190	199
Total Investments in Unconsolidated Entities			\$ 2,702	\$ 2,756

⁽¹⁾ Except for Eagle Ford Terminals, which is reported in our Facilities segment, the financial results from the entities are reported in our Transportation segment.

⁽²⁾ Asset is currently under construction by the entity and has not yet been placed in service.

Formations and Divestitures

Cactus II. In the second quarter of 2018, a subsidiary of Oxy and another third party each exercised their purchase options for a 20% interest and a 15% interest, respectively, in Cactus II, which owns the Cactus II pipeline system that is currently under construction. Although we own a majority of Cactus II's equity, we do not have a controlling financial interest in Cactus II because the other members have substantive participating rights. Therefore, we account for our ownership interest in Cactus II as an equity method investment. Following the exercise of the purchase options, we deconsolidated Cactus II resulting in a reduction of property and equipment of \$74 million (which was representative of the costs incurred to date to construct the pipeline and equivalent to fair value), and we received \$26 million of cash from Cactus II, which represented the other members' portion of the property and equipment.

In addition, during the second quarter of 2018, we received a \$100 million advance cash payment from Cactus II associated with pipeline capacity agreements, which is recorded as long-term deferred revenue within "Other long-term liabilities and deferred credits" on our Consolidated Balance Sheet. Such amount will be recognized in revenue ratably over the life of the contracts beginning once the Cactus II pipeline system has been placed into service.

BridgeTex. During the third quarter of 2018, we sold a 30% interest in BridgeTex for proceeds of \$868 million, including working capital adjustments, and have retained a 20% interest. We recorded a gain of \$200 million related to this sale, which is included in "Gain on sale of investment in unconsolidated entities" on our Consolidated Statement of Operations. We continue to account for our remaining interest under the equity method of accounting.

Advantage Joint Venture. On April 3, 2017, we and an affiliate of Noble completed the acquisition of Advantage Pipeline, L.L.C. for a purchase price of \$133 million through a newly formed 50/50 joint venture (the "Advantage Joint Venture"). For our 50% share (\$66.5 million), we contributed approximately 1.3 million PAA common units with a value of approximately \$40 million and approximately \$26 million in cash. Through the acquisition, the Advantage Joint Venture owns a 70-mile, 16-inch crude oil pipeline located in the southern Delaware Basin (the "Advantage Pipeline"), which is contractually supported by a third-party acreage dedication and a volume commitment from our wholly-owned marketing subsidiary. Noble serves as operator of the Advantage Pipeline. We account for our interest in the Advantage Joint Venture under the equity method of accounting.

Midway Pipeline LLC. During the fourth quarter of 2017, we and an affiliate of CVR Refining, LP ("CVR Refining") formed a 50/50 joint venture, Midway Pipeline LLC, which acquired from us the Cushing to Broome crude oil pipeline system. The Cushing to Broome pipeline system connects CVR Refining's Coffeyville, Kansas refinery to the Cushing, Oklahoma oil hub. We continue to serve as operator of the pipeline. We account for our interest in Midway Pipeline LLC under the equity method of accounting.

Other. In June 2016, we sold 50% of our investment in Cheyenne, and in August 2016 we sold 50% of our investment in STACK. As a result of these transactions, we now account for our remaining 50% equity interest in such entities under the equity method of accounting.

See Note 7 for additional information related to certain of these transactions.

Capline Pipeline Company LLC. As of December 31, 2018 we owned a 54% undivided joint interest in the Capline pipeline system, which originates in St. James, Louisiana and terminates in Patoka, Illinois. In January 2019, the owners converted their undivided joint interests into a limited liability company.

Wink to Webster Pipeline LLC. In January 2019, we announced the formation of Wink to Webster Pipeline LLC ("W2W Pipeline"), a joint venture with subsidiaries of ExxonMobil and Lotus Midstream, LLC. We own a 20% interest in W2W Pipeline, which is currently developing a new pipeline system that will originate in the Permian Basin in West Texas and transport crude oil to the Texas Gulf Coast. The pipeline system will provide more than 1 million barrels per day of crude oil and condensate capacity, and the project is targeted to commence operations in the first half of 2021.

Distributions

Distributions received from unconsolidated entities are classified based on the nature of the distribution approach, which looks to the activity that generated the distribution. We consider distributions received from unconsolidated entities as a return on investment in those entities to the extent that the distribution was generated through operating results, and therefore classify these distributions as cash flows from operating activities in our Consolidated Statement of Cash Flows. Other distributions received from unconsolidated entities are considered a return of investment and classified as cash flows from investing activities on the Consolidated Statement of Cash Flows. During the year ended December 31, 2018, we received \$10 million as a return of investment. During the year ended December 31, 2017, we received \$21 million as a return of investment from Settoon Towing, LLC related to the sale of certain of its marine assets.

Contributions

We generally fund our portion of development, construction or capital expansion projects of our equity method investees through capital contributions. Our contributions to these entities increase the carrying value of our investments and are reflected in our Consolidated Statements of Cash Flows as cash used in investing activities. During the years ended December 31, 2018, 2017 and 2016, we made cash contributions of \$459 million, \$398 million and \$288 million, respectively, to certain of our equity method investees. In addition, we capitalized interest of \$9 million, \$18 million and \$13 million during the years ended December 31, 2018, 2017 and 2016, respectively, related to contributions to unconsolidated entities for projects under development and construction. We anticipate that we will make additional contributions in 2019 related to ongoing projects.

Basis Differences

Our investments in unconsolidated entities exceeded our share of the underlying equity in the net assets of such entities by \$467 million and \$736 million at December 31, 2018 and 2017, respectively. Such basis differences are included in the carrying values of our investments on our Consolidated Balance Sheets. The portion of the basis differences attributable to depreciable or amortizable assets is amortized on a straight-line basis over the estimated useful life of the related assets, which reduces "Equity earnings in unconsolidated entities" on our Consolidated Statements of Operations. The portion of the basis differences attributable to goodwill is not amortized. The majority of the basis difference at both December 31, 2018 and 2017 was related to our interest in BridgeTex and decreased from 2017 to 2018 due to our sale of 30% of such interest during the third quarter of 2018.

Summarized Financial Information of Unconsolidated Entities

Combined summarized financial information for all of our unconsolidated entities is shown in the tables below (in millions). None of our unconsolidated entities have noncontrolling interests.

	December 31,	
	2018	2017
Current assets	\$ 357	\$ 311
Noncurrent assets	\$ 4,861	\$ 4,162
Current liabilities	\$ 170	\$ 129
Noncurrent liabilities	\$ 30	\$ 41

	Year Ended December 31,		
	2018	2017	2016
Revenues	\$ 1,235	\$ 938	\$ 802
Operating income	\$ 824	\$ 650	\$ 469
Net income	\$ 824	\$ 640	\$ 452

Note 10 —Other Long-Term Assets, Net

Other long-term assets, net of accumulated amortization, consisted of the following (in millions):

	December 31,	
	2018	2017
Intangible assets ⁽¹⁾	\$ 1,209	\$ 1,265
Other	141	57
	1,350	1,322
Accumulated amortization	(437)	(421)
	<u>\$ 913</u>	<u>\$ 901</u>

⁽¹⁾ We include rights-of-way, which are intangible assets, in our pipeline and related facilities amounts within property and equipment. See Note 6 for a discussion of property and equipment.

Amortization expense for finite-lived intangible assets for the years ended December 31, 2018, 2017 and 2016 was \$66 million, \$54 million and \$44 million, respectively.

Intangible assets that have finite lives are tested for impairment when events or circumstances indicate that the carrying value may not be recoverable. We did not recognize any impairments of finite-lived intangible assets during the three years ended December 31, 2018. Our intangible assets that have finite lives consisted of the following (in millions):

	Estimated Useful Lives (Years)	December 31, 2018			December 31, 2017		
		Cost	Accumulated Amortization	Net	Cost	Accumulated Amortization	Net
Customer contracts and relationships	1 – 20	\$ 1,152	\$ (413)	\$ 739	\$ 1,188	\$ (383)	\$ 805
Property tax abatement	7 – 13	23	(16)	7	38	(30)	8
Other agreements	25 – 70	34	(8)	26	39	(8)	31
		<u>\$ 1,209</u>	<u>\$ (437)</u>	<u>\$ 772</u>	<u>\$ 1,265</u>	<u>\$ (421)</u>	<u>\$ 844</u>

We estimate that our amortization expense related to finite-lived intangible assets for the next five years will be as follows (in millions):

2019	\$ 70
2020	\$ 75
2021	\$ 75
2022	\$ 73
2023	\$ 68

Note 11 —Debt

Debt consisted of the following (in millions):

	December 31, 2018	December 31, 2017
SHORT-TERM DEBT		
PAA senior secured hedged inventory facility, bearing a weighted-average interest rate of 2.6% ⁽¹⁾	\$ —	\$ 664
Other	66	73
Total short-term debt	66	737
LONG-TERM DEBT		
PAA senior notes:		
2.60% senior notes due December 2019 ⁽²⁾	500	500
5.75% senior notes due January 2020	500	500
5.00% senior notes due February 2021	600	600
3.65% senior notes due June 2022	750	750
2.85% senior notes due January 2023	400	400
3.85% senior notes due October 2023	700	700
3.60% senior notes due November 2024	750	750
4.65% senior notes due October 2025	1,000	1,000
4.50% senior notes due December 2026	750	750
6.70% senior notes due May 2036	250	250
6.65% senior notes due January 2037	600	600
5.15% senior notes due June 2042	500	500
4.30% senior notes due January 2043	350	350
4.70% senior notes due June 2044	700	700
4.90% senior notes due February 2045	650	650
Unamortized discounts and debt issuance costs	(59)	(67)
PAA senior notes, net of unamortized discounts and debt issuance costs	8,941	8,933
Other long-term debt:		
PAA commercial paper notes, bearing a weighted-average interest rate of 2.4%, and PAA senior secured hedged inventory facility borrowings ⁽²⁾	—	247
PAA GO Zone term loans, net of debt issuance costs of \$2, bearing a weighted-average interest rate of 3.1%	198	—
Other	4	3
Total long-term debt	9,143	9,183
Total debt ⁽³⁾	\$ 9,209	\$ 9,920

(1) We classified these PAA commercial paper notes and credit facility borrowings as short-term as of December 31, 2017, as these notes and borrowings were primarily designated as working capital borrowings, were required to be repaid within one year and were primarily for hedged NGL and crude oil inventory and NYMEX and ICE margin deposits.

(2) As of December 31, 2018, we classified the \$500 million, 2.60% PAA senior notes due December 2019 as long-term, and as of December 31, 2017, we classified a portion of the PAA commercial paper notes and the PAA senior unsecured hedged inventory facility borrowings as long-term based on our ability and intent to refinance such amounts on a long-term basis.

(3) PAA's fixed-rate senior notes had a face value of approximately \$9.0 billion at both December 31, 2018 and 2017. We estimated the aggregate fair value of these notes as of December 31, 2018 and 2017 to be approximately \$8.6 billion.

and \$9.1 billion, respectively. PAA's fixed-rate senior notes are traded among institutions, and these trades are routinely published by a reporting service. Our determination of fair value is based on reported trading activity near year end. We estimate that the carrying value of outstanding borrowings under the credit facilities and the PAA commercial paper program approximates fair value as interest rates reflect current market rates. The fair value estimates for the PAA senior notes, the credit facilities and the PAA commercial paper program are based upon observable market data and are classified in Level 2 of the fair value hierarchy.

PAA Commercial Paper Program

PAA has a commercial paper program under which it may issue (and have outstanding at any time) up to \$3.0 billion in the aggregate of privately placed, unsecured commercial paper notes. Such notes are backstopped by the PAA senior unsecured revolving credit facility and the PAA senior secured hedged inventory facility; as such, any borrowings under the PAA commercial paper program reduce the available capacity under these facilities.

Credit Agreements

PAA senior secured hedged inventory facility. PAA has a credit agreement that provides for a senior secured hedged inventory facility with a committed borrowing capacity of \$1.4 billion, of which \$400 million is available for the issuance of letters of credit. Subject to obtaining additional or increased lender commitments, the committed capacity of the facility may be increased to \$1.9 billion. Proceeds from the facility are primarily used to finance purchased or stored hedged inventory, including NYMEX and ICE margin deposits. Such obligations under the committed facility are secured by the financed inventory and the associated accounts receivable and are repaid from the proceeds of the sale of the financed inventory. Borrowings accrue interest based, at PAA's election, on either the Eurocurrency Rate or the Base Rate, in each case plus a margin based on PAA's credit rating at the applicable time. The agreement also provides for one or more one-year extensions, subject to applicable approval. In August 2018, PAA amended this agreement to, among other things, extend the maturity date of the facility to August 2021 for each extending lender. The maturity date with respect to each non-extending lender (which represent aggregate commitments of approximately \$35 million out of total commitments of \$1.4 billion from all lenders) remains August 2020.

PAA senior unsecured revolving credit facility. PAA has a credit agreement that provides for a senior unsecured revolving credit facility with a committed borrowing capacity of \$1.6 billion. Subject to obtaining additional or increased lender commitments, the committed capacity may be increased to \$2.1 billion. The credit agreement also provides for the issuance of letters of credit. Borrowings accrue interest based, at PAA's election, on the Eurocurrency Rate, the Base Rate or the Canadian Prime Rate, in each case plus a margin based on PAA's credit rating at the applicable time. The agreement also provides for one or more one-year extensions, subject to applicable approval. In August 2018, PAA amended this agreement to, among other things, extend the maturity date of the facility to August 2023 for each extending lender. The maturity date with respect to each non-extending lender (which represent aggregate commitments of \$35 million out of total commitments of \$1.6 billion from all lenders) remains August 2022.

PAA Senior unsecured 364-day revolving credit facility. PAA's credit agreement that provided for a 364-day senior unsecured revolving credit facility matured in August 2018.

PAA GO Zone term loans. In August 2018, PAA entered into an agreement for two \$100 million term loans (the "GO Zone term loans") from the remarketing of its \$100,000,000 Mississippi Business Finance Corporation Gulf Opportunity Zone Industrial Development Revenue Bonds (SG Resources Mississippi, LLC Project), Series 2009 and its \$100,000,000 Mississippi Business Finance Corporation Gulf Opportunity Zone Industrial Development Revenue Bonds (SG Resources Mississippi, LLC Project), Series 2010 (collectively, the "GO Bonds"). The GO Zone term loans accrue interest in accordance with the interest payable on the related GO Bonds as provided in the GO Bonds Indenture pursuant to which such GO Bonds are issued and governed. The purchasers of the two GO Zone term loans have the right to put, at par, the GO Zone term loans in July 2023. The GO Bonds mature by their terms in May 2032 and August 2035, respectively.

AAP senior secured credit agreement. In connection with the Simplification Transactions, on November 15, 2016, PAA assumed all of AAP's then outstanding borrowings under the AAP senior secured credit agreement, and immediately repaid such amounts and canceled the credit agreement. See Note 1 for further discussion of the Simplification Transactions.

PAA Senior Notes

PAA’s senior notes are co-issued, jointly and severally, by Plains All American Pipeline, L.P. and a 100% -owned consolidated finance subsidiary (neither of which have independent assets or operations) and are unsecured senior obligations of such entities and rank equally in right of payment with existing and future senior indebtedness of the issuers. PAA may, at its option, redeem any series of senior notes at any time in whole or from time to time in part, prior to maturity, at the redemption prices described in the indentures governing the senior notes. PAA’s senior notes are not guaranteed by any of its subsidiaries.

PAA Senior Notes Issuances

The table below summarizes PAA’s issuances of senior unsecured notes during 2016 (in millions):

Year	Description	Maturity	Face Value	Interest Payment Dates
2016	4.50% PAA Senior Notes issued at 99.716% of face value	December 2026	\$ 750	June 15 and December 15

PAA did not issue any senior unsecured notes during the years ended December 31, 2018 or 2017.

