

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549**

**FORM S-8
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

Marathon Petroleum Corporation
(Exact Name of Registrant as Specified in Its Charter)

Delaware
(State or Other Jurisdiction of
Incorporation or Organization)

27-1284632
(I.R.S. Employer
Identification No.)

539 South Main Street
Findlay, Ohio 45840-3229
(Address of Principal Executive Offices Including Zip Code)

Marathon Petroleum Thrift Plan
(Full Title of the Plan)

Molly R. Benson
Vice President, Corporate Secretary and Chief Compliance Officer
539 South Main Street
Findlay, Ohio 45840-3229
419-422-2121
(Name, Address and Telephone Number of Agent For Service)

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer
Non-accelerated filer (Do not check if a smaller reporting company) Smaller reporting company

CALCULATION OF REGISTRATION FEE

Title of Securities to be Registered	Amount to be Registered	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, par value \$0.01 per share ⁽¹⁾	50,000,000	\$39.06 ⁽²⁾	\$1,953,000,000 ⁽²⁾	\$196,667.10

(1) Pursuant to Rule 416 of the Securities Act of 1933 (the "*Securities Act*"), this Registration Statement also covers such additional shares of Common Stock, par value \$0.01 per share ("*Common Stock*"), of Marathon Petroleum Corporation (the "*Registrant*"), that may be offered or issued pursuant to the Marathon Petroleum Thrift Plan (the "*Plan*") as a result of stock splits, stock dividends or other similar transactions or anti-dilution adjustments. Pursuant to Rule 416(c) of the Securities Act, this Registration Statement also covers an indeterminate amount of interests to be offered pursuant to the Plan.

(2) Estimated solely for the purposes of determining the amount of the registration fee in accordance with Rule 457(c) and 457(h) of the Securities Act on the basis of the average of the high and low sale prices for the shares of the Common Stock as reported on the The New York Stock Exchange on August 1, 2016.

EXPLANATORY NOTE

This Registration Statement on Form S-8 is being filed by the Registrant to register an additional 50,000,000 shares of the Registrant's Common Stock offered or issuable pursuant to the Plan.

This Registration Statement is solely for the registration of additional Common Stock for offer or issuance under the Plan. Therefore, pursuant to General Instruction E to Form S-8, the contents of the earlier registration statement relating to the Plan (Registration No. 333-175245), including all post-effective amendments thereto, are incorporated by reference into this Registration Statement, except that provisions contained in Part II of such earlier registration statement are modified as set forth herein.

PART I

The information specified in Item 1 and Item 2 of Part I of Form S-8 is omitted from this filing in accordance with the provisions of Rule 428 under the Securities Act and the introductory note to Part I of the Form S-8 instructions. The documents containing the information specified in Part I will be sent or given to the participants in the Plan as required by Rule 428(b)(1). These documents and the documents incorporated by reference herein pursuant to Item 3 of Part II hereof, taken together, constitute a prospectus that meets the requirements of Section 10(a) of the Securities Act.

PART II INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The Registrant is subject to the informational and reporting requirements of Sections 13(a), 13(c), 14 and 15(d) of the Securities Exchange Act of 1934, as amended (the "*Exchange Act*"), and, in accordance therewith, files reports, proxy statements and other information with the Securities and Exchange Commission (the "*Commission*"). The following documents, which are on file with the Commission, are incorporated in this Registration Statement by reference:

- (a) The Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2015 (Commission File No. 001-35054);
- (b) The Registrant's Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2016 and June 30, 2016 (Commission File No. 0001-35054);
- (c) The Registrant's Current Reports on Form 8-K filed on January 8, 2016, February 29, 2016, March 3, 2016, April 29, 2016 and July 26, 2016, and its Current Report on Form 8-K/A filed on February 17, 2016 (Commission File No. 0001-35054); and
- (d) The description of the Common Stock contained in the Registrant's Information Statement, filed as Exhibit 99.1 to the Registrant's Registration Statement on Form 10 (Commission File No. 001-35054), initially filed on January 25, 2011, as amended by Amendment No. 5 filed on May 26, 2011, under the Exchange Act, including any amendment or report filed for the purpose of updating such description.

