

ACORN ENERGY, INC.
Form POS AM
March 30, 2009

Registration No. 333-138109

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

POST-EFFECTIVE AMENDMENT NO. 4
ON
FORM S-3
TO
FORM S-1
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

ACORN ENERGY, INC.
(Exact Name of Registrant as Specified in its Charter)

Delaware
(State or Other Jurisdiction of
Incorporation or Organization)

7371
(Primary Standard Industrial
Classification Code Number)

22-2786081
(I.R.S. Employer
Identification No.)

4 West Rockland Road
Montchanin, Delaware 19710
(302) 656-1707

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

John A. Moore
President and Chief Executive Officer
Acorn Energy, Inc.
4 West Rockland Road
Montchanin, Delaware 19710
(302) 656-1707

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

COPIES TO

Sheldon Krause, Esq
Eilenberg Krause & Paul LLP

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11 East 44th Street , 19th Floor
New York, New York 10017
(212) 986-9700

Approximate date of commencement of proposed sale of the securities to the public: From time to time after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration number of the earlier effective registration statement for the same offering. "

If this form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. "

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. "

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. (Check one):

Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

EXPLANATORY NOTE

This Post-Effective Amendment No. 4 on Form S-3 to the Registration Statement on Form S-1 amends the Registration Statement on Form S-1, as previously amended to date. The prospectus contained in this Post-Effective Amendment will, upon effectiveness of this Post-Effective Amendment, supersede the prospectus dated September 18, 2007, filed pursuant to Rule 424(b), as supplemented. All filing fees payable in connection with the registration of the securities covered hereby were previously paid in connection with the filing of the original registration statement.

The information in this prospectus is not complete and may be changed. Holders may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to completion, dated March 30, 2009

PROSPECTUS

ACORN ENERGY, INC.
(formerly Acorn Factor, Inc.)

268,451 Shares of Common Stock

This prospectus covers the offer and sale of up to 268,451 shares of our common stock from time to time by certain selling security holders named in this prospectus. Of the shares being offered, 202,451 are issuable upon the exercise of outstanding warrants, and 66,000 are issuable upon the exercise of outstanding options.

We are not offering any shares of common stock.

The selling security holders will receive all of the net proceeds from sales of the common stock covered by this prospectus and will pay all underwriting discounts and selling commissions, if any, applicable to those sales. We will not receive any proceeds from sales of any of these shares. However, we will receive the exercise price of the warrants and the options to the extent they are not exercised on a net or cashless exercise basis.

The selling security holders may periodically sell the shares directly or through agents, underwriters or dealers. The shares may be sold:

- in the over-the-counter market, in privately negotiated transactions or otherwise;
- directly to purchasers or through agents, brokers, dealers or underwriters; and

at market prices prevailing at the time of sale, at prices related to the prevailing market prices, or at negotiated prices.

If required, each time a selling security holder sells shares of common stock, we will provide a prospectus supplement that will contain specific information about the terms of that transaction. We urge you to carefully read this prospectus and any accompanying prospectus supplement before you make an investment decision.

Our common stock is listed on the Nasdaq Global Market under the symbol "ACFN." On March 26, 2009, the closing price of our common stock was \$2.47.

Investing in our securities involves certain risks. You should consider the "Risk Factors" in deciding whether to buy any shares of our common stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a

criminal offense.

The date of this prospectus is _____, 2009

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The terms “ACFN,” the “Company,” “we,” “our” and “us” refer to Acorn Energy, Inc. and its subsidiaries unless the context suggests otherwise. The term “you” refers to a prospective purchaser of our common stock.

SPECIAL NOTE REGARDING FORWARD LOOKING STATEMENTS

Certain statements contained in, or incorporated by reference in, this prospectus are forward-looking in nature. These statements can be identified by the use of forward-looking terminology such as “believes,” “expects,” “may,” “will,” “should,” “anticipates,” or the negatives thereof or comparable terminology, or by discussions of strategy. You are cautioned that our business and operations are subject to a variety of risks and uncertainties and, consequently, our actual results may materially differ from those projected by any forward-looking statements. Certain of these risks and uncertainties are discussed below under the heading “Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2008, which is incorporated by reference herein.

We make no commitment to revise or update any forward-looking statements in order to reflect events or circumstances after the date any such statement is made.