PAA Senior Notes Repayments. PAA did not repay any senior unsecured notes during 2018. During 2017 and 2016, PAA repaid the following senior unsecured notes (in millions):

Year	Description	Repayment Date
2017	\$400 million 6.13% PAA Senior Notes due January 2017	January 2017 ⁽¹⁾
2017	\$600 million 6.50% PAA Senior Notes due May 2018	December 2017 ^{(1) (2)}
2017	\$350 million 8.75% PAA Senior Notes due May 2019	December 2017 ^{(1) (2)}
2016	\$175 million 5.88% PAA Senior Notes due August 2016	August 2016 ⁽¹⁾

⁽¹⁾ These senior notes were repaid with cash on hand and proceeds from borrowings under the PAA credit facilities and commercial paper program.

⁽²⁾ In conjunction with the early redemptions of these PAA senior notes, we recognized a loss of approximately \$40 million, recorded to “Other income/(expense), net” in our Consolidated Statement of Operations.

Maturities

The weighted average maturity of our long-term debt outstanding at December 31, 2018 was approximately 11 years. The following table presents the aggregate contractually scheduled maturities of such long-term debt for the next five years and thereafter. The amounts presented exclude unamortized discounts and debt issuance costs.

Calendar Year	Payment (in millions)
2019	\$ 500
2020	\$ 500
2021	\$ 600
2022	\$ 750
2023	\$ 1,300
Thereafter	\$ 5,554

Covenants and Compliance

The credit agreements for PAA's revolving credit facilities (which impact the ability to access the PAA commercial paper program because they provide the financial backstop that supports PAA's short-term credit ratings) and PAA's term loans and the indentures governing PAA's senior notes contain cross-default provisions. PAA's credit agreements prohibit declaration or payments of distributions on, or purchases or redemptions of, units if any default or event of default is continuing. In addition, PAA's agreements contain various covenants limiting PAA's ability to, among other things:

- grant liens on certain property;
- incur indebtedness, including capital leases;
- sell substantially all of its assets or enter into a merger or consolidation;
- engage in certain transactions with affiliates; and
- enter into certain burdensome agreements.

The credit agreements for the PAA senior unsecured revolving credit facility, the PAA senior secured hedged inventory facility and the PAA GO Zone term loans treat a change of control as an event of default and also require PAA to maintain a debt-to-EBITDA coverage ratio that, on a trailing four-quarter basis, will not be greater than 5.00 to 1.00 (or 5.50 to 1.00 on all outstanding debt during an acquisition period (generally, the period consisting of three fiscal quarters following an acquisition greater than \$150 million)). For covenant compliance purposes, Consolidated EBITDA may include certain adjustments, including those for material projects and certain non-recurring expenses. Additionally, letters of credit and borrowings to fund hedged inventory and margin requirements are excluded when calculating the debt coverage ratio.

A default under PAA's credit agreements or indentures would permit the lenders to accelerate the maturity of the outstanding debt. As long as PAA is in compliance with the provisions contained in its credit agreements, PAA's ability to make distributions of available cash is not restricted. As of December 31, 2018, PAA was in compliance with the covenants contained in its credit agreements and indentures.

Borrowings and Repayments

Total borrowings under the credit agreements and the PAA commercial paper program for the years ended December 31, 2018, 2017 and 2016 were approximately \$45.4 billion, \$60.8 billion and \$60.4 billion, respectively. Total repayments under the credit agreements and the PAA commercial paper program were approximately \$46.3 billion, \$61.5 billion and \$61.0 billion for the years ended December 31, 2018, 2017 and 2016, respectively. The variance in total gross borrowings and repayments is impacted by various business and financial factors including, but not limited to, the timing, average term and method of general partnership borrowing activities.

Letters of Credit

In connection with our supply and logistics activities, we provide certain suppliers with irrevocable standby letters of credit to secure our obligation for the purchase and transportation of crude oil, NGL and natural gas. These letters of credit are issued under the PAA senior unsecured revolving credit facility and the PAA senior secured hedged inventory facility, and our liabilities with respect to these purchase obligations are recorded in accounts payable on our balance sheet in the month the crude oil, NGL or natural gas is purchased. Generally, these letters of credit are issued for periods of up to seventy days and are terminated upon completion of each transaction. Additionally, we issue letters of credit to support insurance programs, derivative transactions, including hedging-related margin obligations, and construction activities. At December 31, 2018 and 2017, we had outstanding letters of credit of \$184 million and \$166 million, respectively.

Debt Issuance Costs

Costs incurred in connection with the issuance of senior notes are recorded as a direct deduction from the related debt liability and are amortized using the straight-line method over the term of the related debt. Use of the straight-line method does not differ materially from the "effective interest" method of amortization.

Note 12 —Partners' Capital and Distributions

Our Shares

Our Class A shares, Class B shares and Class C shares represent limited partner interests in us. The holders of our Class A and Class B shares are entitled to exercise the rights or privileges available to limited partners under our partnership agreement, but only holders of Class A shares are entitled to participate in our distributions.

Our Class C shares, which were established in connection with the Simplification Transactions, are non-economic and provide PAA, as the sole holder of such Class C shares, the right to vote in the election of eligible directors together with the holders of our Class A and Class B shares. Pursuant to the Omnibus Agreement, we issue Class C shares to PAA in an amount equal to the PAA Common Unit Equivalents outstanding excluding common units held by AAP.

Exchange and Redemption Rights

Holders of AAP units and their permitted transferees each have the right to exchange all or a portion of their AAP units for Class A shares at an exchange ratio of one Class A share for each AAP unit exchanged (referred to herein as their "Exchange Right"). This Exchange Right may be exercised only if, simultaneously therewith, an equal number of our Class B shares and general partner units are transferred by the exercising party to us. Additionally, a holder of vested AAP Management Units is entitled to convert his or her AAP Management Units into AAP units and a like number of our Class B shares based on a conversion ratio of approximately 0.941 AAP units for each AAP Management Unit. Following any such conversion, the holder will have the Exchange Right for our Class A shares. Holders of AAP Management Units who convert such units into AAP units and Class B shares will not receive general partner units and thus will not need to include any general partner units in a transfer or the exercise of their Exchange Right. See Note 14 for additional information regarding the deferred tax asset associated with units that have been exchanged.

Additionally, subject to certain limitations, a holder of AAP units (other than us and GP LLC) has the right (a "Redemption Right") to cause AAP to redeem any or all of such holder's AAP units in exchange for the distribution of an equivalent number of PAA common units held by AAP ("AAP Unit Redemption"). In connection with any AAP Unit Redemption, the redeeming holder will transfer the AAP units to AAP and a corresponding number of our Class B shares and general partner units (if any), in each case, to us. The AAP units transferred to AAP will be canceled, the Class B shares transferred to us will be canceled and the general partner units transferred to us will remain outstanding and increase our ownership percentage in our general partner.

Shares Outstanding

The following table presents the activity for our Class A shares, Class B shares and Class C shares:

	Class A Shares	Class B Shares	Class C Shares
Outstanding at December 31, 2015	86,099,037	141,485,588	—
Conversion of AAP Management Units	—	14,693,093	—
Exchange Right exercises	15,099,678	(15,099,678)	—
Redemption Right exercises	—	(3,035,517)	3,035,517
Issuance of Class C shares in connection with the Simplification Transactions	—	—	477,648,826
Sales of common units by a subsidiary	—	—	11,226,520
Other	7,811	—	—
Outstanding at December 31, 2016	101,206,526	138,043,486	491,910,863
Conversion of AAP Management Units	—	1,557,860	—
Exchange Right exercises	4,799,227	(4,799,227)	—
Redemption Right exercises	—	(7,817,547)	7,817,547
Sales of Class A shares	50,086,326	—	—
Sales of common units by a subsidiary	—	—	4,033,567
Issuance of common units by a subsidiary in connection with acquisition of interest in Advantage Joint Venture (Note 7)	—	—	1,252,269
Issuances of Series A preferred units by a subsidiary	—	—	5,307,689
Other	19,060	—	603,497
Outstanding at December 31, 2017	156,111,139	126,984,572	510,925,432
Exchange Right exercises	3,363,199	(3,363,199)	—
Redemption Right exercises	—	(4,017,035)	4,017,035
Issuance of Series A preferred units by a subsidiary	—	—	1,393,926
Other	11,250	—	601,887
Outstanding at December 31, 2018	159,485,588	119,604,338	516,938,280

Distributions

We distribute 100% of our available cash within 55 days following the end of each quarter to Class A shareholders of record. Available cash is generally defined as all cash on hand at the date of determination of available cash for the distribution in respect to such quarter (including expected distributions from AAP in respect of such quarter), less reserves established by our general partner for future requirements.

The following table details the distributions paid to Class A shareholders during the periods indicated (in millions, except per share data):

Year	Distributions to Class A Shareholders		Distributions per Class A Share	
2018	\$	189	\$	1.20
2017	\$	271	\$	1.95
2016	\$	234	\$	2.40

On January 8, 2019, we declared a cash distribution of \$0.30 per outstanding Class A share. This distribution of \$48 million was paid on February 14, 2019 to shareholders of record at the close of business on January 31, 2019, for the period October 1, 2018 through December 31, 2018.

Sales of Class A Shares

The following table summarizes our sales of Class A shares during the year ended December 31, 2017, all of which occurred in the first four months of the year (net proceeds in millions). We did not sell any Class A shares during the years ended December 31, 2018 or 2016.

Type of Offering	Class A Shares Issued	Net Proceeds ⁽¹⁾
Continuous Offering Program	1,786,326	\$ 61 ⁽²⁾
Underwritten Offering	48,300,000	1,474
	50,086,326	\$ 1,535

⁽¹⁾ Amounts are net of costs associated with the offerings.

⁽²⁾ We pay commissions to our sales agents in connection with issuances of Class A shares under our Continuous Offering Program. We paid \$1 million of such commissions during the year ended December 31, 2017.

Pursuant to the Omnibus Agreement entered into by the Plains Entities in connection with the Simplification Transactions, we used the net proceeds from the sale of our Class A shares, after deducting the sales agents' commissions and offering expenses, to purchase from AAP a number of AAP units equal to the number of Class A shares sold in such offering at a price equal to the net proceeds from such offering. Also pursuant to the Omnibus Agreement, immediately following such purchase and sale, AAP used the net proceeds it received from such sale of AAP units to us to purchase from PAA an equivalent number of common units of PAA. See "—Issuances of Units by Subsidiaries" below.

The cash purchase by us of additional units issued by AAP and corresponding cash purchase by AAP of additional common units issued by PAA results in the allocation of the fair value of the proceeds between controlling and noncontrolling interests in AAP and PAA based on their respective ownership percentages. Additionally, in accordance with ASC 810, an adjustment in partners' capital based on historical carrying value is recognized by our Class A shareholders on their increase in ownership of subsidiary entities and a corresponding adjustment is recognized in partners' capital by our noncontrolling interests due to the dilution of their ownership interest. The allocation to noncontrolling interests results from the difference between the fair value per unit of the additional units issued and the historical carrying value per unit. Such amounts are reflected in "Sales of Class A shares" on our Consolidated Statements of Changes in Partners' Capital.

Other Comprehensive Income/(Loss)

Other comprehensive income/(loss) attributable to our Class A shareholders is comprised solely of their proportionate share of PAA's other comprehensive income/(loss) based on our indirect ownership interest in PAA during the period.

Consolidated Subsidiaries**Noncontrolling Interests in Subsidiaries**

As of December 31, 2018, noncontrolling interests in our subsidiaries consisted of (i) limited partner interests in PAA including a 65% interest in PAA's common units and PAA's Series A preferred units combined and 100% of PAA's Series B preferred units and (ii) an approximate 43% limited partner interest in AAP.

During the fourth quarter of 2017, PAA sold SLC Pipeline LLC, in which it previously owned a 75% interest and was consolidated under GAAP. As a result of this sale, the noncontrolling interest of 25% was derecognized. See Note 7 for additional information regarding the sale of SLC Pipeline LLC.

Issuances of Units by Subsidiaries

PAA Series A Preferred Unit Issuance. On January 28, 2016 (the "Issuance Date"), PAA completed the private placement of approximately 61.0 million Series A preferred units representing limited partner interests in PAA for a cash purchase price of \$26.25 per unit (the "Issue Price"), resulting in total net proceeds, after deducting offering expenses and the 2% transaction fee due to the purchasers, of approximately \$1.6 billion. Certain of the purchasers or their affiliates are related parties. See Note 16 for additional information.

The PAA Series A preferred units rank pari passu with the PAA Series B preferred units, and senior to PAA's common units and to each other class or series of equity securities in PAA with respect to distribution rights and rights upon liquidation. The holders of the PAA Series A preferred units receive cumulative quarterly distributions, subject to customary antidilution adjustments, equal to \$0.525 per unit (\$2.10 per unit annualized). With respect to quarters ending on or prior to December 31, 2017 (the "Initial Distribution Period"), PAA elected to pay distributions on the PAA Series A preferred units in additional Series A preferred units. The Initial Distribution Period ended with the February 2018 distribution; as such, with respect to quarters ending after the Initial Distribution Period, distributions on the PAA Series A preferred units are paid in cash.

The Series A preferred units are convertible at the holders' option into PAA common units, generally on a one-for-one basis, at any time, subject to certain conditions, and are convertible at PAA's option in certain circumstances after January 28, 2019. For a period of 30 days following (a) the fifth anniversary of the Issuance Date of the PAA Series A preferred units and (b) each subsequent anniversary of the Issuance Date, the holders of the PAA Series A preferred units, acting by majority vote, may make a one-time election to reset the Series A preferred unit distribution rate to equal the then applicable rate of ten-year U.S. Treasury Securities plus 5.85% (the "Preferred Distribution Rate Reset Option"). The Preferred Distribution Rate Reset Option is accounted for as an embedded derivative. See Note 13 for additional information.

PAA Series B Preferred Unit Issuance. On October 10, 2017, PAA issued 800,000 Series B Fixed-to-Floating Rate Cumulative Redeemable Perpetual Preferred Units representing limited partner interests in PAA (the "Series B preferred units") at a price to the public of \$1,000 per unit. PAA used the net proceeds of \$788 million, after deducting the underwriters' discounts and offering expenses, from the issuance of the Series B preferred units to repay amounts outstanding under its credit facilities and commercial paper program and for general partnership purposes.

The Series B preferred units represent perpetual equity interests in PAA, and they have no stated maturity or mandatory redemption date and are not redeemable at the option of the holders under any circumstances. Holders of the Series B preferred units generally have no voting rights, except for limited voting rights with respect to (i) potential amendments to PAA's partnership agreement that would have a material adverse effect on the existing preferences, rights, powers or duties of the Series B preferred units, (ii) the creation or issuance of any parity securities if the cumulative distributions payable on then outstanding Series B preferred units are in arrears, (iii) the creation or issuance of any senior securities and (iv) the payment of distributions to PAA's common unitholders out of capital surplus. The Series B preferred units rank, as to the payment of distributions and amounts payable on a liquidation event, pari passu with PAA's outstanding Series A preferred units and senior to PAA's common units.

The Series B preferred units have a liquidation preference of \$1,000 per unit. Holders of PAA's Series B preferred units are entitled to receive, when, as and if declared by PAA's general partner out of legally available funds for such purpose, cumulative semiannual or quarterly cash distributions, as applicable. Distributions on the Series B preferred units accrue and are cumulative from October 10, 2017, the date of original issue, and are payable semiannually in arrears on the 15th day of May and November through and including November 15, 2022, and after November 15, 2022, quarterly in arrears on the 15th day of February, May, August and November of each year. The initial distribution rate for the Series B preferred units from and including October 10, 2017 to, but not including, November 15, 2022 is 6.125% per year of the liquidation preference per unit (equal to \$61.25 per unit per year). On and after November 15, 2022, distributions on the Series B preferred units will accumulate for each distribution period at a percentage of the liquidation preference equal to the then-current three-month LIBOR plus a spread of 4.11%.

Upon the occurrence of certain rating agency events, PAA may redeem the Series B preferred units, in whole but not in part, at a price of \$1,020 (102% of the liquidation preference) per Series B preferred unit plus an amount equal to all accumulated and unpaid distributions thereon to, but not including, the date of redemption, whether or not declared. In addition, at any time on or after November 15, 2022, PAA may redeem the Series B preferred units, at its option, in whole or in part, at a redemption price of \$1,000 per Series B preferred unit plus an amount equal to all accumulated and unpaid distributions thereon to, but not including, the date of redemption, whether or not declared.

