

**UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

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



CALPINE CORPORATION
(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

77-0212977

(I.R.S. Employer Identification No.)

**717 Texas Avenue, Suite 1000,
Houston, Texas 77002**

(Address of Principal Executive Offices and Zip Code)

**Calpine Corporation 2017 Equity Incentive Plan
Calpine Corporation 2017 Equity Compensation Plan for Non-Employee Directors**
(Full title of the plan)

W. Thaddeus Miller, Esq.
Executive Vice President, Chief Legal Officer and Secretary
Calpine Corporation
717 Texas Avenue, Suite 1000
Houston, Texas 77002
(Name and address of agent for service)

(713) 830-2000
(Telephone number, including area code, of agent for service)

Copies of communications to:

Michael Shenberg, Esq.
Colin J. Diamond, Esq.
White & Case LLP
1221 Avenue of the Americas
New York, New York 10020
Tel: (212) 819-8200

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

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	(Do not check if a smaller reporting company)	
Smaller reporting company	<input type="checkbox"/>		
Emerging growth company	<input type="checkbox"/>		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

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, \$0.001 par value (the "Common Stock")	23,000,000 ⁽¹⁾⁽³⁾	\$ 9.97 ⁽⁴⁾	\$ 229,310,000 ⁽⁴⁾	\$ 26,577.03
Common Stock, \$0.001 par value	300,000 ⁽²⁾⁽³⁾	\$ 9.97 ⁽⁴⁾	\$ 2,991,000 ⁽⁴⁾	\$ 346.66

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- (1) Represents 23,000,000 shares of Common Stock, which were reserved for issuance under the Calpine Corporation (the "Registrant" or the "Company") 2017 Equity Incentive Plan.
- (2) Represents 300,000 shares of Common Stock, which were reserved for issuance under the Company's 2017 Equity Compensation Plan for Non-Employee Directors.
- (3) Pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities Act"), this Registration Statement also includes an indeterminate number of additional shares which become issuable under the 2017 Plans as a result of anti-dilution provisions described therein by reason of any stock dividend, stock split, recapitalization or other similar transaction effected without the receipt of consideration leading to an increase in the number of outstanding shares.
- (4) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(c) and Rule 457(h) under the Securities Act based upon the average of the high and low prices of the Registrant's Common Stock as reported on the New York Stock Exchange on May 5, 2017.

PART I
INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

Item 1. Plan Information.*

Item 2. Registrant Information and Employee Plan Annual Information.*

* As permitted by Rule 428 under the Securities Act, this Registration Statement omits the information specified in Part I of Form S-8. The documents containing the information specified in Part I of this Registration Statement will be sent or given to participants in the 2017 Plans as may be required by Rule 428(b). Such documents are not required to be and are not being filed with the Commission, either as part of this Registration Statement or as prospectuses or prospectus supplements pursuant to Rule 424 under the Securities Act. These documents and the documents incorporated by reference in this Registration Statement pursuant to Item 3 of Part II of this Registration Statement, taken together, constitute a prospectus that meets the requirements of Section 10(a) of the Securities Act. The Registrant will provide a written statement to participants advising them of the availability without charge, upon written or oral request, of the documents incorporated by reference in Item 3 of Part II hereof and including the statement in the preceding sentence. The written statement to participants will also indicate the availability without charge, upon written or oral request, of other documents required to be delivered pursuant to Rule 428(b) and will include the address and telephone number to which the request is to be directed.

PART II
INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The Company hereby incorporates by reference in this Registration Statement the following documents previously filed with the Securities and Exchange Commission (the “Commission”):

- the Company’s Annual Report on Form 10-K for the year ended December 31, 2016, filed with the Commission on February 10, 2017 (the “Annual Report”), including the portions of the Registrant’s Definitive Proxy Statement on Schedule DEF 14A, filed with the Commission on March 29, 2017, as supplemented by the Proxy Supplement on Schedule DEFA14A, filed with the Commission on April 18, 2017, incorporated by reference into the Annual Report;
- the Company’s Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2017, filed with the Commission on April 28, 2017;
- the Company’s Current Reports on Form 8-K filed with the Commission on February 9, 2017 and May 10, 2017; and
- the description of the Company’s Common Stock contained in the Company’s Registration Statement on Form 8-A (File No. 001-12079), filed with the Commission on January 15, 2008 pursuant to the Securities Exchange Act of 1934, as amended (the “Exchange Act”), including any amendment or report filed for the purpose of updating such description.