USE OF PROCEEDS

We will not receive any proceeds from the sale of the shares by the selling security holders. To the extent that the warrants or options are exercised by the selling security holders for cash, rather than by cashless exercise, we will receive proceeds constituting the exercise price of such warrants or options, less warrant solicitation fees in the case of the warrants, if applicable. Any such proceeds received by us through warrant or option exercises will be used for working capital.

SELLING SECURITY HOLDERS

On July 31, 2006, we completed a private placement to investors of (1) 1,200,003 shares of common stock, (2) warrants to purchase 300,005 shares of common stock, and (3) warrants issued to First Montauk Securities Corp, and its agents and assignees, as partial consideration for its role as placement agent, to purchase 120,001 shares of common stock. The warrants issued in the private placement have an exercise price of \$2.78 and are exercisable through July 31, 2011.

On July 20, 2006, we engaged Bibicoff & Associates to provide investor relations services. In connection with the engagement, we issued to Bibicoff & Associates an option to purchase up to 120,000 shares of common stock. The option has fully vested and is exercisable as to the remaining 66,000 shares until July 31, 2011 at a modified exercise price of \$2.96 per share.

On August 29, 2006 we completed a private placement of 16,132 shares of common stock and warrants to purchase an additional 4,033 shares. The warrants have an exercise price of \$2.78 per share and are exercisable through July 31, 2011.

This prospectus covers the sale by the selling security holders from time to time of 202,451 shares issuable upon exercise of outstanding warrants issued in the private placements, and 66,000 shares issuable upon exercise of the Bibicoff options.

We issued the securities to the selling security holders without registration under the Securities Act of 1933 (the “Securities Act”) in reliance upon the exemption provided by Section 4(2) of the Securities Act for transactions not involving a public offering. Prior to issuance, each selling security holder represented to us that it was an accredited investor, as defined in Rule 501 of Regulation D under the Securities Act, and that it was acquiring the securities for investment purposes only and not with a view to, or sale in connection with, any distribution thereof.

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The term "selling security holder" includes (i) each person and entity that is identified in the table below (as such table may be amended from time to time by means of an amendment to the registration statement of which this prospectus forms a part) and (ii) any transferee, donee, pledgee or other successor of any person or entity named in the table that acquires any of the shares of common stock covered by this prospectus in a transaction exempt from the registration requirements of the Securities Act of 1933 and that is identified in a supplement or amendment to this prospectus.

We have listed below:

1

- the name of each selling security holder;
- the number of shares of common stock beneficially owned by the selling security holder as of the date of this prospectus;
 - the maximum number of shares of common stock being offered by each of them in this offering; and
- the number of shares of common stock to be owned by the selling security holder after this offering (assuming sale of such maximum number of shares) and the percentage of the class which such number constitutes (if one percent or more).

The footnotes to the table identify each selling security holder that is a registered broker-dealer or an affiliate of a registered broker-dealer.

Except as otherwise noted below, during the last three years, no selling security holder has been an officer, director or affiliate of our company, nor has any selling security holder had any material relationship with our company or affiliates during that period. Each selling security holder represented at the closing of the private placement that it did not have any contract, undertaking, agreement or arrangement with any person to sell, transfer, pledge, hypothecate, grant any option to purchase or otherwise dispose of any of the securities. Based on information provided to us by the selling security holders, the selling security holders purchased the securities in the ordinary course of business.

The shares of common stock being offered hereby are being registered to permit public secondary trading, and the selling security holders are under no obligation to sell all or any portion of their shares included in this prospectus. The information contained in the following table is derived from information provided to us by selling security holders, our books and records, as well as from our transfer agent. Where we were unable to obtain information from a selling security holder with respect to the total number of shares beneficially owned by such holder, we have included only the shares underlying warrants held by such holder. The following table assumes the sale of all securities covered by this prospectus.

Unless otherwise indicated, each person has sole investment and voting power with respect to the shares indicated. For purposes of this table, a person or group of persons is deemed to have “beneficial ownership” of any shares as of a given date which such person has the right to acquire within 60 days after such date.