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Sales of PAA common units . PAA has entered into several equity distribution agreements under its Continuous Offering Program, pursuant to which PAA may offer and sell, through sales agents, common units representing limited partner interests. PAA may also sell its common units through overnight or underwritten offerings. PAA did not conduct any sales of common units during the year ended December 31, 2018. The following table summarizes PAA’s sales of common units for the years ended December 31, 2017 and 2016 (net proceeds in millions):

Year	Type of Offering	Common Units Sold	Net Proceeds ⁽¹⁾
2017 Total	Continuous Offering Program	4,033,567	\$ 129 ⁽²⁾
2016 Total	Continuous Offering Program	26,278,288	\$ 796 ⁽²⁾

(1) Amounts are net of costs associated with the offerings.

(2) PAA pays commissions to sales agents in connection with common unit issuances under its Continuous Offering Program. PAA paid \$1 million and \$8 million of such commissions during 2017 and 2016 , respectively.

For the periods following the Simplification Transactions, the proceeds from the issuance of additional common units are shared pro rata among all of PAA’s common unitholders, including AAP, based on their percentage ownership of common units. Additionally, PAA’s capital attributable to AAP was adjusted, in accordance with ASC 810, to reflect the dilution of its interest in PAA as a result of the issuance of additional common units to the public unitholders. Such adjustments are recognized by PAGP in proportion to its ownership interest in AAP, which result in a net increase in partners’ capital attributable to PAGP. See Note 14 for additional information regarding the associated impact to the deferred tax asset.

Omnibus Agreement. PAA may sell or otherwise issue common units to AAP pursuant to the Omnibus Agreement entered into by the Plains Entities, as discussed above. During the year ended December 31, 2017, pursuant to the Omnibus Agreement, PAA sold (i) approximately 1.8 million common units to AAP in connection with our issuance of Class A shares under our Continuous Offering Program and (ii) 48.3 million common units to AAP in connection with our March 2017 underwritten offering.

Deferred Tax Asset Impact from the Sale of Subsidiary Units

In connection with the sales of AAP units and PAA common units referenced above, a deferred asset was created. The tax basis of our purchase of the additional units was accounted for at fair market value for U.S. federal income tax purposes, but the GAAP basis was impacted by the adjustments that are based on historical carrying value. The resulting basis difference resulted in a deferred tax asset that was recorded as a component of partner’s capital as it results from transactions with shareholders. See Note 14 for additional information.

Subsidiary Distributions

PAA Preferred Unit Distributions. The following table details distributions paid to PAA’s preferred unitholders during the year presented (in millions, except per unit data):

Year	Series A Preferred Unitholders		Series B Preferred Unitholders
	Distribution ⁽¹⁾		Cash Distribution ⁽²⁾
	Cash	Units	
2018	\$ 112	1,393,926	\$ 49
2017	\$ —	5,307,689	\$ 5
2016	\$ —	3,358,726	\$ —

(1) During the Initial Distribution Period, PAA elected to pay distributions on its Series A preferred units in additional Series A preferred units. The Initial Distribution Period ended with the February 2018 distribution; as such, with respect to quarters ending after the Initial Distribution Period, distributions on PAA’s Series A preferred units are paid in cash. During 2018, 2017 and 2016, PAA issued additional Series A preferred units in lieu of cash distributions of \$37 million , \$139 million and \$89 million , respectively.

(2) PAA paid a pro-rated initial distribution on the Series B preferred units on November 15, 2017 to holders of record at the close of business on November 1, 2017 in an amount equal to approximately \$5.9549 per unit.

On February 14, 2019, PAA paid a cash distribution of \$37 million to its Series A preferred unitholders. At December 31, 2018, we had accrued approximately \$6 million of distributions payable to PAA's Series B preferred unitholders. At December 31, 2018, such amounts were accrued as distributions payable in "Other current liabilities" on our Consolidated Balance Sheet.

PAA Common Unit Distributions. PAA distributes 100% of its available cash within 45 days following the end of each quarter to common unitholders of record, including AAP. Available cash is generally defined as all of PAA's cash and cash equivalents on hand at the end of each quarter, less reserves established in the reasonable discretion of its general partner for future requirements.

The following table details distributions paid by PAA (in millions, except per unit data):

Year	Distributions Paid			Distributions per common unit
	Public	AAP ⁽¹⁾	Total	
2018	\$ 532	\$ 339	\$ 871	\$ 1.20
2017	\$ 849	\$ 537	\$ 1,386	\$ 1.95
2016	\$ 1,062	\$ 565	\$ 1,627	\$ 2.65

⁽¹⁾ Prior to the Simplification Transactions, AAP was entitled to receive (i) distributions with respect to its 2% indirect general partner interest in PAA and (ii) as the holder of PAA's IDRs, incentive distributions if the amount PAA distributed with respect to any quarter exceeded certain specified levels. The Simplification Transactions, which closed on November 15, 2016, included the permanent elimination of PAA's IDRs and the economic rights associated with its 2% general partner interest in exchange for the issuance by PAA to AAP of approximately 244.7 million common units. As such, beginning with the distribution pertaining to the fourth quarter of 2016, AAP is no longer entitled to receive distributions on the IDRs or general partner interest. During the years ended December 31, 2018 and 2017, AAP received distributions on the PAA common units it owned.

On January 8, 2019, PAA declared a cash distribution of \$0.30 per unit on its outstanding common units. The total distribution of \$218 million was paid on February 14, 2019 to unitholders of record on January 31, 2019, for the period October 1, 2018 through December 31, 2018. Of this amount, approximately \$84 million was paid to AAP.

AAP Distributions. AAP distributes all of the cash received from PAA distributions on a quarterly basis, less reserves established in the discretion of its general partner for future requirements. Generally, distributions are paid to its partners in proportion to their percentage interest in AAP. The following table details the distributions to AAP's partners paid during the periods indicated from distributions received from PAA (in millions):

Year	Distributions to AAP's Partners				
	Available Cash Before Reserves	Cash Reserves	Total	Noncontrolling Interests	PAGP
2018	\$ 339	\$ —	\$ 339	\$ 150	\$ 189
2017	\$ 537	\$ —	\$ 537	\$ 266	\$ 271
2016	\$ 598 ⁽¹⁾	\$ (11) ⁽²⁾	\$ 587	\$ 353	\$ 234

⁽¹⁾ Includes \$33 million that was borrowed under the AAP senior secured revolving credit facility. AAP agreed to borrow funds under its credit agreement as necessary to make a special true-up distribution to its partners that, when added to the distributions paid to AAP in respect of its 2% general partner interest in PAA and the IDRs, equaled the total distribution its partners would have received if the closing of the Simplification Transactions had occurred immediately prior to the record date for the third quarter distribution.

⁽²⁾ The amount of the distribution paid to AAP's partners in November 2016 assumed that the Simplification Transactions had closed as of the date of record for the third quarter distribution. Pursuant to the Omnibus Agreement entered into as part of the Simplification Transactions, AAP's expenses will be paid by PAA. Therefore, no cash was reserved from this distribution for future expenses of AAP.

On February 14, 2019, AAP distributed \$84 million to its partners from distributions received from PAA. Of this amount, \$36 million was distributed to noncontrolling interests and \$48 million was distributed to us.

Other Distributions. During the years ended December 31, 2017 and 2016, distributions of \$2 million and \$4 million, respectively, were paid to noncontrolling interests in SLC Pipeline LLC.

Note 13 — Derivatives and Risk Management Activities

We identify the risks that underlie our core business activities and use risk management strategies to mitigate those risks when we determine that there is value in doing so. Our policy is to use derivative instruments for risk management purposes and not for the purpose of speculating on hydrocarbon commodity (referred to herein as “commodity”) price changes. We use various derivative instruments to manage our exposure to (i) commodity price risk, as well as to optimize our profits, (ii) interest rate risk and (iii) currency exchange rate risk. Our commodity price risk management policies and procedures are designed to help ensure that our hedging activities address our risks by monitoring our derivative positions, as well as physical volumes, grades, locations, delivery schedules and storage capacity. Our interest rate and currency exchange rate risk management policies and procedures are designed to monitor our derivative positions and ensure that those positions are consistent with our objectives and approved strategies. When we apply hedge accounting, our policy is to formally document all relationships between hedging instruments and hedged items, as well as our risk management objectives for undertaking the hedge. This process includes specific identification of the hedging instrument and the hedged transaction, the nature of the risk being hedged and how the hedging instrument’s effectiveness will be assessed. Both at the inception of the hedge and throughout the hedging relationship, we assess whether the derivatives employed are highly effective in offsetting changes in cash flows of anticipated hedged transactions.

Commodity Price Risk Hedging

Our core business activities involve certain commodity price-related risks that we manage in various ways, including through the use of derivative instruments. Our policy is to (i) only purchase inventory for which we have a sales market, (ii) structure our sales contracts so that price fluctuations do not materially affect our operating income and (iii) not acquire and hold physical inventory or derivatives for the purpose of speculating on commodity price changes. The material commodity-related risks inherent in our business activities can be divided into the following general categories:

Commodity Purchases and Sales — In the normal course of our operations, we purchase and sell commodities. We use derivatives to manage the associated risks and to optimize profits. As of December 31, 2018, net derivative positions related to these activities included:

- A net long position of 3.4 million barrels associated with our crude oil purchases, which was unwound ratably during January 2019 to match monthly average pricing.
- A net short time spread position of 10.1 million barrels, which hedges a portion of our anticipated crude oil lease gathering purchases through March 2020.
- A crude oil grade basis position of 54.6 million barrels through December 2020. These derivatives allow us to lock in grade basis differentials.
- A net short position of 6.1 million barrels through March 2021 related to anticipated net sales of our crude oil and NGL inventory.

Pipeline Loss Allowance Oil — As is common in the pipeline transportation industry, our tariffs incorporate a loss allowance factor. We utilize derivative instruments to hedge a portion of the anticipated sales of the loss allowance oil that is to be collected under our tariffs. As of December 31, 2018, our PLA hedges included a short position consisting of crude oil futures of 1.2 million barrels through December 2019 and a long call option position of 2.4 million barrels through December 2020.

Natural Gas Processing/NGL Fractionation — We purchase natural gas for processing and operational needs. Additionally, we purchase NGL mix for fractionation and sell the resulting individual specification products (including ethane, propane, butane and condensate). In conjunction with these activities, we hedge the price risk associated with the purchase of the natural gas and the subsequent sale of the individual specification products. As of December 31, 2018, we had a long natural gas position of 44.1 Bcf which hedges a portion of our natural gas processing and operational needs through December 2020. We also had a short propane position of 6.4 million barrels through December 2020, a short butane position of 2.0 million barrels through December 2020 and a short WTI position of 0.7 million barrels through December 2020. In addition, we had a long power position of 0.3 million megawatt hours, which hedges a portion of our power supply requirements at our Canadian natural gas processing and fractionation plants through December 2020.

Physical commodity contracts that meet the definition of a derivative but are ineligible, or not designated, for the normal purchases and normal sales scope exception are recorded on the balance sheet at fair value, with changes in fair value recognized in earnings. We have determined that substantially all of our physical commodity contracts qualify for the normal purchases and normal sales scope exception.

Interest Rate Risk Hedging

We use interest rate derivatives to hedge the benchmark interest rate associated with interest payments occurring as a result of debt issuances. The derivative instruments we use to manage this risk consist of forward starting interest rate swaps and treasury locks. These derivatives are designated as cash flow hedges. As such, changes in fair value are deferred in AOCI and are reclassified to interest expense as we incur the interest expense associated with the underlying debt.

The following table summarizes the terms of our outstanding interest rate derivatives as of December 31, 2018 (notional amounts in millions):

Hedged Transaction	Number and Types of Derivatives Employed	Notional Amount	Expected Termination Date	Average Rate Locked	Accounting Treatment
Anticipated interest payments	8 forward starting swaps (30-year)	\$ 200	6/14/2019	2.83%	Cash flow hedge
Anticipated interest payments	8 forward starting swaps (30-year)	\$ 200	6/15/2020	3.06%	Cash flow hedge

Currency Exchange Rate Risk Hedging

Because a significant portion of our Canadian business is conducted in CAD we use foreign currency derivatives to minimize the risk of unfavorable changes in exchange rates. These instruments include foreign currency exchange contracts, forwards and options.

Our use of foreign currency derivatives include (i) derivatives we use to hedge currency exchange risk created by the use of USD-denominated commodity derivatives to hedge commodity price risk associated with CAD-denominated commodity purchases and sales and (ii) foreign currency exchange contracts we use to manage our Canadian business cash requirements.

The following table summarizes our open forward exchange contracts as of December 31, 2018 (in millions):

		USD	CAD	Average Exchange Rate USD to CAD
Forward exchange contracts that exchange CAD for USD:				
	2019	\$ 3	\$ 4	\$1.00 - \$1.34
Forward exchange contracts that exchange USD for CAD:				
	2019	\$ 218	\$ 284	\$1.00 - \$1.31

Preferred Distribution Rate Reset Option

A derivative feature embedded in a contract that does not meet the definition of a derivative in its entirety must be bifurcated and accounted for separately if the economic characteristics and risks of the embedded derivative are not clearly and closely related to those of the host contract. The Preferred Distribution Rate Reset Option of the PAA Series A preferred units is an embedded derivative that must be bifurcated from the related host contract, the PAA partnership agreement, and recorded at fair value on our Consolidated Balance Sheet. Corresponding changes in fair value are recognized in "Other income/(expense), net" in our Consolidated Statement of Operations. See Note 12 for additional information regarding the PAA Series A preferred units and the Preferred Distribution Rate Reset Option.

Summary of Financial Impact

We record all open derivatives on the balance sheet as either assets or liabilities measured at fair value. Changes in the fair value of derivatives are recognized currently in earnings unless specific hedge accounting criteria are met. For derivatives designated as cash flow hedges, changes in fair value of the effective portion of the hedges are deferred in AOCI and recognized in earnings in the periods during which the underlying physical transactions are recognized in earnings. Derivatives that are not designated as a hedging instrument, derivatives that do not qualify for hedge accounting and the portion of cash flow hedges that are not highly effective in offsetting changes in cash flows of the hedged items are recognized in earnings each period. Cash settlements associated with our derivative activities are classified within the same category as the related hedged item in our Consolidated Statements of Cash Flows.

A summary of the impact of our derivatives recognized in earnings is as follows (in millions):

Year Ended December 31, 2018					
Location of Gain/(Loss)	Commodity Derivatives	Foreign Currency Derivatives	Preferred Distribution Rate Reset Option	Interest Rate Derivatives	Total
Supply and Logistics segment revenues ⁽¹⁾	\$ 150	\$ (23)	\$ —	\$ —	\$ 127
Field operating costs ⁽¹⁾	(2)	—	—	—	(2)
Interest expense, net ⁽²⁾	—	—	—	(5)	(5)
Other income/(expense), net ⁽¹⁾	—	—	(14)	—	(14)
Total Gain/(Loss) on Derivatives Recognized in Net Income	\$ 148	\$ (23)	\$ (14)	\$ (5)	\$ 106

Year Ended December 31, 2017					
Location of Gain/(Loss)	Commodity Derivatives	Foreign Currency Derivatives	Preferred Distribution Rate Reset Option	Interest Rate Derivatives	Total
Supply and Logistics segment revenues ⁽¹⁾	\$ (188)	\$ 8	\$ —	\$ —	\$ (180)
Field operating costs ⁽¹⁾	(10)	—	—	—	(10)
Depreciation and amortization ⁽²⁾	(3)	—	—	—	(3)
Interest expense, net ⁽²⁾	—	—	—	(18)	(18)
Other income/(expense), net ⁽¹⁾	—	—	13	—	13
Total Gain/(Loss) on Derivatives Recognized in Net Income	\$ (201)	\$ 8	\$ 13	\$ (18)	\$ (198)

Year Ended December 31, 2016					
Location of Gain/(Loss)	Commodity Derivatives	Foreign Currency Derivatives	Preferred Distribution Rate Reset Option	Interest Rate Derivatives	Total
Supply and Logistics segment revenues ⁽¹⁾	\$ (342)	\$ (3)	\$ —	\$ —	\$ (345)
Transportation segment revenues ⁽¹⁾	5	—	—	—	5
Interest expense, net ⁽²⁾	—	—	—	(14)	(14)
Other income/(expense), net ⁽¹⁾	—	—	30	—	30
Total Gain/(Loss) on Derivatives Recognized in Net Income	\$ (337)	\$ (3)	\$ 30	\$ (14)	\$ (324)

⁽¹⁾ Derivatives not designated as a hedge. For the year ended December 31, 2016, Supply and Logistics segment revenues includes a gain of \$2 million related to derivatives in hedging relationships.