All documents subsequently filed by the Company pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, prior to the filing of a post-effective amendment which indicates that all securities offered hereby have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference in this Registration Statement and to be a part hereof from the date of filing of such documents. Any statement contained herein or in a document all or a portion of which is incorporated or deemed to be incorporated by reference herein shall 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 shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement.

Notwithstanding the foregoing, no information is incorporated by reference in this Registration Statement where such information under applicable forms and regulations of the Commission is not deemed to be “filed” under Section 18 of the Exchange Act or otherwise subject to the liabilities of that section, unless the report or filing containing such information indicates that the information therein is to be considered “filed” under the Exchange Act or is to be incorporated by reference in this Registration Statement.

Item 4. Description of Securities.

Not applicable.

Item 5. Interests of Named Experts and Counsel.

Not applicable.

Item 6. Indemnification of Directors and Officers.

The Company is incorporated under the laws of the State of Delaware. Section 102 of the Delaware General Corporation Law (the “DGCL”) permits a corporation to eliminate the personal liability of its directors to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director, except for liability for: (i) any breach of the director’s duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the DGCL or (iv) for any transaction from which a director derived an improper personal benefit. The Company’s Amended and Restated Certificate of Incorporation provides that no director will be personally liable to the Company or any of its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability in the instances enumerated in clauses (i) through (iv) of the preceding sentence.

The Amended and Restated Bylaws of the Company (the “Bylaws”) provide for a series of indemnification powers and procedures in accordance with Section 145 of the DGCL. Article VI of the Company’s Amended and Restated Bylaws (the “Bylaws”) provides that the Company shall indemnify any director or executive officer (as such term is defined in Rule 405 promulgated under the Securities Act of 1933, as amended) of the Company, and may indemnify any employee or agent of the Company who is not a director or executive officer, who was or is a party or is threatened to be made a party to, or testifies in, any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative in nature, by reason of the fact that such person is or was a director, officer, employee or agent of the Company, or is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, limited liability company, partnership, joint venture, employee benefit plan, trust or other enterprise, against expenses (including attorneys’ fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the Company, and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person’s conduct was unlawful, to the fullest extent permitted by law as the same exists or may hereafter be amended; provided, however, that, except with respect to proceedings to enforce rights to indemnification, the Company shall indemnify any such indemnitee in connection with a proceeding (or part thereof) initiated by such indemnitee only if such proceeding (or part thereof) was authorized by the board of directors of the Company. The Company may enter into agreements with any such person for the purpose of providing for such indemnification.

To the extent that an employee or agent of the Company who is not a director or executive officer has been successful on the merits or otherwise in defense of any action, suit or proceeding referred to in the first paragraph of Article VI of the Bylaws, or in defense of any claim, issue or matter therein, such person may be indemnified against expenses (including attorneys’ fees) actually and reasonably incurred by such person in connection therewith.

Expenses incurred by a director, executive officer, employee or agent in defending or testifying in a civil, criminal, administrative or investigative action, suit or proceeding shall (in the case of a director or executive officer of the Company) and may (in the case of an employee or agent of the Company who is not a director or executive officer of the Company) be paid by the Company in advance of the final disposition of such action, suit or proceeding upon receipt of an undertaking by or on behalf of such director, executive officer, employee or agent to repay such amount if it shall ultimately be determined that such person is not entitled to be indemnified by the Company against such expenses as authorized by Article VI of the Bylaws, and the Company may enter into agreements with such persons for the purpose of providing for such advances.

The indemnification permitted by Article VI of the Bylaws is not deemed exclusive of any other rights to which any person may be entitled under any agreement, vote of stockholders or disinterested directors or otherwise, both as to action in such person's official capacity and as to action in another capacity while holding an office, and shall continue as to a person who has ceased to be a director, executive officer, employee or agent of the Company and shall inure to the benefit of the heirs, executors and administrators of such person.