| Selling Security Holder | Shares Beneficially Owned Prior to Offering | Shares Being Offered | Shares Beneficially Owned After Offering | Percentage of Shares Beneficially Owned After Completion of Offering * |
|--|---|----------------------|--|--|
| Aledarmme, LLC 1 | 9,434 ² | 9,434 | 0 | — |
| Awerks Trust (Alan J Werksman TTE) 3 | 37,915 ⁴ | 7,125 | 30,790 | ** |
| Joseph W. Benson | 4,717 ⁵ | 4,717 | 0 | — |
| Harvey Bibicoff 6 | 73,500 ⁷ | 66,000 | 7,500 | ** |
| L. Rowe Driver | 114,065 ⁸ | 2,359 | 111,706 | ** |
| Warren M. Duffy | 16,945 ⁹ | 7,076 | 9,869 | ** |
| Albert L. Fierro & Kathleen E. Fierro JT TEN 10 | 2,359 ⁸ | 2,359 | 0 | — |
| David Garceu & Carmen Garceu JT TEN | 28,302 ¹¹ | 28,302 | 0 | — |
| Frank I. Goodman | 22,727 ¹² | 2,359 | 20,368 | ** |
| Keith A. Goodman ¹³ | 40,925 ¹⁴ | 4,079 | 36,846 | ** |
| Michael S. Goodman | 19,368 ¹² | 2,359 | 17,009 | ** |
| John Hughes | 1,416 ¹⁵ | 1,416 | 0 | — |
| Jonathan Kamen | 19,737 ¹⁶ | 12,500 | 7,237 | ** |
| Sheldon Krause | 51,667, ¹⁷ | 5,000 | 46,667 | ** |
| Harriet Leibowitz Revocable Trust ¹⁸ | 26,438 ¹⁹ | 2,359 | 24,079 | ** |
| Randall McCathren | 45,590 ²⁰ | 9,434 | 36,156 | ** |
| MIN Capital Corp Retirement Trust ²¹ | 21,368 ⁵ | 4,717 | 16,651 | ** |
| Openheimer & Co. Inc. ²² | 18,291 ²³ | 8,160 | 10,131 | ** |
| Primum Capital, LLC ²⁴ | 63,750 ²⁵ | 4,750 | 59,000 | ** |
| Carmine T. Santandrea & Barbara J. Santandrea JT TEN | 9,434 ² | 9,434 | 0 | — |
| Michael Solomon ²⁶ | 128,395 ²⁷ | 7,829 | 120,566 | 1.1% |
| William J. Stegeman | 28,302 ²⁸ | 28,302 | 0 | — |
| Kevin T. Tolbert | 32,461 ²⁹ | 9,434 | 23,027 | ** |
| Ian Wallin | 2,500 ³⁰ | 2,500 | 0 | — |
| Daniel J. Walsh ¹³ | 20,361 ³¹ | 10,000 | 10,361 | ** |
| Hank J. Wolfert & Susie L. Wolfert JT TEN | 18,847 ³² | 5,689 | 13,158 | ** |
| Edward Zale & Roberta Zale JT TEN | 36,684 ³³ | 9,434 | 27,250 | ** |
| Samuel M. Zentman ³⁴ | 87,790 ³⁵ | 1,324 | 86,666 | ** |
| TOTAL | | 268,451 | | |

* Based upon 11,467,589 shares outstanding on March 26, 2009.

** Less than 1%.

1 Voting and dispositive control of the securities are exercised jointly by the following persons who are members of Aledarmme: Elizabeth G. Brown, Alexander F. Giacco, Jr., Marissa G. Rath, and Mary G. Walsh. Richard J. Giacco, a Director of the Company is also a member of the company.

2 Includes 9,434 shares issuable upon exercise of a warrant for the purchase of Common Stock.

3 Voting and dispositive control of the shares is held by grantor and trustee Alan Werksman.

4 Includes 10,415 shares issuable upon exercise of warrants for the purchase of Common Stock.

5 Includes 4,717 shares issuable upon exercise of a warrant for the purchase of Common Stock.

6 The selling security holder is Chief Executive Officer of Bibicoff & Associates, which has provided investor relations services to the Company.

- 7 Includes 66,000 shares issuable upon the exercise of currently exercisable options to purchase Common Stock and 7,500 shares issuable upon exercise of warrants to purchase Common Stock.
- 8 Includes 2,359 shares issuable upon exercise of a warrant for the purchase of Common Stock.
- 9 Includes 16,945 shares issuable upon exercise of a warrant for the purchase of Common Stock.
- 10 Selling security holder is a registered broker dealer.
- 11 Includes 28,302 shares issuable upon exercise of warrants to purchase Common Stock.
- 12 Includes 4,004 shares issuable upon exercise of warrants for the purchase of Common Stock.