(2) Derivatives in hedging relationships.

The following table summarizes the derivative assets and liabilities on our Consolidated Balance Sheet on a gross basis as of December 31, 2018 (in millions):

Balance Sheet Location	Derivatives Not Designated As Hedging Instruments				Total	Interest Rate Derivatives ⁽¹⁾	Total Derivatives
	Commodity Derivatives	Foreign Currency Derivatives	Preferred Distribution Rate Reset Option				
Derivative Assets							
Other current assets	\$ 441	\$ —	\$ —	\$ 441	\$ 2	\$ 443	
Other long-term assets, net	34	—	—	34	—	34	
Other long-term liabilities and deferred credits	3	—	—	3	—	3	
Total Derivative Assets	\$ 478	\$ —	\$ —	\$ 478	\$ 2	\$ 480	
Derivative Liabilities							
Other current assets	\$ (182)	\$ —	\$ —	\$ (182)	\$ —	\$ (182)	
Other long-term assets, net	(7)	—	—	(7)	—	(7)	
Other current liabilities	(10)	(9)	—	(19)	(1)	(20)	
Other long-term liabilities and deferred credits	(9)	—	(36)	(45)	(8)	(53)	
Total Derivative Liabilities	\$ (208)	\$ (9)	\$ (36)	\$ (253)	\$ (9)	\$ (262)	

The following table summarizes the derivative assets and liabilities on our Consolidated Balance Sheet on a gross basis as of December 31, 2017 (in millions):

Balance Sheet Location	Derivatives Not Designated As Hedging Instruments				Total	Interest Rate Derivatives ⁽¹⁾	Total Derivatives
	Commodity Derivatives	Foreign Currency Derivatives	Preferred Distribution Rate Reset Option				
Derivative Assets							
Other current assets	\$ 73	\$ 6	\$ —	\$ 79	\$ —	\$ 79	
Other long-term assets, net	1	—	—	1	—	1	
Other current liabilities	5	—	—	5	2	7	
Other long-term liabilities and deferred credits	3	—	—	3	—	3	
Total Derivative Assets	\$ 82	\$ 6	\$ —	\$ 88	\$ 2	\$ 90	
Derivative Liabilities							
Other current assets	\$ (227)	\$ (2)	\$ —	\$ (229)	\$ —	\$ (229)	
Other long-term assets, net	—	—	—	—	—	—	
Other current liabilities	(131)	—	—	(131)	(27)	(158)	
Other long-term liabilities and deferred credits	(5)	—	(22)	(27)	(11)	(38)	
Total Derivative Liabilities	\$ (363)	\$ (2)	\$ (22)	\$ (387)	\$ (38)	\$ (425)	

(1) Derivatives in hedging relationships.

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Our financial derivatives, used for hedging risk, are governed through ISDA master agreements and clearing brokerage agreements. These agreements include stipulations regarding the right of set off in the event that we or our counterparty default on performance obligations. If a default were to occur, both parties have the right to net amounts payable and receivable into a single net settlement between parties.

Our accounting policy is to offset derivative assets and liabilities executed with the same counterparty when a master netting arrangement exists. Accordingly, we also offset derivative assets and liabilities with amounts associated with cash margin. Our exchange-traded derivatives are transacted through clearing brokerage accounts and are subject to margin requirements as established by the respective exchange. On a daily basis, our account equity (consisting of the sum of our cash balance and the fair value of our open derivatives) is compared to our initial margin requirement resulting in the payment or return of variation margin. The following table provides the components of our net broker receivable/(payable):

	December 31, 2018	December 31, 2017
Initial margin	\$ 95	\$ 48
Variation margin posted/(returned)	(91)	164
Letters of credit	(84)	—
Net broker receivable/(payable)	<u>\$ (80)</u>	<u>\$ 212</u>

The following table presents information about derivative financial assets and liabilities that are subject to offsetting, including enforceable master netting arrangements (in millions):

	December 31, 2018		December 31, 2017	
	Derivative Asset Positions	Derivative Liability Positions	Derivative Asset Positions	Derivative Liability Positions
Netting Adjustments:				
Gross position - asset/(liability)	\$ 480	\$ (262)	\$ 90	\$ (425)
Netting adjustment	(192)	192	(239)	239
Cash collateral paid/(received)	(80)	—	212	—
Net position - asset/(liability)	<u>\$ 208</u>	<u>\$ (70)</u>	<u>\$ 63</u>	<u>\$ (186)</u>
Balance Sheet Location After Netting Adjustments:				
Other current assets	\$ 181	\$ —	\$ 62	\$ —
Other long-term assets, net	27	—	1	—
Other current liabilities	—	(20)	—	(151)
Other long-term liabilities and deferred credits	—	(50)	—	(35)
	<u>\$ 208</u>	<u>\$ (70)</u>	<u>\$ 63</u>	<u>\$ (186)</u>

As of December 31, 2018, there was a net loss of \$177 million deferred in AOCI. The deferred net loss recorded in AOCI is expected to be reclassified to future earnings contemporaneously with (i) the earnings recognition of the underlying hedged commodity transactions or (ii) interest expense accruals associated with underlying debt instruments. Of the total net loss deferred in AOCI at December 31, 2018, we expect to reclassify a net loss of \$7 million to earnings in the next twelve months. We estimate that substantially all of the remaining deferred loss will be reclassified to earnings through 2050 as the underlying hedged transactions impact earnings. A portion of these amounts is based on market prices as of December 31, 2018; thus, actual amounts to be reclassified will differ and could vary materially as a result of changes in market conditions.

The following table summarizes the net unrealized gain/(loss) recognized in AOCI for derivatives (in millions):

	Year Ended December 31,		
	2018	2017	2016
Interest rate derivatives, net	\$ 38	\$ (16)	\$ (33)

At December 31, 2018 and 2017, none of our outstanding derivatives contained credit-risk related contingent features that would result in a material adverse impact to us upon any change in PAA’s credit ratings. Although we may be required to post margin on our cleared derivatives as described above, we do not require our non-cleared derivative counterparties to post collateral with us.

Recurring Fair Value Measurements

Derivative Financial Assets and Liabilities

The following table sets forth by level within the fair value hierarchy our financial assets and liabilities that were accounted for at fair value on a recurring basis (in millions):

Recurring Fair Value Measures ⁽¹⁾	Fair Value as of December 31, 2018				Fair Value as of December 31, 2017			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Commodity derivatives	\$ 171	\$ 87	\$ 12	\$ 270	\$ 5	\$ (278)	\$ (8)	\$ (281)
Interest rate derivatives	—	(7)	—	(7)	—	(36)	—	(36)
Foreign currency derivatives	—	(9)	—	(9)	—	4	—	4
Preferred Distribution Rate Reset Option	—	—	(36)	(36)	—	—	(22)	(22)
Total net derivative asset/(liability)	\$ 171	\$ 71	\$ (24)	\$ 218	\$ 5	\$ (310)	\$ (30)	\$ (335)

(1) Derivative assets and liabilities are presented above on a net basis but do not include related cash margin deposits.

Level 1

Level 1 of the fair value hierarchy includes exchange-traded commodity derivatives and over-the-counter commodity contracts such as futures, swaps and options. The fair value of exchange-traded commodity derivatives and over-the-counter commodity contracts is based on unadjusted quoted prices in active markets.

Level 2

Level 2 of the fair value hierarchy includes exchange-cleared commodity derivatives and over-the-counter commodity, interest rate and foreign currency derivatives that are traded in observable markets with less volume and transaction frequency than active markets. In addition, it includes certain physical commodity contracts. The fair values of these derivatives are corroborated with market observable inputs.

Level 3

Level 3 of the fair value hierarchy includes certain physical commodity contracts, over-the counter financial commodity contracts, and the Preferred Distribution Rate Reset Option contained in our partnership agreement which is classified as an embedded derivative.

The fair values of our Level 3 physical commodity contracts and over-the-counter financial commodity contracts are based on valuation models utilizing significant unobservable pricing inputs and timing estimates, which involve management judgment. Significant deviations from these inputs and estimates could result in a material change in fair value to our physical commodity contracts and over-the-counter financial commodity contracts. We report unrealized gains and losses associated with these physical commodity contracts in our Consolidated Statements of Operations as Supply and Logistics segment revenues. Unrealized gains and losses associated with the over-the-counter financial commodity contracts are reported in our Consolidated Statements of Operations as Field operating costs.

The fair value of the embedded derivative feature contained in our partnership agreement is based on a valuation model that estimates the fair value of the Series A preferred units with and without the Preferred Distribution Rate Reset Option. This model contains inputs, including our common unit price, ten-year U.S. treasury rates, default probabilities and timing estimates, some of which involve management judgment. A significant change in these inputs could result in a material change in fair value to this embedded derivative feature. We report unrealized gains and losses associated with this embedded derivative in our Consolidated Statements of Operations in “Other income/(expense), net.”

To the extent any transfers between levels of the fair value hierarchy occur, our policy is to reflect these transfers as of the beginning of the reporting period in which they occur.

Rollforward of Level 3 Net Asset/(Liability)

The following table provides a reconciliation of changes in fair value of the beginning and ending balances for our derivatives classified as Level 3 (in millions):

	Year Ended December 31,	
	2018	2017
Beginning Balance	\$ (30)	\$ (36)
Net gains/(losses) for the period included in earnings	(13)	12
Settlements	7	4
Derivatives entered into during the period	12	(10)
Ending Balance	<u>\$ (24)</u>	<u>\$ (30)</u>
Change in unrealized gains/(losses) included in earnings relating to Level 3 derivatives still held at the end of the period	\$ (1)	\$ 5

Note 14 —Income Taxes

Income tax expense is estimated using the tax rate in effect or to be in effect during the relevant periods in the jurisdictions in which we operate. Deferred income tax assets and liabilities are recognized for temporary differences between the basis of assets and liabilities for financial reporting and tax purposes and are stated at enacted tax rates expected to be in effect when taxes are actually paid or recovered. To the extent we do not consider it more likely than not that a deferred tax asset will be recovered, a valuation allowance is established. Changes in tax legislation are included in the relevant computations in the period in which such changes are effective. We review contingent tax liabilities for estimated exposures on a more likely than not standard related to our current tax positions.

Pursuant to FASB guidance related to accounting for uncertainty in income taxes, we may recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained upon examination by the taxing authorities, based on the technical merits of the tax position and also the past administrative practices and precedents of the taxing authority. As of December 31, 2018 and 2017, we had not recognized any material amounts in connection with uncertainty in income taxes.

U.S. Federal and State Taxes

Although we are organized as a limited partnership, we have elected to be treated as a corporation for U.S. federal income tax purposes and are therefore subject to both U.S. federal and state income taxes.

Canadian Federal and Provincial Taxes

All of our Canadian operations are conducted by entities that are treated as corporations for Canadian tax purposes (flow through for U.S. income tax purposes) and that are subject to Canadian federal and provincial taxes. Additionally, payments of interest and dividends from our Canadian entities to other Plains entities are subject to Canadian withholding tax that is treated as income tax expense.

Tax Components

Components of income tax expense are as follows (in millions):

	Year Ended December 31,		
	2018	2017	2016
Current income tax expense:			
State income tax	\$ 3	\$ 1	\$ 2
Canadian federal and provincial income tax	63	27	83
Total current income tax expense	\$ 66	\$ 28	\$ 85
Deferred income tax expense/(benefit):			
Federal income tax	\$ 90	\$ 872	\$ 57
State income tax	14	21	(4)
Canadian federal and provincial income tax	132	16	(60)
Total deferred income tax expense/(benefit)	\$ 236	\$ 909	\$ (7)
Total income tax expense	\$ 302	\$ 937	\$ 78

The difference between income tax expense based on the statutory federal income tax rate and our effective income tax expense is summarized as follows (in millions):

	Year Ended December 31,		
	2018	2017	2016
Income before tax	\$ 2,409	\$ 896	\$ 738
Net income attributable to noncontrolling interests	(1,773)	(690)	(566)
Income taxes attributable to noncontrolling interests	(198)	(44)	(25)
	\$ 438	\$ 162	\$ 147
Federal statutory income tax rate	21%	35%	35%
Income tax at statutory rate	\$ 92	\$ 57	\$ 51
Deferred tax impact of federal tax reform	—	823	—
Deferred tax rate adjustment	3	10	(1)
State income tax, net of federal benefit	9	3	3
Income taxes attributable to noncontrolling interests:			
Canadian federal and provincial income tax	195	41	10
Canadian withholding tax	—	2	13
State income tax	3	1	2
Total income tax expense	\$ 302	\$ 937	\$ 78

Deferred tax assets and liabilities are aggregated by the applicable tax paying entity and jurisdiction and result from the following (in millions):

	December 31,	
	2018	2017
Deferred tax assets:		
Investment in partnerships	\$ 1,049	\$ 1,154
Net operating losses	255	232
Derivative instruments	—	74
Book accruals in excess of current tax deductions	21	22
Total deferred tax assets	1,325	1,482
Deferred tax liabilities:		
Property and equipment in excess of tax values	(449)	(455)
Derivative instruments	(31)	—
Other	(42)	(50)
Total deferred tax liabilities	(522)	(505)
Net deferred tax assets	\$ 803	\$ 977
Balance sheet classification of deferred tax assets/(liabilities):		
Deferred tax asset	\$ 1,304	\$ 1,386
Other long-term liabilities and deferred credits	(501)	(409)
	\$ 803	\$ 977

As a result of the exchange of the ownership interest in AAP in connection with our IPO and all subsequent exchanges, a deferred tax asset was created. These transfers of ownership were accounted for at the historical carrying basis for GAAP accounting purposes, but were recorded at the fair market value of the Class A shares at the time of exchange for U.S. federal income tax purposes. The resulting basis difference resulted in a deferred tax asset that was recorded as a component of partners' capital as it results from transactions among shareholders. The deferred tax asset is amortized to deferred income tax expense as the associated basis step-up is realized on our tax returns. In connection with the issuance of AAP units and PAA common units in the periods following the Simplification Transactions and the associated adjustments to partners' capital attributable to PAGP, a corresponding change to the deferred tax balance was recorded to partners' capital. See Note 12 for additional information regarding the issuance of units by AAP and PAA.

On December 22, 2017, the Tax Cuts and Jobs Act (the "2017 Tax Act") was signed into law. The 2017 Tax Act changed existing U.S. tax law and included numerous provisions that will affect businesses, including a decrease in the corporate federal income tax rate. Prior to the 2017 Tax Act, the value of our deferred tax asset was calculated based on the effective corporate income tax rate of 35%. As a result of the 2017 Tax Act, the value of our deferred tax asset was re-measured as of December 31, 2017 based on the new 21% corporate federal income tax rate, and the reduction in value was recognized as deferred income tax expense for the year ended December 31, 2017.

As of December 31, 2018, we had net operating loss carryforwards for (i) U.S. federal income tax purposes of \$1,108 million, which will expire from 2033 to 2038, (ii) state income tax purposes of \$392 million, which will expire from 2019 to 2038, and (iii) foreign income tax purposes of \$9 million, which will expire from 2034 to 2036. Under the 2017 Tax Act, U.S. federal NOLs generated after 2017 will have an indefinite carryforward period but may only reduce up to 80% of taxable income in any given year. Our U.S. federal NOLs generated prior to 2018 will not be subject to the taxable income limitation and will remain subject to a 20 year carryforward period.