The Company has the power to purchase and maintain insurance on behalf of any person who is or was a Director, executive officer, employee or agent of the Company, or is or was serving at the request of the Company as a Director, officer, employee or agent of another corporation, partnership, joint venture, employee benefit plan trust or other enterprise against any liability asserted against such person and incurred by such person in any such capacity, or arising out of such person's status as such, whether or not the Company would have the power to indemnify such person against such liability under the provisions of Article VI of the Bylaws or otherwise.

Item 7. Exemption from Registration Claimed.

Not applicable.

Item 8. Exhibits

The exhibits to this Registration Statement are listed in the Exhibit Index hereto and are incorporated herein by reference.

Item 9. Undertakings.

The undersigned Registrant hereby undertakes:

- (1) to file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:
 - (i) to include any prospectus required by Section 10(a)(3) of the Securities Act;
 - (ii) to reflect in the prospectus any facts or events arising after the effective date of this Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in this Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
 - (iii) to include any material information with respect to the plan of distribution not previously disclosed in this Registration Statement or any material change to such information in this Registration Statement.
- provided, however, that paragraphs (i) and (ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in the registration statement.
- (2) that, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof; and
- (3) to remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to Sections 13(a) or 15(d) of the Exchange Act (and, where applicable,

each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in this Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Houston, State of Texas, on the 10th day of May, 2017.

CALPINE CORPORATION

By: /s/ ZAMIR RAUF

Name: Zamir Rauf

Title: Executive Vice President and Chief Financial Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints John B. (Thad) Hill and W. Thaddeus Miller, each of them acting individually, his or her true and lawful attorney-in-fact and agent, each with full power of substitution and revocation, in his or her name and on his or her behalf, to do any and all acts and things and execute, in the name of the undersigned, any and all instruments which said attorney-in-fact and agent may deem necessary or advisable to enable the Company to comply with the Securities Act, and any rules, regulations, or requirements of the Securities and Exchange Commission in respect thereof, in connection with the filing with the Securities and Exchange Commission of this registration statement on Form S-8 under the Securities Act, including specifically but without limitation, power and authority to sign the name of the undersigned to such registration statement, and any amendments to such registration statement (including post-effective amendments), and to file the same with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission and any applicable securities exchange or securities regulatory body, to sign any and all applications, registration statements, notices or other documents necessary or advisable to comply with applicable securities laws, including without limitation state securities laws, and to file the same, together with other documents in connection therewith with the appropriate authorities, including without limitation state securities authorities, granting unto said attorney-in-fact and agent, full power and authority to do and to perform each and every act and thing requisite or necessary to be done in and about the premises, as fully and to all intents and purposes as the undersigned might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitute, may lawfully do or cause to be done by virtue hereof. This Power of Attorney may be signed in several counterparts.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated:

Signature	Title of Capacities	Date
<u>/s/ JOHN B. (Thad) HILL</u> John B. (Thad) Hill	President, Chief Executive Officer and Director (principal executive officer)	May 10, 2017
<u>/s/ ZAMIR RAUF</u> Zamir Rauf	Executive Vice President and Chief Financial Officer (principal financial officer)	May 10, 2017
<u>/s/ JEFF KOSHKIN</u> Jeff Koshkin	Chief Accounting Officer (principal accounting officer)	May 10, 2017
<u>/s/ MARY L. BRLAS</u> Mary L. Brlas	Director	May 10, 2017
<u>/s/ FRANK CASSIDY</u> Frank Cassidy	Chairman	May 10, 2017
<u>/s/ JACK A. FUSCO</u> Jack A. Fusco	Director	May 10, 2017
<u>/s/ MICHAEL W. HOFMANN</u> Michael W. Hofmann	Director	May 10, 2017
<u>/s/ DAVID C. MERRITT</u> David C. Merritt	Director	May 10, 2017
<u>/s/ W. BENJAMIN MORELAND</u> W. Benjamin Moreland	Director	May 10, 2017
<u>/s/ ROBERT MOSBACHER, JR.</u> Robert Mosbacher, Jr.	Director	May 10, 2017
<u>/s/ DENISE M. O'LEARY</u> Denise M. O'Leary	Director	May 10, 2017