All documents filed by the Registrant with the Commission pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act (excluding information deemed to be furnished and not filed with the Commission) subsequent to the date of this Registration Statement and prior to the filing of a post-effective amendment that indicates that all securities offered have been sold or that deregisters all securities then remaining unsold, will be deemed to be incorporated by reference in this Registration Statement and to be part hereof from the date of filing of such documents. We do not and will not, however, incorporate by reference in this Registration Statement any documents or portions thereof that are not deemed "filed" with the SEC, including any information furnished pursuant to Item 2.02 or Item 7.01 of our Current Reports on Form 8-K unless, and except to the extent, specified in such current reports.

Any statement contained in any document incorporated or deemed to be incorporated by reference herein will be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded will not be deemed, except as modified or superseded, to constitute a part of this Registration Statement.

Item 8. Exhibits.

Exhibit Number	Description
4.1	Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to MPC's Current Report on Form 8-K (Commission File No. 001-35054) filed by MPC on June 22, 2011).
4.2	Amended and Restated Bylaws of the Registrant (incorporated by reference to Exhibit 3.1 to MPC's Current Report on Form 8-K (Commission File No. 001-35054) filed by MPC on February 29, 2016).
4.3	Marathon Petroleum Thrift Plan (incorporated by reference to Exhibit 10.45 to MPC's Annual Report on Form 10-K for the year ended December 31, 2015 (Commission File No. 001-35054).
5.1	Opinion of Counsel. The Registrant undertakes to submit the Plan and any subsequent amendments thereto to the Internal Revenue Service ("IRS") in a timely manner and will make all changes required by the IRS in order to qualify the Plan.
23.1	Consent of Independent Registered Public Accounting Firm.
23.2	Consent of Counsel (included in Exhibit 5.1).
24.1	Powers of Attorney.

* This Registration Statement has been signed on behalf of the above directors by Gary R. Heminger, as attorney-in-fact pursuant to a power of attorney filed as Exhibit 24.1 to this Registration Statement.

DATED: August 5, 2016

By: /s/ Gary R. Heminger
Gary R. Heminger, Attorney-in-Fact

Pursuant to the requirements of the Securities Act, the trustees (or other persons who administer the Plan) have duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Findlay, state of Ohio, on this 5th day of August, 2016.

MARATHON PETROLEUM THRIFT PLAN

By: /s/ Rodney P. Nichols
Rodney P. Nichols
Plan Administrator

EXHIBIT INDEX

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24.1	Powers of Attorney.

JONES DAY

North Point · 901 Lakeside Avenue · Cleveland, Ohio 44114.1190

TELEPHONE: +1.216.586.3939 FACSIMILE: +1.216.579.0212

August 5, 2016

Marathon Petroleum Corporation
539 South Main Street
Findlay, Ohio 45840-3229

Re: Registration Statement on Form S-8 Filed by Marathon Petroleum Corporation

Ladies and Gentlemen:

We have acted as counsel for Marathon Petroleum Corporation, a Delaware corporation (the “*Company*”), in connection with the Marathon Petroleum Thrift Plan (the “*Plan*”). In connection with the opinion expressed herein, we have examined such documents, records and matters of law as we have deemed relevant or necessary for purposes of such opinion. Based on the foregoing, and subject to the further limitations, qualifications and assumptions set forth herein, we are of the opinion that the 50,000,000 shares (the “*Shares*”) of the Company’s Common Stock, par value \$0.01 per share, that may be issued or delivered and sold pursuant to the Plan will be, when issued or delivered and sold in accordance with such Plan, validly issued, fully paid and nonassessable, provided that the consideration for such Shares is at least equal to the stated par value thereof.