Generally, tax returns for our Canadian entities are open to audit from 2014 through 2018. Our U.S. and state tax years are generally open to examination from 2015 to 2018.

In reference to tax years 2008 to 2013, we have received notices of reassessment (“notices”) from the Canada Revenue Agency and the Alberta Tax and Revenue Administration (the “Canadian Tax Authorities”) related primarily to transfer pricing associated with cross-border intercompany financing transactions. These notices include assessments, including penalties and interest, associated with these matters totaling approximately \$60 million (based on the exchange rate as of December 31, 2018). Payment of a portion of the assessment is required in order to file a notice of objection to dispute the reassessment. Accordingly, we have remitted approximately \$40 million (based on the exchange rate as of December 31, 2018) related to the assessments, which is included in “Other long-term assets, net,” on our Consolidated Balance Sheet. We disagree with these notices and have contested the reassessments. We intend to vigorously defend our position, and we plan to pursue all remedies available to us to successfully resolve these matters, including administrative remedies with the Canadian Tax Authorities, and judicial remedies, if necessary. As of December 31, 2018, we believe that our tax position associated with these matters is “more likely than not” to be sustained and have not recognized any amounts for uncertainty in income taxes related to these notices.

Note 15 —Major Customers and Concentration of Credit Risk

Marathon Petroleum Corporation and its subsidiaries accounted for 14% , 19% and 18% of our revenues for the years ended December 31, 2018 , 2017 and 2016 , respectively. ExxonMobil Corporation and its subsidiaries accounted for 14% , 11% and 14% of our revenues for the years ended December 31, 2018 , 2017 and 2016 , respectively. Phillips 66 Company and its subsidiaries accounted for 11% of our revenues in each of the years ended December 31, 2017 and 2016 . No other customers accounted for 10% or more of our revenues during any of the three years ended December 31, 2018 . The majority of revenues from these customers pertain to our supply and logistics operations. The sales to these customers occur at multiple locations and we believe that the loss of these customers would have only a short-term impact on our operating results. There is risk, however, that we would not be able to identify and access a replacement market at comparable margins.

Financial instruments that potentially subject us to concentrations of credit risk consist principally of trade receivables. Our accounts receivable are primarily from purchasers and shippers of crude oil and, to a lesser extent, purchasers of NGL and natural gas. This industry concentration has the potential to impact our overall exposure to credit risk in that the customers may be similarly affected by changes in economic, industry or other conditions. We review credit exposure and financial information of our counterparties and generally require letters of credit for receivables from customers that are not considered creditworthy, unless the credit risk can otherwise be reduced. See Note 3 for additional discussion of our accounts receivable and our review of credit exposure.

Note 16 —Related Party Transactions

PAA’s Ownership of our Class C Shares

As of December 31, 2018 and 2017 , PAA owned 516,938,280 and 510,925,432 , respectively, Class C shares. The Class C shares represent a non-economic limited partner interest in us that provides PAA, as the sole holder, a “pass-through” voting right through which PAA’s common unitholders and Series A preferred unitholders have the effective right to vote, pro rata with the holders of our Class A and Class B shares, for the election of eligible directors.

Omnibus Agreement

In connection with the Simplification Transactions completed in November 2016, the Plains Entities entered into an Omnibus Agreement, which, among other things, provides for the following:

- our ability to issue additional Class A shares and use the net proceeds therefrom to purchase a like number of AAP units from AAP, and the corresponding ability of AAP to use the net proceeds therefrom to purchase a like number of PAA common units; and
- our ability to lend proceeds of any future indebtedness incurred by us to AAP, and AAP’s corresponding ability to lend such proceeds to PAA, in each case on substantially the same terms as incurred by us.

See Note 1 for discussion of the Simplification Transactions.

Transactions with Other Related Parties

Our other related parties include (i) principal owners and their affiliated entities and (ii) entities in which we hold investments and account for under the equity method of accounting (see Note 9 for information related to these investments). We recognize as our principal owners entities that have a designated representative on the board of directors of our general partner and/or own greater than 10% of the limited partner interests in AAP. Such limited partner interest in AAP translates into a significantly smaller indirect ownership interest in PAA. Principal owners include Oxy, The Energy & Minerals Group and Kayne Anderson Capital Advisors, L.P. We also consider subsidiaries or funds identified as affiliated with such entities to be related parties.

During the three years ended December 31, 2018, we recognized sales and transportation revenues and purchased petroleum products from both our principal owners and our equity method investees. These transactions were conducted at posted tariff rates or prices that we believe approximate market. Included in these transactions was a crude oil buy/sell agreement that includes a multi-year minimum volume commitment. The impact to our Consolidated Statements of Operations from these transactions is included below (in millions):

	Year Ended December 31,		
	2018	2017	2016
Revenues from related parties ⁽¹⁾⁽²⁾	\$ 1,067	\$ 927	\$ 678
Purchases and related costs from related parties ⁽²⁾	\$ 410	\$ 286	\$ 360

(1) A majority of these revenues are included in "Supply and Logistics segment revenues" on our Consolidated Statements of Operations.

(2) Crude oil purchases that are part of inventory exchanges under buy/sell transactions are netted with the related sales, with any margin presented in "Purchases and related costs" in our Consolidated Statements of Operations.

Our receivable and payable amounts with these related parties as reflected on our Consolidated Balance Sheets were as follows (in millions):

	December 31,	
	2018	2017
Trade accounts receivable and other receivables, net from related parties ⁽¹⁾⁽²⁾	\$ 144	\$ 142
Trade accounts payable to related parties ⁽¹⁾⁽²⁾⁽³⁾	\$ 121	\$ 82

(1) We have a netting arrangement with certain related parties. Receivables and payables are presented net of such amounts.

(2) Includes amounts related to crude oil purchases and sales, transportation services and amounts owed to us or advanced to us related to expansion projects of equity method investees where we serve as construction manager.

(3) We have an agreement to transport crude oil at posted tariff rates on a pipeline that is owned by an equity method investee, in which we own a 50% interest. Our commitment to transport is supported by crude oil buy/sell agreements with third parties (including Oxy) with commensurate quantities.

PAA Series A Preferred Unit Issuance

In January 2016, PAA completed a private placement of Series A preferred units. Certain of the purchasers of the PAA Series A preferred units or their affiliates are related parties. Kayne Anderson Capital Advisors, L.P. and certain of its affiliates and an affiliate of The Energy & Minerals Group hold ownership interests in AAP. In addition, certain of the current directors of our general partner are affiliated with certain of the purchasers. See Note 12 for additional information about the Series A preferred units.

Note 17 —Equity-Indexed Compensation Plans***PAGP and PAA Long-Term Incentive Plan Awards***

Our LTIP awards include both liability-classified and equity-classified awards. In accordance with FASB guidance regarding share-based payments, the fair value of liability-classified LTIP awards is calculated based on the closing market price of the underlying PAGP share or PAA unit at each balance sheet date and adjusted for the present value of any distributions that are estimated to occur on the underlying shares or units over the vesting period that will not be received by the award recipients. The fair value of equity-classified LTIP awards is calculated based on the closing market price of the underlying PAGP share or PAA unit on the respective grant dates and adjusted for the present value of any distributions that are estimated to occur on the underlying shares or units over the vesting period that will not be received by the award recipient. This fair value is recognized as compensation expense over the service period.

Our LTIP awards contain (i) time based vesting criteria, (ii) performance conditions based on the attainment of certain levels of four quarter trailing distributable cash flow (“DCF”) per PAA common unit or (iii) a combination of time based vesting criteria and performance conditions based on four quarter trailing DCF per PAA common unit. For awards with performance conditions, expense is accrued over the service period only if the performance condition is considered probable of occurring. When awards with performance conditions that were previously considered improbable become probable, we incur additional expense in the period that the probability assessment changes. This is necessary to bring the accrued obligation associated with these awards up to the level it would be if we had been accruing for these awards since the grant date.

The following is a summary of the awards authorized under our LTIPs as of December 31, 2018 (in millions):

LTIP	LTIP Awards Authorized
Plains GP Holdings, L.P. Long-Term Incentive Plan	3.8
Plains All American 2013 Long-Term Incentive Plan	13.1
Plains All American PNG Successor Long-Term Incentive Plan	1.3
Plains All American GP LLC 2006 Long-Term Incentive Tracking Unit Plan	10.8
Total	29.0

(1) Of the 29.0 million total awards authorized, 12.4 million awards are currently available. The remaining balance has already vested or is currently outstanding.

Although other types of awards are contemplated under certain of the LTIPs, currently outstanding awards are limited to “phantom units,” which mature into the right to receive our Class A shares or common units of PAA (or cash equivalent) upon vesting, and “tracking units,” which, upon vesting, represent the right to receive a cash payment in an amount based upon the market value of a PAA common unit at the time of vesting. Some awards also include DERs, which, subject to applicable vesting criteria, entitle the grantee to a cash payment equal to the cash distribution paid on an outstanding Class A share or PAA common unit. The DERs terminate with the vesting or forfeiture of the underlying LTIP award.

As of December 31, 2018, 6.8 million PAA LTIP awards and less than 0.1 million PAGP LTIP awards were outstanding. Of this amount, 4.3 million PAA LTIP awards and less than 0.1 million PAGP LTIP awards include DERs. The outstanding and probable LTIP awards are expected to vest at various dates between January 2019 and August 2023.

Our accrued liability at December 31, 2018 related to all outstanding liability-classified LTIP awards and DERs was \$27 million, of which \$19 million was classified as short-term and \$8 million was classified as long-term. These short- and long-term accrued LTIP liabilities are reflected in “Other current liabilities” and “Other long-term liabilities and deferred credits,” respectively, on our Consolidated Balance Sheets. At December 31, 2017, the accrued liability was \$27 million, of which \$15 million was classified as short-term and \$12 million was classified as long-term.

Activity for PAA LTIP awards under our equity-indexed compensation plans denominated in PAA units is summarized in the following table (units in millions):

	PAA Units ⁽¹⁾⁽²⁾	
	Units	Weighted Average Grant Date Fair Value per Unit
Outstanding at December 31, 2015	6.9	\$ 41.23
Granted	4.5	\$ 23.38
Vested	(1.9)	\$ 45.91
Modified	—	\$ (8.21)
Cancelled or forfeited	(0.6)	\$ 37.19
Outstanding at December 31, 2016	8.9	\$ 29.62
Granted	0.9	\$ 23.52
Vested	(1.7)	\$ 42.12
Modified	—	\$ (6.04)
Cancelled or forfeited	(0.8)	\$ 26.99
Outstanding at December 31, 2017	7.3	\$ 24.68
Granted	1.7	\$ 23.44
Vested	(1.7)	\$ 32.42
Modified	—	\$ 2.15
Cancelled or forfeited	(0.5)	\$ 21.99
Outstanding at December 31, 2018	6.8	\$ 22.19

(1) Amounts do not include PAGP LTIP awards.

(2) Approximately 0.6 million, 0.6 million and 0.5 million PAA common units were issued, net of tax withholding of approximately 0.2 million, 0.2 million and 0.3 million units during 2018, 2017 and 2016, respectively, in connection with the settlement of vested awards. The remaining PAA awards (approximately 0.9 million, 0.9 million and 1.1 million units) that vested during 2018, 2017 and 2016, respectively, were settled in cash.

Equity-Indexed Compensation Plan Information

We refer to all of the LTIPs as our “equity-indexed compensation plans.” The table below summarizes the expense recognized and the value of vested LTIP awards (settled in PAA common units, Class A shares and cash) under our equity-indexed compensation plans and includes both liability-classified and equity-classified awards (in millions):

	Year Ended December 31,		
	2018	2017	2016
Equity-indexed compensation expense	\$ 79	\$ 41	\$ 60
LTIP unit or share-settled vestings	\$ 21	\$ 16	\$ 24
LTIP cash-settled vestings	\$ 22	\$ 25	\$ 28

Based on the December 31, 2018 fair value measurement and probability assessment regarding future performance conditions based on distributable cash flow measures determined by management, we expect to recognize \$50 million of additional expense over the life of our outstanding awards related to the remaining unrecognized fair value. Actual amounts may differ materially as a result of a change in the market price of PAA’s common units and our Class A shares and/or probability assessments regarding future distributions. We estimate that the remaining fair value will be recognized in expense as shown below (in millions):

Year	Equity-Indexed Compensation Plan Fair Value Amortization ⁽¹⁾
2019	\$ 30
2020	14
2021	5
2022	1
2023 ⁽²⁾	—
Total	\$ 50

⁽¹⁾ Amounts do not include fair value associated with awards containing performance conditions that are not considered to be probable of occurring at December 31, 2018 .

⁽²⁾ Less than \$1 million of expense from amortized fair value during the period.

Note 18 — Commitments and Contingencies

Commitments

We have commitments, some of which are leases, related to real property, equipment and operating facilities. We also incur costs associated with leased land, rights-of-way, permits and regulatory fees. Future noncancelable commitments related to these items at December 31, 2018 are summarized below (in millions):

	2019	2020	2021	2022	2023	Thereafter	Total
Leases, rights-of-way easements and other ⁽¹⁾	\$ 167	\$ 133	\$ 109	\$ 93	\$ 68	\$ 341	\$ 911
Other commitments ⁽²⁾	220	174	147	122	107	181	951
Total	\$ 387	\$ 307	\$ 256	\$ 215	\$ 175	\$ 522	\$ 1,862

⁽¹⁾ Includes operating and capital leases as defined by FASB guidance, as well as obligations for rights-of-way easements. Leases are primarily for (i) railcars, (ii) land and surface rentals, (iii) office buildings, (iv) pipeline assets and (v) vehicles and trailers. We recognize expense on a straight-line basis over the life of the agreement, as applicable. Lease expense for 2018 , 2017 and 2016 was \$199 million , \$207 million and \$198 million , respectively.

⁽²⁾ Primarily includes third-party storage and transportation agreements and pipeline throughput agreements, as well as approximately \$750 million associated with an agreement to transport crude oil at posted tariff rates on a pipeline that is owned by an equity method investee, in which we own a 50% interest. Our commitment to transport is supported by crude oil buy/sell agreements with third parties (including Oxy) with commensurate quantities. Expense associated with these storage, transportation and throughput agreements was approximately \$ 228 million , \$ 197 million and \$ 157 million for 2018, 2017 and 2016, respectively.

Loss Contingencies — General

To the extent we are able to assess the likelihood of a negative outcome for a contingency, our assessments of such likelihood range from remote to probable. If we determine that a negative outcome is probable and the amount of loss is reasonably estimable, we accrue an undiscounted liability equal to the estimated amount. If a range of probable loss amounts can be reasonably estimated and no amount within the range is a better estimate than any other amount, then we accrue an undiscounted liability equal to the minimum amount in the range. In addition, we estimate legal fees that we expect to incur associated with loss contingencies and accrue those costs when they are material and probable of being incurred.

We do not record a contingent liability when the likelihood of loss is probable but the amount cannot be reasonably estimated or when the likelihood of loss is believed to be only reasonably possible or remote. For contingencies where an unfavorable outcome is reasonably possible and the impact would be material to our consolidated financial statements, we disclose the nature of the contingency and, where feasible, an estimate of the possible loss or range of loss.

Legal Proceedings — General

In the ordinary course of business, we are involved in various legal proceedings, including those arising from regulatory and environmental matters. Although we are insured against various risks to the extent we believe it is prudent, there is no assurance that the nature and amount of such insurance will be adequate, in every case, to fully protect us from losses arising from current or future legal proceedings.

Taking into account what we believe to be all relevant known facts and circumstances, and based on what we believe to be reasonable assumptions regarding the application of those facts and circumstances to existing laws and regulations, we do not believe that the outcome of the legal proceedings in which we are currently involved (including those described below) will, individually or in the aggregate, have a material adverse effect on our consolidated financial condition, results of operations or cash flows.

Environmental — General

Although over the course of the last several years we have made significant investments in our maintenance and integrity programs, and have hired additional personnel in those areas, we have experienced (and likely will experience future) releases of hydrocarbon products into the environment from our pipeline, rail, storage and other facility operations. These releases can result from accidents or from unpredictable man-made or natural forces and may reach surface water bodies, groundwater aquifers or other sensitive environments. Damages and liabilities associated with any such releases from our existing or future assets could be significant and could have a material adverse effect on our consolidated financial condition, results of operations or cash flows.