EXHIBIT INDEX

Exhibit Number	Description of Documents
<u>5.1</u>	Opinion of White & Case LLP with respect to the legality of the Common Stock being registered.*
<u>23.1</u>	Consent of PricewaterhouseCoopers LLP.*
<u>23.2</u>	Consent of White & Case LLP (included in Exhibit 5.1).*
<u>24.1</u>	Power of Attorney (included on signature page of this Registration Statement).*
<u>99.1</u>	Calpine Corporation 2017 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K, filed with the Commission on May 10, 2017).
<u>99.2</u>	Calpine Corporation 2017 Equity Compensation Plan for Non-Employee Directors (incorporated by reference to Exhibit 10.2 of the Registrant's Current Report on Form 8-K, filed with the Commission on May 10, 2017).

* Filed herewith

May 10, 2017

Calpine Corporation
717 Texas Avenue, Suite 1000
Houston, Texas 77002

White & Case LLP
1221 Avenue of the Americas
New York, NY 10020-1095
T +1 212 819 8200

whitecase.com

Re: Calpine Corporation 2017 Equity Incentive Plan and Calpine Corporation 2017 Equity Compensation Plan For Non-Employee Directors

Ladies and Gentlemen:

We have acted as counsel to Calpine Corporation, a Delaware corporation (the “Company”), in connection with the registration pursuant to the registration statement on Form S-8 (the “Registration Statement”) to be filed by the Company with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933, as amended (the “Securities Act”), of 23,000,000 shares of its common stock, par value \$0.001 per share (the “Common Stock”), reserved for issuance pursuant to the Company’s 2017 Equity Incentive Plan (the “2017 Equity Incentive Plan”) and 300,000 shares of its Common Stock reserved for issuance pursuant to the Company’s 2017 Equity Compensation Plan For Non-Employee Directors (the “2017 Director Plan”).

We have examined such documents, certificates, records, authorizations and proceedings and have made such investigations as we have deemed necessary or appropriate in order to give the opinion expressed herein. We have relied, to the extent we deem such reliance proper, upon such certificates or comparable documents of officers and representatives of the Company and of public officials and upon statements and information furnished by officers and representatives of the Company with respect to the accuracy of material factual matters contained therein which were not independently established by us. In such examination we have assumed, without independent investigation or verification of any kind, the genuineness of all signatures, the legal capacity and competency of all natural persons, the authenticity of all documents submitted to us as originals, the conformity to authentic original documents of all documents submitted to us as photostatic or certified copies, and the authenticity of the originals of such copies.

Based on the foregoing, and subject to the qualifications, assumptions and limitations stated herein, we are of the opinion that the above-referenced 23,000,000 shares of Common Stock reserved for issuance under the 2017 Equity Incentive Plan and 300,000 shares of Common Stock reserved for issuance under the 2017 Director Plan have been duly authorized by the Company, and when issued as provided under the 2017 Equity Incentive Plan and the 2017 Director Plan, respectively, will be validly issued, fully paid and non-assessable shares of Common Stock of the Company.

We do not express or purport to express any opinions with respect to laws other than the General Corporation Law of the State of Delaware.

May 10, 2017

The opinion set forth in this letter is effective as of the date hereof. We do not undertake to advise you of any changes in our opinion expressed herein resulting from matters that may arise after the date of this letter or that hereinafter may be brought to our attention. We hereby consent to the filing of this letter as an exhibit to the above-referenced Registration Statement. In giving this consent, we do not hereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act and the rules and regulations of the Commission thereunder. We express no opinion other than as herein expressly set forth, and no opinion may be inferred or implied beyond that expressly stated herein.

Very truly yours,

/s/ White & Case LLP

CJD:IY

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 9, 2017 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in Calpine Corporation's Annual Report on Form 10-K for the year ended December 31, 2016.

/s/ PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP

Houston, Texas

May 10, 2017