13 Selling security holder is an affiliate of a registered broker dealer who (i) purchased the shares being registered for resale in the ordinary course of business and (ii) at the time of the purchase, the selling security holder had no agreements or understandings, directly or indirectly, with any person to distribute the securities.

14 Includes 9,145 shares issuable upon exercise of warrants for the purchase of Common Stock and 25,000 shares issuable upon exercise of currently exercisable options for the purchase of Common Stock.

15 Includes 1,416 shares issuable upon exercise of warrants to purchase Common Stock.

16 Includes 19,737 shares issuable upon exercise of warrants for the purchase of Common Stock.

17 Includes 5,000 shares issuable upon exercise of warrants for the purchase of Common Stock and 16,667 shares issuable upon exercise of currently exercisable options. Until January 5, 2009, Mr. Krause served as the Company's Secretary and General Counsel.

18 Voting and dispositive control of the shares is held by grantor and trustee, Martin Leibowitz.

19 Includes 8,938 shares issuable upon exercise of warrants for the purchase of Common Stock.

20 Includes 19,303 shares issuable upon exercise of warrants for the purchase of Common Stock.

21 Voting and dispositive control are exercised jointly by Robert Friedman and Leonard Friedman, Trustees.

22 Registered broker dealer and wholly owned subsidiary of Oppenheimer Holdings Inc., a reporting company under the Securities Exchange Act of 1934.

23 Includes 18,291 shares issuable upon exercise of warrants for the purchase of Common Stock.

24 Voting and dispositive control of the securities are exercised by Richard B. Kobusch, Jr., president of Primum Capital, LLC.

25 Includes 4,750 shares issuable upon exercise of a warrant for the purchase of Common Stock.

26 Selling security holder is an affiliate of a registered broker dealer who (i) purchased the shares being registered for resale in the ordinary course of business and (ii) at the time of the purchase, the selling security holder had no agreements or understandings, directly or indirectly, with any person to distribute the securities.

27 Includes 12,895 shares issuable upon exercise of warrants for the purchase of Common Stock and 25,000 shares issuable upon exercise of currently exercisable options for the purchase of Common Stock.

28 Includes 28,302 shares issuable upon exercise of warrants for the purchase of Common Stock.

29 Includes 32,461 shares issuable upon exercise of warrants for the purchase of Common Stock.

30 Includes 2,500 shares issuable upon exercise of warrants for the purchase of Common Stock.

31 Includes 20,361 shares issuable upon exercise of warrants for the purchase of Common Stock.

32 Includes 18,847 shares issuable upon exercise of warrants for the purchase of Common Stock.

33 Includes 22,592 shares issuable upon exercise of warrants for the purchase of Common Stock.

34 Mr. Zentman is a member of the Board of Directors of the Company and its Audit Committee.

35 Includes 1,324 shares issuable upon exercise of warrants for the purchase of Common Stock and 66,666 shares issuable upon exercise of currently exercisable options for the purchase of Common Stock.

PLAN OF DISTRIBUTION

Plan of Distribution

On and after the date of this prospectus, the selling security holders may, from time to time, sell any or all of their shares of common stock on any stock exchange, market or trading facility on which shares of our common stock are traded or in private transactions. These sales may be at fixed or negotiated prices. The selling security holders may use any one or more of the following methods when selling shares:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits a purchaser;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales;
- broker-dealers may agree with the selling securityholder to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The selling security holders may also sell shares under Rule 144 under the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by the selling security holders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling security holders (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The selling security holders do not expect these commissions and discounts to exceed what is customary in the types of transactions involved.

The selling security holders and any broker-dealers or agents that are involved in selling the shares of our common stock may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares of our common stock purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. The selling security holders have informed us that they do not have any agreement or understanding, directly or indirectly, with any person to distribute our common stock.

Certain of the selling security holders are registered broker-dealers or affiliates of registered broker dealers as indicated under “Selling Security Holders.” Any selling security holder that is a registered broker-dealer or its affiliate will be considered an “underwriter” within the meaning of the Securities Act in connection with the sale of securities pursuant to this prospectus and any commissions received by such broker-dealer and any profit on the resale of the shares purchased by it may be deemed to be underwriting commissions or discounts under the Securities Act.