We record environmental liabilities when environmental assessments and/or remedial efforts are probable and the amounts can be reasonably estimated. Generally, our recording of these accruals coincides with our completion of a feasibility study or our commitment to a formal plan of action. We do not discount our environmental remediation liabilities to present value. We also record environmental liabilities assumed in business combinations based on the estimated fair value of the environmental obligations caused by past operations of the acquired company. We record receivables for amounts recoverable from insurance or from third parties under indemnification agreements in the period that we determine the costs are probable of recovery.

Environmental expenditures that pertain to current operations or to future revenues are expensed or capitalized consistent with our capitalization policy for property and equipment. Expenditures that result from the remediation of an existing condition caused by past operations and that do not contribute to current or future profitability are expensed.

At December 31, 2018, our estimated undiscounted reserve for environmental liabilities (including liabilities related to the Line 901 incident, as discussed further below) totaled \$135 million, of which \$43 million was classified as short-term and \$92 million was classified as long-term. Such short- and long-term environmental liabilities are reflected in “Other current liabilities” and “Other long-term liabilities and deferred credits,” respectively, on our Consolidated Balance Sheet. At December 31, 2017, our estimated undiscounted reserve for environmental liabilities (including liabilities related to the Line 901 incident) totaled \$162 million, of which \$72 million was classified as short-term and \$90 million was classified as long-term. At December 31, 2018, we had recorded receivables totaling \$61 million for amounts probable of recovery under insurance and from third parties under indemnification agreements, of which \$28 million was short-term and reflected in “Trade accounts receivable and other receivables, net” and \$33 million was long-term and reflected in “Other long-term assets, net” on our Consolidated Balance Sheet. At December 31, 2017, we had recorded \$55 million of such receivables, of which \$29 million was short-term and \$26 million was long-term.

In some cases, the actual cash expenditures associated with these liabilities may not occur for three years or longer. Our estimates used in determining these reserves are based on information currently available to us and our assessment of the ultimate outcome. Among the many uncertainties that impact our estimates are the necessary regulatory approvals for, and potential modification of, our remediation plans, the limited amount of data available upon initial assessment of the impact of soil or water contamination, changes in costs associated with environmental remediation services and equipment and the possibility of existing or future legal claims giving rise to additional liabilities. Therefore, although we believe that the reserve is adequate, actual costs incurred (which may ultimately include costs for contingencies that are currently not reasonably estimable or costs for contingencies where the likelihood of loss is currently believed to be only reasonably possible or remote) may be in excess of the reserve and may potentially have a material adverse effect on our consolidated financial condition, results of operations or cash flows.

Specific Legal, Environmental or Regulatory Matters

Line 901 Incident. In May 2015, we experienced a crude oil release from our Las Flores to Gaviota Pipeline (Line 901) in Santa Barbara County, California. A portion of the released crude oil reached the Pacific Ocean at Refugio State Beach through a drainage culvert. Following the release, we shut down the pipeline and initiated our emergency response plan. A Unified Command, which included the United States Coast Guard, the EPA, the California Office of Spill Prevention and Response and the Santa Barbara Office of Emergency Management, was established for the response effort. Clean-up and remediation operations with respect to impacted shoreline and other areas has been determined by the Unified Command to be complete, and the Unified Command has been dissolved. Our estimate of the amount of oil spilled, based on relevant facts, data and information, is approximately 2,934 barrels; of this amount, we estimate that 598 barrels reached the Pacific Ocean.

As a result of the Line 901 incident, several governmental agencies and regulators initiated investigations into the Line 901 incident, various claims have been made against us and a number of lawsuits have been filed against us. We may be subject to additional claims, investigations and lawsuits, which could materially impact the liabilities and costs we currently expect to incur as a result of the Line 901 incident. Set forth below is a brief summary of actions and matters that are currently pending:

On May 21, 2015, we received a corrective action order from the United States Department of Transportation's Pipeline and Hazardous Materials Safety Administration ("PHMSA"), the governmental agency with jurisdiction over the operation of Line 901 as well as over a second stretch of pipeline extending from Gaviota Pump Station in Santa Barbara County to Emidio Pump Station in Kern County, California (Line 903), requiring us to shut down, purge, review, remediate and test Line 901. The corrective action order was subsequently amended on June 3, 2015; November 13, 2015; and June 16, 2016 to require us to take additional corrective actions with respect to both Lines 901 and 903 (as amended, the "CAO"). Among other requirements, the CAO obligated us to conduct a root cause failure analysis with respect to Line 901 and present remedial work plans and restart plans to PHMSA prior to returning Line 901 and 903 to service; the CAO also imposed a pressure restriction on the section of Line 903 between Pentland Pump Station and Emidio Pump Station and required us to take other specified actions with respect to both Lines 901 and 903. We intend to continue to comply with the CAO and to cooperate with any other governmental investigations relating to or arising out of the release. Excavation and removal of the affected section of the pipeline was completed on May 28, 2015. Line 901 and Line 903 have been purged and are not currently operational, with the exception of the Pentland to Emidio segment of Line 903, which remains in service under a pressure restriction. No timeline has been established for the restart of Line 901 or Line 903.

On February 17, 2016, PHMSA issued a Preliminary Factual Report of the Line 901 failure, which contains PHMSA's preliminary findings regarding factual information about the events leading up to the accident and the technical analysis that has been conducted to date. On May 19, 2016, PHMSA issued its final Failure Investigation Report regarding the Line 901 incident. PHMSA's findings indicate that the direct cause of the Line 901 incident was external corrosion that thinned the pipe wall to a level where it ruptured suddenly and released crude oil. PHMSA also concluded that there were numerous contributory causes of the Line 901 incident, including ineffective protection against external corrosion, failure to detect and mitigate the corrosion and a lack of timely detection and response to the rupture. The report also included copies of various engineering and technical reports regarding the incident. By virtue of its statutory authority, PHMSA has the power and authority to impose fines and penalties on us and cause civil or criminal charges to be brought against us. While to date PHMSA has not imposed any such fines or penalties or brought any such civil or criminal charges with respect to the Line 901 release, their investigation is still open and we are likely to have fines or penalties imposed upon us, and we may have civil or criminal charges brought against us, in the future.

In late May of 2015, the California Attorney General's Office and the District Attorney's office for the County of Santa Barbara began investigating the Line 901 incident to determine whether any applicable state or local laws had been violated. On May 16, 2016, PAA and one of its employees were charged by a California state grand jury, pursuant to an indictment filed in California Superior Court, Santa Barbara County (the "May 2016 Indictment"), with alleged violations of California law in connection with the Line 901 incident. The May 2016 Indictment included a total of 46 counts against PAA. On July 28, 2016, at an arraignment hearing held in California Superior Court in Santa Barbara County, PAA pled not guilty to all counts. Between May of 2016 and May of 2018, 31 of the criminal charges against PAA (including one felony charge) and all of the criminal charges against our employee, were dismissed. The remaining 15 charges were the subject of a jury trial in California Superior Court in Santa Barbara County that began in May of 2018. The jury returned a verdict on September 7, 2018, pursuant to which we were (i) found guilty on one felony discharge count and eight misdemeanor counts (which included one reporting count, one strict liability discharge count and six strict liability animal takings counts) and (ii) found not guilty on one strict liability animal takings count. The jury deadlocked on three counts (including two felony discharge counts and one strict liability animal takings count), and two misdemeanor discharge counts were dropped. We are in the process of pursuing and evaluating our post-trial options, which include the possibility of an appeal. We do not anticipate that the fines or penalties

imposed as a result of the jury's decision will have a material adverse impact on the financial position or operations of the Partnership.

Also in late May of 2015, the United States Attorney for the Department of Justice, Central District of California, Environmental Crimes Section ("DOJ") began an investigation into whether there were any violations of federal criminal statutes in connection with the Line 901 incident, including potential violations of the federal Clean Water Act. We have cooperated with the DOJ's investigation by responding to their requests for documents and access to our employees. Consistent with the terms of our governing organizational documents, we are funding our employees' defense costs, including the costs of separate counsel engaged to represent such individuals. On August 26, 2015, we received a Request for Information from the EPA relating to Line 901. We have provided various responsive materials to date and we will continue to do so in the future in cooperation with the EPA. While to date no civil actions or criminal charges with respect to the Line 901 release, other than those brought pursuant to the May 2016 Indictment and a separate civil claim brought by the California Attorney General on behalf of the California State Lands Commission, have been brought against PAA or any of its affiliates, officers or employees by PHMSA, DOJ, EPA, the California Attorney General, the Santa Barbara District Attorney or the California Department of Fish and Wildlife, and no fines or penalties have been imposed by such governmental agencies, the investigations being conducted by such agencies are still open and we may have fines or penalties imposed upon us, our officers or our employees, or civil actions or criminal charges brought against us, our officers or our employees in the future, whether by those or other governmental agencies.

Shortly following the Line 901 incident, we established a claims line and encouraged any parties that were damaged by the release to contact us to discuss their damage claims. We have received a number of claims through the claims line and we have been processing those claims and making payments as appropriate. In addition, we have also had nine class action lawsuits filed against us, six of which have been administratively consolidated into a single proceeding in the United States District Court for the Central District of California. In general, the plaintiffs are seeking to establish different classes of claimants that have allegedly been damaged by the release. To date, the court has certified three sub-classes of claimants and denied certification of the other proposed sub-class. The sub-classes that have been certified include (i) commercial fishermen who landed fish in certain specified fishing blocks in the waters adjacent to Santa Barbara County or persons or businesses who resold commercial seafood landed in such areas; (ii) individuals or businesses who were employed by or had contracts with certain designated oil platforms and related onshore processing facilities in the vicinity of the release as of the date of the release and (iii) beachfront property and easement owners whose properties were oiled. The Ninth Circuit Court of Appeals has granted our petition for leave to appeal the oil industry class certification. We are also defending a separate class action lawsuit proceeding in the United States District Court for the Central District of California brought on behalf of the Line 901 and Line 903 easement holders seeking injunctive relief as well as compensatory damages.

There have also been two securities law class action lawsuits filed on behalf of certain purported investors in PAA and/or PAGP against PAA, PAGP and/or certain of their respective officers, directors and underwriters. Both of these lawsuits have been consolidated into a single proceeding in the United States District Court for the Southern District of Texas. In general, these lawsuits allege that the various defendants violated securities laws by misleading investors regarding the integrity of PAA's pipelines and related facilities through false and misleading statements, omission of material facts and concealing of the true extent of the spill. The plaintiffs claim unspecified damages as a result of the reduction in value of their investments in PAA and PAGP, which they attribute to the alleged wrongful acts of the defendants. PAA and PAGP, and the other defendants, denied the allegations in, and moved to dismiss these lawsuits. On March 29, 2017, the Court ruled in our favor dismissing all claims against all defendants. Plaintiffs refiled their complaint. On April 2, 2018, the Court dismissed all of the refiled claims against all defendants with prejudice. Plaintiffs have appealed the dismissal. Consistent with and subject to the terms of our governing organizational documents (and to the extent applicable, insurance policies), we have indemnified and funded the defense costs of our officers and directors in connection with this lawsuit; we have also indemnified and funded the defense costs of our underwriters pursuant to the terms of the underwriting agreements we previously entered into with such underwriters.

In addition, four unitholder derivative lawsuits have been filed by certain purported investors in PAA against PAA, certain of its affiliates and certain officers and directors. One lawsuit was filed in State District Court in Harris County, Texas and subsequently dismissed by the Court. Two of these lawsuits were filed in the United States District Court for the Southern District of Texas and were administratively consolidated into one action and later dismissed on the basis that Plains Partnership agreements require that derivative suits be filed in Delaware Chancery Court.

Following the order dismissing the Texas Federal Court suits, a new derivative suit brought by different plaintiffs was filed in Delaware Chancery Court. In general, these derivative lawsuits allege that the various defendants breached their fiduciary duties, engaged in gross mismanagement and made false and misleading statements, among other similar allegations, in connection with their management and oversight of PAA during the period of time leading up to and following the Line 901

release. The plaintiffs in the remaining lawsuit claim that PAA suffered unspecified damages as a result of the actions of the various defendants and seek to hold the defendants liable for such damages, in addition to other remedies. The defendants deny the allegations in this lawsuit and have responded accordingly. Consistent with and subject to the terms of our governing organizational documents (and to the extent applicable, insurance policies), we are indemnifying and funding the defense costs of our officers and directors in connection with this lawsuit.

We have also received several other individual lawsuits and complaints from companies, governmental agencies and individuals alleging damages arising out of the Line 901 incident. These lawsuits and claims generally seek compensatory and punitive damages, and in some cases permanent injunctive relief.

In addition to the foregoing, as the “responsible party” for the Line 901 incident we are liable for various costs and for certain natural resource damages under the Oil Pollution Act, and we also have exposure to the payment of additional fines, penalties and costs under other applicable federal, state and local laws, statutes and regulations. To the extent any such costs are reasonably estimable, we have included an estimate of such costs in the loss accrual described below.

Taking the foregoing into account, as of December 31, 2018, we estimate that the aggregate total costs we have incurred or will incur with respect to the Line 901 incident will be approximately \$355 million, which estimate includes actual and projected emergency response and clean-up costs, natural resource damage assessments and certain third party claims settlements, as well as estimates for fines, penalties and certain legal fees. We accrue such estimates of aggregate total costs to “Field operating costs” in our Consolidated Statement of Operations. This estimate considers our prior experience in environmental investigation and remediation matters and available data from, and in consultation with, our environmental and other specialists, as well as currently available facts and presently enacted laws and regulations. We have made assumptions for (i) the duration of the natural resource damage assessment process and the ultimate amount of damages determined, (ii) the resolution of certain third party claims and lawsuits, but excluding claims and lawsuits with respect to which losses are not probable and reasonably estimable, and excluding future claims and lawsuits, (iii) the determination and calculation of fines and penalties, but excluding fines and penalties that are not probable or reasonably estimable and (iv) the nature, extent and cost of legal services that will be required in connection with all lawsuits, claims and other matters requiring legal or expert advice associated with the Line 901 incident. Our estimate does not include any lost revenue associated with the shutdown of Line 901 or 903 and does not include any liabilities or costs that are not reasonably estimable at this time or that relate to contingencies where we currently regard the likelihood of loss as being only reasonably possible or remote. We believe we have accrued adequate amounts for all probable and reasonably estimable costs; however, this estimate is subject to uncertainties associated with the assumptions that we have made. For example, the amount of time it takes for us to resolve all of the current and future lawsuits, claims and investigations that relate to the Line 901 incident could turn out to be significantly longer than we have assumed, and as a result the costs we incur for legal services could be significantly higher than we have estimated. In addition, with respect to fines and penalties, the ultimate amount of any fines and penalties assessed against us depends on a wide variety of factors, many of which are not estimable at this time. Where fines and penalties are probable and estimable, we have included them in our estimate, although such estimates could turn out to be wrong. Accordingly, our assumptions and estimates may turn out to be inaccurate and our total costs could turn out to be materially higher; therefore, we can provide no assurance that we will not have to accrue significant additional costs in the future with respect to the Line 901 incident.

As of December 31, 2018, we had a remaining undiscounted gross liability of \$76 million related to this event, of which approximately \$33 million is presented in “Other current liabilities” on our Consolidated Balance Sheet, with the remainder presented in “Other long-term liabilities and deferred credits.” We maintain insurance coverage, which is subject to certain exclusions and deductibles, in the event of such environmental liabilities. Subject to such exclusions and deductibles, we believe that our coverage is adequate to cover the current estimated total emergency response and clean-up costs, claims settlement costs and remediation costs and we believe that this coverage is also adequate to cover any potential increase in the estimates for these costs that exceed the amounts currently identified. Through December 31, 2018, we had collected, subject to customary reservations, \$187 million out of the approximate \$240 million of release costs that we believe are probable of recovery from insurance carriers, net of deductibles. Therefore, as of December 31, 2018, we have recognized a receivable of approximately \$53 million for the portion of the release costs that we believe is probable of recovery from insurance, net of deductibles and amounts already collected. Of this amount, approximately \$22 million is recognized as a current asset in “Trade accounts receivable and other receivables, net” on our Consolidated Balance Sheet, with the remainder in “Other long-term assets, net.” We have completed the required clean-up and remediation work as determined by the Unified Command and the Unified Command has been dissolved; however, we expect to make payments for additional costs associated with restoration of the impacted areas, as well as natural resource damage assessment and compensation, legal, professional and regulatory costs, in addition to fines and penalties, during future periods.