The opinion expressed herein is limited to the General Corporation Law of the State of Delaware, as currently in effect, and we express no opinion as to the effect of the laws of any other jurisdiction. In addition, we have assumed that the resolutions authorizing the Company to issue or deliver and sell the Shares pursuant to the Plan will be in full force and effect at all times at which such Shares are issued or delivered or sold by the Company, and the Company will take no action inconsistent with such resolutions.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement on Form S-8 filed by the Company to effect registration of the Shares to be issued and sold pursuant to the Plan under the Securities Act of 1933 (the “*Act*”). In giving such consent, we do not thereby admit that we are included in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Securities and Exchange Commission promulgated thereunder.

Very truly yours,

/s/ Jones Day

ALKHOBAR · AMSTERDAM · ATLANTA · BEIJING · BOSTON · BRISBANE · BRUSSELS · CHICAGO · CLEVELAND · COLUMBUS · DALLAS
DETROIT · DUBAI · DÜSSELDORF · FRANKFURT · HONG KONG · HOUSTON · IRVINE · JEDDAH · LONDON · LOS ANGELES
MADRID · MEXICO CITY · MIAMI · MILAN · MOSCOW · MUNICH · NEW YORK · PARIS · PERTH · PITTSBURGH · RIYADH
SAN DIEGO · SAN FRANCISCO · SÃO PAULO · SHANGHAI · SILICON VALLEY · SINGAPORE · SYDNEY · TAIPEI · TOKYO · WASHINGTON

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-8 of our report dated February 26, 2016 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in Marathon Petroleum Corporation's Annual Report on Form 10-K for the year ended December 31, 2015.

/s/ PricewaterhouseCoopers LLP

Toledo, Ohio
August 5, 2016

POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS, that each of the undersigned directors and officers of Marathon Petroleum Corporation, a Delaware corporation (the “**Registrant**”), does hereby constitute and appoint each of Gary R. Heminger, Timothy T. Griffith and John J. Quaid, or any of them, each acting alone, as the true and lawful attorney-in-fact or attorneys-in-fact for each of the undersigned, with full power of substitution and resubstitution, and in the name, place and stead of each of the undersigned, to execute and file (i) a Registration Statement on Form S-8 (the “**Form S-8 Registration Statement**”) with respect to the registration under the Securities Act of 1933, as amended, of common stock of the Registrant issuable in connection with the Marathon Petroleum Corporation Thrift Plan (or any amendment or restatement thereof), (ii) any and all amendments, including post-effective amendments, supplements and exhibits to the Form S-8 Registration Statement and (iii) any and all applications or other documents to be filed with the Securities and Exchange Commission or any state securities commission or other regulatory authority or exchange with respect to the securities covered by the Form S-8 Registration Statement, with full power and authority to do and perform any and all acts and things whatsoever necessary, appropriate or desirable to be done in the premises, or in the name, place and stead of the said director and/or officer, hereby ratifying and approving the acts of said attorneys and any of them and any such substitute. This Power of Attorney may be executed in multiple counterparts, each of which will be deemed an original with respect to the person executing it.

IN WITNESS WHEREOF, the undersigned have hereunto set their hands as of the 27th day of July, 2016.

/s/ Gary R. Heminger
 Gary R. Heminger
 Chairman, President and Chief Executive Officer
 (principal executive officer)

/s/ Steven A. Davis
 Steven A. Davis
 Director

/s/ Timothy T. Griffith
 Timothy T. Griffith
 Senior Vice President and Chief Financial Officer
 (principal financial officer)

/s/ Donna A. James
 Donna A. James
 Director

/s/ John J. Quaid
 John J. Quaid
 Vice President and Controller
 (principal accounting officer)

/s/ James E. Rohr
 James E. Rohr
 Director

/s/ Evan Bayh
 Evan Bayh
 Director

/s/ Frank M. Semple
 Frank M. Semple
 Director

/s/ Charles E. Bunch
 Charles E. Bunch
 Director

/s/ John W. Snow
 John W. Snow
 Director

/s/ David A. Daberko
 David A. Daberko
 Director

/s/ John P. Surma
 John P. Surma
 Director