First Montauk Securities Corp, Inc. is a registered broker dealer and FINRA member firm. First Montauk Securities Corp served as placement agent in our private placement offering, and received, in addition to cash commissions, warrants to purchase an aggregate of 120,001 shares of our common stock with an exercise price of \$2.78 per share (the “First Montauk Securities Corp Warrants”). Of these warrants to purchase 120,001 shares of our common stock, First Montauk Securities Corp assigned 88,662 to its officers and employees and 16,318 to Oppenheimer & Co., a registered broker dealer and FINRA member firm, as allowed under FINRA/NASD Rule 2710 (g)(2). The warrants to purchase 16,318 shares of our common stock assigned to Oppenheimer & Co., were assigned as partial compensation

for its participation as selling agent in the private placement pursuant to an agreement between First Montauk Securities Corp. and Oppenheimer & Co. Oppenheimer & Co. subsequently assigned a portion of its warrants to certain of its employees. The registration statement of which this prospectus forms a part includes the shares underlying the warrants held by the assignees of First Montauk Securities Corp and Oppenheimer & Co. and its assignees. In addition to the foregoing, for acting as placement agent in the private placement offering completed by the Company on April 11, 2007, First Montauk Securities Corp. received warrants to purchase 181,211 shares of our common stock. First Montauk Financial Corp. filed a Form BDW with the Securities and Exchange Commission on December 31, 2008 to withdraw its registration as a broker-dealer.

The warrants held by Oppenheimer & Co., its assignees and the assignees of First Montauk expire on July 31, 2011.

We have advised the selling security holders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling security holders and their affiliates. In addition, we will make copies of this Prospectus available to the selling security holders for the purpose of satisfying the Prospectus delivery requirements of the Securities Act.

We have entered into agreements with the selling security holders providing registration rights and are required to pay all fees and expenses incident to the registration of the shares of our common stock that are covered by this prospectus, but not including underwriting discount, concessions, commissions or fees of the selling security holders. We have agreed to indemnify the selling security holders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act, that arise out of or are based upon an untrue statement or alleged untrue statement or omission or alleged omission in this registration statement (or any supplement or amendment) except if the untrue statement or omission is from information furnished to us by the selling security holders in writing specifically for use in this registration statement (or any supplement or amendment).

LEGAL MATTERS

The validity of the shares of Common Stock which may be offered pursuant to this prospectus has been passed upon by Eilenberg Krause & Paul LLP, counsel to the Company.

EXPERTS

The financial statements incorporated in this prospectus by reference to our Annual Report on Form 10-K for the year ended December 31, 2008 have been so incorporated in reliance on the report of Kesselman & Kesselman, a member of PricewaterhouseCoopers International Limited, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to “incorporate by reference” the information we file with them, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus.

We incorporate by reference the documents listed below and any future filings we will make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 until this offering has been completed:

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2008 filed on March 30, 2009;
- The description of our common stock contained in our registration statement on Form 8-A, declared effective by the SEC in February 11, 1992; and
- Our Current Reports on Form 8-K filed on February 19, 2009, February 25, 2009 and March 16, 2009.

You may request a free copy of these documents by writing to the Company, Acorn Energy, Inc., Attention: Investor Relations, 4 West Rockland Road, Montchanin, Delaware 19710, or by calling 302.656.1708.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934. Accordingly, we file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document that we file at the SEC’s public reference room at 100 F Street NE, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference room. You can obtain copies of our SEC filings at prescribed rates from the SEC Public Reference Section at 100 F Street NE, Washington, D.C. 20549. Our SEC filings are also available to you free of charge at the SEC’s web site at <http://www.sec.gov>.

You can read and print press releases, financial statements, our most recent annual and quarterly reports and additional information about us, free of charge, at our web site at <http://www.acornenergyinc.com>.

This prospectus is a part of a post-effective amendment no. 4 on Form S-3 to registration statement on Form S-1 filed by us with the SEC under the Securities Act of 1933. This prospectus does not contain all of the information set forth in the amended registration statement, certain parts of which are omitted in accordance with the rules and regulations of the SEC. For further information with respect to us and the shares of our common stock offered hereby, please refer to the amended registration statement. The amended registration statement may be inspected at the public reference facilities maintained by the SEC at the addresses set forth above. Statements in this prospectus about any document filed as an exhibit are not necessarily complete and, in each instance, you should refer to the copy of such document filed with the SEC. Each such statement is qualified in its entirety by such reference.