Bluewater NOPV. PAA Natural Gas Storage, LLC (“PNG”), the former owner of the Bluewater natural gas storage facility in Columbus, Michigan (“Bluewater”), received a Notice of Probable Violation and Proposed Civil Penalty (the “Notice”), dated November 28, 2018, from PHMSA alleging various violations of the Pipeline Safety Act in connection with PNG’s operation of the Bluewater facility from 2013 through early 2016 and assessing cumulative civil penalties in the amount of \$109,400 . PNG sold its interest in the Bluewater facility effective June 30, 2017 and elected not to contest the items contained in the Notice and paid the civil penalties.

Environmental Remediation

We currently own or lease, and in the past have owned and leased, properties where hazardous liquids, including hydrocarbons, are or have been handled. These properties and the hazardous liquids or associated wastes disposed thereon may be subject to the U.S. federal Comprehensive Environmental Response, Compensation and Liability Act, as amended, and the U.S. federal Resource Conservation and Recovery Act, as amended, as well as state and Canadian federal and provincial laws and regulations. Under such laws and regulations, we could be required to remove or remediate hazardous liquids or associated wastes (including wastes disposed of or released by prior owners or operators) and to clean up contaminated property (including contaminated groundwater).

We maintain insurance of various types with varying levels of coverage that we consider adequate under the circumstances to cover our operations and properties. The insurance policies are subject to deductibles and retention levels that we consider reasonable and not excessive. Consistent with insurance coverage generally available in the industry, in certain circumstances our insurance policies provide limited coverage for losses or liabilities relating to gradual pollution, with broader coverage for sudden and accidental occurrences.

Assets we have acquired or will acquire in the future may have environmental remediation liabilities for which we are not indemnified. We have in the past experienced and in the future likely will experience releases of hydrocarbon products into the environment from our pipeline, rail, storage and other facility operations. We also may discover environmental impacts from past releases that were previously unidentified.

Insurance

Pipelines, terminals, trucks or other facilities or equipment may experience damage as a result of an accident, natural disaster, terrorist attack, cyber event or other event. These hazards can cause personal injury and loss of life, severe damage to and destruction of property and equipment, pollution or environmental damage and suspension of operations. We maintain various types and varying levels of insurance coverage that we consider adequate under the circumstances to cover our operations and properties, and we self-insure certain risks, including gradual pollution and named windstorm. With respect to our insurance, our policies are subject to deductibles and retention levels that we consider reasonable and not excessive. However, such insurance does not cover every potential risk that might occur, associated with operating pipelines, terminals and other facilities and equipment, including the potential loss of significant revenues and cash flows.

The occurrence of a significant event not fully insured, indemnified or reserved against, or the failure of a party to meet its indemnification obligations, could materially and adversely affect our operations and financial condition. We believe that we maintain adequate insurance coverage, although insurance will not cover many types of interruptions that might occur, will not cover amounts up to applicable deductibles and will not cover all risks associated with certain of our assets and operations. Additionally, we self-insure certain risks, including gradual pollution and named windstorm. With respect to our insurance coverage, no assurance can be given that we will be able to maintain adequate insurance in the future at rates we consider reasonable. As a result, we may elect to self-insure or utilize higher deductibles in certain other insurance programs. In addition, although we believe that we have established adequate reserves and liquidity to the extent such risks are not insured, costs incurred in excess of these reserves may be higher or we may not receive insurance proceeds in a timely manner, which may potentially have a material adverse effect on our financial conditions, results of operations or cash flows.

Note 19 —Quarterly Financial Data (Unaudited)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total ⁽¹⁾
(in millions, except per share data)					
2018					
Total revenues	\$ 8,398	\$ 8,080	\$ 8,792	\$ 8,786	\$ 34,055
Gross margin ⁽²⁾	\$ 460	\$ 167	\$ 567	\$ 1,399	\$ 2,592
Operating income	\$ 380	\$ 86	\$ 492	\$ 1,314	\$ 2,272
Net income	\$ 273	\$ 96	\$ 676	\$ 1,062	\$ 2,107
Net income attributable to PAGP	\$ 37	\$ 7	\$ 111	\$ 180	\$ 334
Basic net income per Class A share	\$ 0.23	\$ 0.05	\$ 0.70	\$ 1.13	\$ 2.12
Diluted net income per Class A share	\$ 0.23	\$ 0.05	\$ 0.70	\$ 1.12	\$ 2.11
Cash distributions per Class A share ⁽³⁾	\$ 0.30	\$ 0.30	\$ 0.30	\$ 0.30	\$ 1.20
2017					
Total revenues	\$ 6,667	\$ 6,078	\$ 5,873	\$ 7,605	\$ 26,223
Gross margin ⁽²⁾	\$ 664	\$ 325	\$ 111	\$ 327	\$ 1,427
Operating income	\$ 589	\$ 256	\$ 43	\$ 260	\$ 1,147
Net income/(loss)	\$ 402	\$ 174	\$ 31	\$ (647)	\$ (41)
Net income/(loss) attributable to PAGP	\$ 41	\$ 24	\$ 4	\$ (800)	\$ (731)
Basic net income/(loss) per Class A share	\$ 0.34	\$ 0.16	\$ 0.03	\$ (5.16)	\$ (5.03)
Diluted net income/(loss) per Class A share	\$ 0.34	\$ 0.16	\$ 0.03	\$ (5.16)	\$ (5.03)
Cash distributions per Class A share ⁽³⁾	\$ 0.55	\$ 0.55	\$ 0.55	\$ 0.30	\$ 1.95

⁽¹⁾ The sum of the four quarters may not equal the total year due to rounding.

⁽²⁾ Gross margin is calculated as Total revenues less (i) Purchases and related costs, (ii) Field operating costs, (iii) Depreciation and amortization and (iv) (Gains)/losses on asset sales and asset impairments, net.

⁽³⁾ Represents cash distributions declared and paid in the period presented.

Note 20 —Operating Segments

We manage our operations through three operating segments: Transportation, Facilities and Supply and Logistics. See Note 3 for a summary of the types of products and services from which each segment derives its revenues. Our Chief Operating Decision Maker (“CODM”) (our Chief Executive Officer) evaluates segment performance based on measures including Segment Adjusted EBITDA (as defined below) and maintenance capital investment.

The measure of Segment Adjusted EBITDA forms the basis of our internal financial reporting and is the primary performance measure used by our CODM in assessing performance and allocating resources among our operating segments. We define Segment Adjusted EBITDA as revenues and equity earnings in unconsolidated entities less (a) purchases and related costs, (b) field operating costs and (c) segment general and administrative expenses, plus our proportionate share of the depreciation and amortization expense and gains and losses on significant asset sales by unconsolidated entities, and further adjusted for certain selected items including (i) gains or losses on derivative instruments that are related to underlying activities in another period (or the reversal of such adjustments from a prior period), gains and losses on derivatives that are related to investing activities (such as the purchase of linefill) and inventory valuation adjustments, as applicable, (ii) long-term inventory costing adjustments, (iii) charges for obligations that are expected to be settled with the issuance of equity instruments, (iv) amounts related to deficiencies associated with minimum volume commitments, net of applicable amounts subsequently recognized into revenue and (v) other items that our CODM believes are integral to understanding our core segment operating performance.

Segment Adjusted EBITDA excludes depreciation and amortization. We look at each period’s earnings before non-cash depreciation and amortization as an important measure of segment performance. The exclusion of depreciation and amortization expense could be viewed as limiting the usefulness of Segment Adjusted EBITDA as a performance measure because it does not account in current periods for the implied reduction in value of our capital assets, such as crude oil pipelines

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and facilities, caused by age-related decline and wear and tear. We compensate for this limitation by recognizing that depreciation and amortization are largely offset by repair and maintenance investments, which act to partially offset the aging and wear and tear in the value of our principal fixed assets. These maintenance investments are a component of field operating costs included in Segment Adjusted EBITDA or in maintenance capital, depending on the nature of the cost. Capital expenditures made to expand the existing operating and/or earnings capacity of our assets are classified as expansion capital. Capital expenditures for the replacement and/or refurbishment of partially or fully depreciated assets in order to maintain the operating and/or earnings capacity of our existing assets are classified as maintenance capital. Repair and maintenance expenditures incurred in order to maintain the day to day operation of our existing assets are charged to expense as incurred.

The following tables reflect certain financial data for each segment (in millions):

	Transportation	Facilities	Supply and Logistics	Intersegment Adjustment	Total
Year Ended December 31, 2018					
Revenues:					
External customers ⁽¹⁾	\$ 1,116	\$ 588	\$ 32,819	\$ (468)	\$ 34,055
Intersegment ⁽²⁾	874	573	3	468	1,918
Total revenues of reportable segments	<u>\$ 1,990</u>	<u>\$ 1,161</u>	<u>\$ 32,822</u>	<u>\$ —</u>	<u>\$ 35,973</u>
Equity earnings in unconsolidated entities	<u>\$ 375</u>	<u>\$ —</u>	<u>\$ —</u>		<u>\$ 375</u>
Segment Adjusted EBITDA	<u>\$ 1,508</u>	<u>\$ 711</u>	<u>\$ 462</u>		<u>\$ 2,681</u>
Capital expenditures ⁽³⁾	<u>\$ 1,631</u>	<u>\$ 234</u>	<u>\$ 23</u>		<u>\$ 1,888</u>
Maintenance capital	<u>\$ 139</u>	<u>\$ 100</u>	<u>\$ 13</u>		<u>\$ 252</u>
As of December 31, 2018					
Total assets	<u>\$ 13,947</u>	<u>\$ 7,464</u>	<u>\$ 5,419</u>		<u>\$ 26,830</u>
Investments in unconsolidated entities	<u>\$ 2,594</u>	<u>\$ 108</u>	<u>\$ —</u>		<u>\$ 2,702</u>
	Transportation	Facilities	Supply and Logistics	Intersegment Adjustment	Total
Year Ended December 31, 2017					
Revenues:					
External customers ⁽¹⁾	\$ 1,021	\$ 555	\$ 25,056	\$ (409)	\$ 26,223
Intersegment ⁽²⁾	697	618	9	409	1,733
Total revenues of reportable segments	<u>\$ 1,718</u>	<u>\$ 1,173</u>	<u>\$ 25,065</u>	<u>\$ —</u>	<u>\$ 27,956</u>
Equity earnings in unconsolidated entities	<u>\$ 290</u>	<u>\$ —</u>	<u>\$ —</u>		<u>\$ 290</u>
Segment Adjusted EBITDA	<u>\$ 1,287</u>	<u>\$ 734</u>	<u>\$ 60</u>		<u>\$ 2,081</u>
Capital expenditures ⁽³⁾	<u>\$ 2,126</u>	<u>\$ 312</u>	<u>\$ 20</u>		<u>\$ 2,458</u>
Maintenance capital	<u>\$ 120</u>	<u>\$ 114</u>	<u>\$ 13</u>		<u>\$ 247</u>
As of December 31, 2017					
Total assets	<u>\$ 13,362</u>	<u>\$ 7,593</u>	<u>\$ 5,798</u>		<u>\$ 26,753</u>
Investments in unconsolidated entities	<u>\$ 2,681</u>	<u>\$ 75</u>	<u>\$ —</u>		<u>\$ 2,756</u>

	Transportation	Facilities	Supply and Logistics	Intersegment Adjustment	Total
Year Ended December 31, 2016					
Revenues:					
External customers ⁽¹⁾	\$ 954	\$ 546	\$ 19,004	\$ (322)	\$ 20,182
Intersegment ⁽²⁾	630	561	14	322	1,527
Total revenues of reportable segments	<u>\$ 1,584</u>	<u>\$ 1,107</u>	<u>\$ 19,018</u>	<u>\$ —</u>	<u>\$ 21,709</u>
Equity earnings in unconsolidated entities	\$ 195	\$ —	\$ —		\$ 195
Segment Adjusted EBITDA	<u>\$ 1,141</u>	<u>\$ 667</u>	<u>\$ 359</u>		<u>\$ 2,167</u>
Capital expenditures ⁽³⁾	\$ 1,063	\$ 577	\$ 54		\$ 1,694
Maintenance capital	<u>\$ 121</u>	<u>\$ 55</u>	<u>\$ 10</u>		<u>\$ 186</u>

As of December 31, 2016					
Total assets	<u>\$ 11,863</u>	<u>\$ 7,878</u>	<u>\$ 6,362</u>		<u>\$ 26,103</u>
Investments in unconsolidated entities	<u>\$ 2,290</u>	<u>\$ 53</u>	<u>\$ —</u>		<u>\$ 2,343</u>

- (1) Transportation revenues from external customers include certain inventory exchanges with our customers where our Supply and Logistics segment has transacted the inventory exchange and serves as the shipper on our pipeline systems. See Note 3 for a discussion of our related accounting policy. We have included an estimate of the revenues from these inventory exchanges in our Transportation segment revenue from external customers presented above and adjusted those revenues out such that Total revenue from External customers reconciles to our Consolidated Statements of Operations. This presentation is consistent with the information provided to our CODM.
- (2) Segment revenues include intersegment amounts that are eliminated in Purchases and related costs and Field operating costs in our Consolidated Statements of Operations. Intersegment activities are conducted at posted tariff rates where applicable, or otherwise at rates similar to those charged to third parties or rates that we believe approximate market at the time the agreement is executed or renegotiated.
- (3) Expenditures for acquisition capital and expansion capital, including investments in unconsolidated entities.

Segment Adjusted EBITDA Reconciliation

The following table reconciles Segment Adjusted EBITDA to net income attributable to PAGP (in millions):

	Year Ended December 31,		
	2018	2017	2016
Segment Adjusted EBITDA	\$ 2,681	\$ 2,081	\$ 2,167
Adjustments ⁽¹⁾ :			
Depreciation and amortization of unconsolidated entities ⁽²⁾	(56)	(45)	(50)
Gains/(losses) from derivative activities net of inventory valuation adjustments ⁽³⁾	519	46	(404)
Long-term inventory costing adjustments ⁽⁴⁾	(21)	24	58
Deficiencies under minimum volume commitments, net ⁽⁵⁾	(7)	(2)	(46)
Equity-indexed compensation expense ⁽⁶⁾	(55)	(23)	(33)
Net gain/(loss) on foreign currency revaluation ⁽⁷⁾	(3)	26	(9)
Line 901 incident ⁽⁸⁾	—	(32)	—
Significant acquisition-related expenses ⁽⁹⁾	—	(6)	—
Unallocated general and administrative expenses	(4)	(4)	(3)
Depreciation and amortization	(521)	(519)	(515)
Gains/(losses) on asset sales and asset impairments, net	114	(109)	20
Gain on sale of investment in unconsolidated entities	200	—	—
Interest expense, net	(431)	(510)	(480)
Other income/(expense), net	(7)	(31)	33
Income before tax	2,409	896	738
Income tax expense	(302)	(937)	(78)
Net income/(loss)	2,107	(41)	660
Net income attributable to noncontrolling interests	(1,773)	(690)	(566)
Net income/(loss) attributable to PAGP	\$ 334	\$ (731)	\$ 94

⁽¹⁾ Represents adjustments utilized by our CODM in the evaluation of segment results.

⁽²⁾ Includes our proportionate share of the depreciation and amortization and gains and losses on significant asset sales of equity method investments.

⁽³⁾ We use derivative instruments for risk management purposes and our related processes include specific identification of hedging instruments to an underlying hedged transaction. Although we identify an underlying transaction for each derivative instrument we enter into, there may not be an accounting hedge relationship between the instrument and the underlying transaction. In the course of evaluating our results, we identify the earnings that were recognized during the period related to derivative instruments for which the identified underlying transaction does not occur in the current period and exclude the related gains and losses in determining Segment Adjusted EBITDA. In addition, we exclude gains and losses on derivatives that are related to investing activities, such as the purchase of linefill. We also exclude the impact of corresponding inventory valuation adjustments, as applicable.

⁽⁴⁾ We carry crude oil and NGL inventory that is comprised of minimum working inventory requirements in third-party assets and other working inventory that is needed for our commercial operations. We consider this inventory necessary to conduct our operations and we intend to carry this inventory for the foreseeable future. Therefore, we classify this inventory as long-term on our balance sheet and do not hedge the inventory with derivative instruments (similar to linefill in our own assets). We exclude the impact of changes in the average cost of the long-term inventory (that result from fluctuations in market prices) and writedowns of such inventory that result from price declines from Segment Adjusted EBITDA.

- (5) We have certain agreements that require counterparties to deliver, transport or throughput a minimum volume over an agreed upon period. Substantially all of such agreements were entered into with counterparties to economically support the return on our capital expenditure necessary to construct the related asset. Some of these agreements include make-up rights if the minimum volume is not met. We record a receivable from the counterparty in the period that services are provided or when the transaction occurs, including amounts for deficiency obligations from counterparties associated with minimum volume commitments. If a counterparty has a make-up right associated with a deficiency, we defer the revenue attributable to the counterparty's make-up right and subsequently recognize the revenue at the earlier of when the deficiency volume is delivered or shipped, when the make-up right expires or when it is determined that the counterparty's ability to utilize the make-up right is remote. We include the impact of amounts billed to counterparties for their deficiency obligation, net of applicable amounts subsequently recognized into revenue, as a selected item impacting comparability. Our CODM views the inclusion of the contractually committed revenues associated with that period as meaningful to Segment Adjusted EBITDA as the related asset has been constructed, is standing ready to provide the committed service and the fixed operating costs are included in the current period results.
- (6) Includes equity-indexed compensation expense associated with awards that will or may be settled in units.
- (7) Includes gains and losses from the revaluation of foreign currency transactions and monetary assets and liabilities.
- (8) Includes costs recognized during the period related to the Line 901 incident that occurred in May 2015, net of amounts we believe are probable of recovery from insurance. See Note 18 for additional information regarding the Line 901 incident.
- (9) Includes acquisition-related expenses associated with the ACC Acquisition. See Note 7 for additional discussion. An adjustment for these non-recurring expenses is included in the calculation of Segment Adjusted EBITDA for the year ended December 31, 2017 as our CODM does not view such expenses as integral to understanding our core segment operating performance.

Geographic Data

We have operations in the United States and Canada. Set forth below are revenues and long-lived assets attributable to these geographic areas (in millions):

Revenues ⁽¹⁾	Year Ended December 31,		
	2018	2017	2016
United States	\$ 28,362	\$ 21,443	\$ 15,599
Canada	5,693	4,780	4,583
	<u>\$ 34,055</u>	<u>\$ 26,223</u>	<u>\$ 20,182</u>

- (1) Revenues are primarily attributed to each region based on where the services are provided or the product is shipped.

Long-Lived Assets ⁽¹⁾	December 31,	
	2018	2017
United States	\$ 18,059	\$ 17,183
Canada	3,904	4,179
	<u>\$ 21,963</u>	<u>\$ 21,362</u>

- (1) Excludes long-term derivative assets and long-term deferred tax assets.

**2018 DIRECTOR GRANT**

August 14, 2018

[name]
[address]

Re: Grant of Phantom Class A Shares

Dear [name]:

I am pleased to inform you that you have been granted [amount] Phantom Class A Shares as of the above date pursuant to the Plains GP Holdings, L.P. Long-Term Incentive Plan (the "Plan"). In tandem with each Phantom Class A Share granted hereby you have been granted a distribution equivalent right (a "DER"). A DER represents the right to receive a cash payment equivalent to the amount, if any, paid in cash distributions on one Class A Share of Plains GP Holdings, L.P. ("PAGP" or the "Partnership") to the holder of such Class A Share. The terms and conditions of this grant are as set forth below.

1. Subject to the further provisions of this Agreement, your Phantom Class A Shares shall vest (become payable in the form of one Class A Share of PAGP for each Phantom Class A Share that vests) on the August 2022 Distribution Date.
2. Subject to the further provisions of this Agreement, your DERs shall be payable in cash substantially contemporaneously with each Distribution Date.
3. Immediately after the vesting of any Phantom Class A Shares, an equal number of DERs shall expire.
4. Upon any forfeiture of Phantom Class A Shares, an equal number of DERs shall expire.
5. In the event that (i) you voluntarily terminate your service on the Board of Directors (other than for Retirement) or (ii) your service on the Board of Directors is terminated by the Board (by a majority vote of the remaining Directors) for Cause (as defined in the LLC Agreement), all unvested Phantom Class A Shares (and tandem DERs) shall be forfeited as of the date service terminates.

333 Clay Street, Suite 1600 ■ Houston, Texas 77002 ■ 713/646-4100 or 800-564-3036

6. In the event your service on the Board of Directors is terminated (i) because of your death or disability (as determined in good faith by the Board), (ii) due to your Retirement, or (iii) for any reason other than as described in clauses (i) and (ii) of paragraph 5 above, all unvested Phantom Class A Shares (and any tandem DERs) shall immediately become nonforfeitable, and shall vest (or, in the case of DERs, be paid) in full as of the next following Distribution Date. Upon such payment, the tandem DERs associated with the Phantom Class A Shares that are vesting shall expire.
7. For the avoidance of doubt, to the extent the expiration of a DER relates to the vesting of a Phantom Class A Share on a Distribution Date, the intent is for the DER to be paid with respect to such Distribution Date before the DER expires.

As used herein, (i) "Company" refers to PAA GP Holdings LLC, (ii) "Distribution Date" means the day in February, May, August or November in any year (as context dictates) that is 45 days after the end of a calendar quarter (or, if not a business day, the closest previous business day), (iii) "Board of Directors" or "Board" means the Board of Directors of the Company, and (iv) "Retirement" means you have provided the Chairman of the Board of the Company with written notice indicating that (a) you have retired (or will retire within the next sixty days) from full-time employment and from service as a director of the Company, and (b) excluding director positions held by you at such time, you do not intend to serve as a director of any other public company.

Terms used herein that are not defined herein shall have the meanings set forth in the Plan or, if not defined in the Plan, in the Second Amended and Restated Agreement of Limited Partnership of Plains GP Holdings, L.P., as amended (the "Partnership Agreement") or the Third Amended and Restated Limited Liability Company Agreement of PAA GP Holdings LLC, as amended (the "LLC Agreement"). By signing below, you agree that the Phantom Class A Shares and DERs granted hereunder are governed by the terms of the Plan. Copies of the Plan, the Partnership Agreement and the LLC Agreement are available upon request.

In order for this grant to be effective you must designate a beneficiary that will be entitled to receive any benefits payable under this grant in the event of your death. Please execute and return a copy of this grant letter to me and retain a copy for your records.

PLAINS GP HOLDINGS, L.P.

By: PAA GP HOLDINGS LLC

By: _____
Name: Richard McGee
Title: Executive Vice President

Beneficiary Designation

Primary Beneficiary Name	Relationship	Percent (Must total 100%)
Secondary Beneficiary Name	Relationship	Percent (Must total 100%)

[name]

No. of Phantom Class A Shares: [amount]

Dated: _____



INITIAL DIRECTOR GRANT

December 10, 2018

Ms. Alexandra Pruner
[address]

Re: Grant of Phantom Class A Shares

Dear Alie:

I am pleased to inform you that you have been granted 21,384 Phantom Class A Shares as of the above date pursuant to the Plains GP Holdings, L.P. Long-Term Incentive Plan (the "Plan"). In tandem with each Phantom Class A Share granted hereby you have been granted a distribution equivalent right (a "DER"). A DER represents the right to receive a cash payment equivalent to the amount, if any, paid in cash distributions on one Class A Share of Plains GP Holdings, L.P. ("PAGP" or the "Partnership") to the holder of such Class A Share. The terms and conditions of this grant are as set forth below.

1. Subject to the further provisions of this Agreement, your Phantom Class A Shares shall vest (become payable in the form of one Class A Share of PAGP for each Phantom Class A Share that vests) as follows: (a) 3,936 will vest on the August 2019 Distribution Date, (b) 5,816 will vest on the August 2020 Distribution Date, (c) 5,816 will vest on the August 2021 Distribution Date, and (d) 5,816 will vest on the August 2022 Distribution Date.
2. Subject to the further provisions of this Agreement, your DERs shall be payable in cash substantially contemporaneously with each Distribution Date.
3. Immediately after the vesting of any Phantom Class A Shares, an equal number of DERs shall expire.
4. Upon any forfeiture of Phantom Class A Shares, an equal number of DERs shall expire.
5. In the event that (i) you voluntarily terminate your service on the Board of Directors (other than for Retirement) or (ii) your service on the Board of Directors is terminated by the Board (by a majority vote of the remaining Directors) for Cause (as defined in the LLC Agreement), all unvested Phantom Class A Shares (and tandem DERs) shall be forfeited as of the date service terminates.

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6. In the event your service on the Board of Directors is terminated (i) because of your death or disability (as determined in good faith by the Board), (ii) due to your Retirement, or (iii) for any reason other than as described in clauses (i) and (ii) of paragraph 5 above, all unvested Phantom Class A Shares (and any tandem DERs) shall immediately become nonforfeitable, and shall vest in full as of the next following Distribution Date. Upon such payment, the tandem DERs associated with the Phantom Class A Shares that are vesting shall expire.
7. For the avoidance of doubt, to the extent the expiration of a DER relates to the vesting of a Phantom Class A Share on a Distribution Date, the intent is for the DER to be paid with respect to such Distribution Date before the DER expires.

As used herein, (i) "Company" refers to PAA GP Holdings LLC, (ii) "Distribution Date" means the day in February, May, August or November in any year (as context dictates) that is 45 days after the end of a calendar quarter (or, if not a business day, the closest previous business day), (iii) "Board of Directors" or "Board" means the Board of Directors of the Company, and (iv) "Retirement" means you have provided the Chairman of the Board of the Company with written notice indicating that (a) you have retired (or will retire within the next sixty days) from full-time employment and from service as a director of the Company, and (b) excluding director positions held by you at such time, you do not intend to serve as a director of any other public company.

Terms used herein that are not defined herein shall have the meanings set forth in the Plan or, if not defined in the Plan, in the Second Amended and Restated Agreement of Limited Partnership of Plains GP Holdings, L.P., as amended (the "Partnership Agreement") or the Third Amended and Restated Limited Liability Company Agreement of PAA GP Holdings LLC, as amended (the "LLC Agreement"). By signing below, you agree that the Phantom Class A Shares and DERs granted hereunder are governed by the terms of the Plan. Copies of the Plan, the Partnership Agreement and the LLC Agreement are available upon request.

In order for this grant to be effective you must designate a beneficiary that will be entitled to receive any benefits payable under this grant in the event of your death. Please execute and return a copy of this grant letter to me and retain a copy for your records.

PLAINS GP HOLDINGS, L.P.

By: PAA GP HOLDINGS LLC

By: _____

Name: Richard McGee

Title: Executive Vice President

Beneficiary Designation

Primary Beneficiary Name	Relationship	Percent (Must total 100%)
Secondary Beneficiary Name	Relationship	Percent (Must total 100%)

Alexandra Pruner

No. of Phantom Class A Shares: 21,384

Dated: _____

**SUBSIDIARIES OF
PLAINS GP HOLDINGS, L.P.**
(As of 1/1/2019)

Subsidiary	Jurisdiction of Organization
Aurora Pipeline Company Ltd.	Canada
Bakersfield Crude Terminal LLC	Delaware
Cactus II Pipeline LLC	Delaware
Capline Pipeline Company LLC	Delaware
Eagle Ford Crude Terminal LLC	Delaware
Lone Star Trucking, LLC	California
Niobrara Crude Terminal LLC	Delaware
PAA Finance Corp.	Delaware
PAA GP LLC	Delaware
PAA Luxembourg S.a.r.l.	Luxembourg
PAA Midstream LLC	Delaware
PAA Natural Gas Canada ULC	Alberta
PAA Natural Gas Storage LLC	Delaware
PAA Natural Gas Storage, L.P.	Delaware
PAA Service Corp.	Texas
PAA/Vulcan Gas Storage, LLC	Delaware
Pacific Energy Group LLC	Delaware
Pacific L.A. Marine Terminal LLC	Delaware
Pacific Pipeline System LLC	Delaware
Pine Prairie Energy Center, LLC	Delaware
Plains AAP, L.P.	Delaware
Plains All American Emergency Relief Fund, Inc.	Texas
Plains All American GP LLC	Delaware
Plains All American Pipeline, L.P.	Delaware
Plains Capline LLC	Delaware
Plains Gas Solutions, LLC	Texas
Plains GP LLC	Texas
Plains LPG Services GP LLC	Delaware
Plains LPG Services, L.P.	Texas
Plains Marketing Bondholder LLC	Delaware
Plains Marketing Canada LLC	Delaware
Plains Marketing, L.P.	Texas
Plains Midstream Canada ULC	British Columbia
Plains Midstream Luxembourg S.a.r.l.	Luxembourg
Plains Midstream Superior LLC	Texas
Plains Pipeline, L.P.	Texas
Plains Pipeline Montana LLC	Delaware
Plains Products Terminals LLC	Delaware
Plains Rail Holdings LLC	Delaware
Plains South Texas Gathering LLC	Texas
Plains Terminals North Dakota LLC	Delaware
Plains West Coast Terminals LLC	Delaware
PMC (Nova Scotia) Company	Nova Scotia
PNG Marketing, LLC	Delaware
PNGS GP LLC	Delaware

Subsidiary	Jurisdiction of Organization
PPEC Bondholder, LLC	Delaware
Rancho LPG Holdings LLC	Delaware
Rocky Mountain Pipeline Montana LLC	Delaware
Rocky Mountain Pipeline System LLC	Texas
SG Resources Mississippi, L.L.C.	Delaware
St. James Rail Terminal LLC	Delaware
Sunrise Pipeline LLC	Delaware
Van Hook Crude Terminal LLC	Delaware

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-200596, 333-210067, 333-214964, 333-216194, and 333-218463) and on Form S-8 (No. 333-193141) of Plains GP Holdings, L.P. of our report dated February 26, 2019 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Houston, Texas
February 26, 2019

CERTIFICATION

I, Willie Chiang, certify that:

1. I have reviewed this annual report on Form 10-K of Plains GP Holdings, L.P. (the “registrant”);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and
5. The registrant’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: February 26, 2019

/s/ Willie Chiang

Willie Chiang

Chief Executive Officer

CERTIFICATION

I, Al Swanson, certify that:

1. I have reviewed this annual report on Form 10-K of Plains GP Holdings, L.P. (the “registrant”);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and
5. The registrant’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: February 26, 2019

/s/ Al Swanson

Al Swanson
Chief Financial Officer

**CERTIFICATION OF
CHIEF EXECUTIVE OFFICER
OF PLAINS GP HOLDINGS, L.P.
PURSUANT TO 18 U.S.C. 1350**

I, Willie Chiang, Chief Executive Officer of Plains GP Holdings, L.P. (the "Company"), hereby certify that:

- (i) the accompanying report on Form 10-K for the period ended December 31, 2018 and filed with the Securities and Exchange Commission on the date hereof (the "Report") by the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- (ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Willie Chiang

Name: Willie Chiang

Date: February 26, 2019

**CERTIFICATION OF
CHIEF FINANCIAL OFFICER
OF PLAINS GP HOLDINGS, L.P.
PURSUANT TO 18 U.S.C. 1350**

I, Al Swanson, Chief Financial Officer of Plains GP Holdings, L.P. (the "Company"), hereby certify that:

- (i) the accompanying report on Form 10-K for the period ended December 31, 2018 and filed with the Securities and Exchange Commission on the date hereof (the "Report") by the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- (ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Al Swanson

Name: Al Swanson

Date: February 26, 2019