PART II – INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The Registrant will pay all expenses incident to the offering and sale to the public of the shares being registered other than any commissions and discounts of underwriters, dealers or agents and any transfer taxes. Such expenses are set forth in the following table. All of the amounts shown are estimates except the SEC registration fee.

| | |
|------------------------------|-----------|
| SEC registration fee | \$ 618 |
| Legal fees and expenses | 40,000 |
| Accounting fees and expenses | 5,000 |
| Miscellaneous expenses | 2,500 |
| Total | \$ 48,118 |

Item 15. Indemnification of Directors and Officers.

The Certificate of Incorporation, as amended, and the Amended Bylaws of the Registrant provide that the Registrant shall indemnify its officers, directors and certain others to the fullest extent permitted by the General Corporation Law of Delaware (“DGCL”). Section 145 of the DGCL provides that the Registrant, as a Delaware corporation, is empowered, subject to certain procedures and limitations, to indemnify any person against expenses (including attorney’s fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by him in connection with any threatened, pending or completed action, suit or proceeding (including a derivative action) in which such person is made a party by reason of his being or having been a director, officer, employee or agent of the Registrant (each, an “Indemnitee”); provided that the right of an Indemnitee to receive indemnification is subject to the following limitations: (i) an Indemnitee is not entitled to indemnification unless he acted in good faith and in a manner that he 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 such conduct was unlawful and (ii) in the case of a derivative action, an Indemnitee is not entitled to indemnification in the event that he is judged to be liable to the Company (unless and only to the extent that the court determines that the Indemnitee is fairly and reasonably entitled to indemnification for such expenses as the court deems proper). The statute provides that indemnification pursuant to its provisions is not exclusive of other rights of indemnification to which a person may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors, or otherwise.

Pursuant to Section 145 of the DGCL, the Registrant has purchased insurance on behalf of its present and former directors and officers against any liability asserted against or incurred by them in such capacity or arising out of their status as such.

In accordance with Section 102(b)(7) of the DGCL, the Certificate of Incorporation of the Registrant eliminates personal liability of the Registrant’s directors to the Registrant or its stockholders for monetary damages for breach of their fiduciary duties as a director, with certain limited exceptions set forth in Section 102(b) (7) of the DGCL.

The Registrant has entered into an indemnification agreement with all of its present officers and directors and plans to enter into such agreements with all future officers and directors. The terms of the agreement require that the Registrant maintain a minimum level of insurance coverage for claims against officers and directors and that the Registrant indemnify the officer and/or director against claims against them that arise in their service on behalf of the Registrant.

Item 16. Exhibits.

(a) Exhibits — See Exhibit Index on page II-5.

Item 17. Undertakings.

(a) The undersigned Registrant hereby undertakes:

II-1

(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 of 1933;

(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 hereof) 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.

(A) Provided, however, that, Paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) of this section do not apply if the registration statement is on Form S-3 and the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered herein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(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.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

If the registrant is subject to Rule 430C (§230.430C of this chapter), each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A (§230.430A of this chapter), shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities: The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
- (b) Insofar as indemnification for liabilities arising under the Securities Act of 1933 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 Securities and Exchange Commission such indemnification is against public policy as expressed in the 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 such Act and will be governed by the final adjudication of such issue.
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EXHIBIT INDEX

- No.
- 4.1 Specimen certificate for the Common Stock (incorporated herein by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form 8-A, effective February 11, 1992).
- 5.1 Opinion of Eilenberg Krause & Paul LLP.*
- #23.1 Consent of Kesselman & Kesselman CPA.
- 23.2 Consent of Eilenberg Krause & Paul LLP (included in Exhibit 5.1 hereto).
- 24.1 Power of Attorney (included in Amendment No.1 to the original Registration Statement)

#

This Exhibit is filed or furnished herewith.

*

Previously filed.

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-3 and has duly caused this post-effective amendment no. 4 on Form S-3 to be signed on its behalf by the undersigned, thereunto duly authorized, in the Township of Montchanin, State of Delaware, on this 30th day of March, 2009.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed below by the following persons on the dates indicated in the capacities indicated.

ACORN ENERGY, INC.

By: /s/ JOHN A. MOORE
 John A. Moore
 Chairman of the Board, President and
 Chief Executive Officer

| Signature | Title | Date |
|--|--|----------------|
| /s/ JOHN A. MOORE John A. Moore | Chairman of the Board, President and Chief Executive Officer (Principal Executive Officer) | March 30, 2009 |
| /s/ MICHAEL BARTH Michael Barth | Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer) | March 30, 2009 |
| /s/ GEORGE MORGENSTERN George Morgenstern | Director | March 30, 2009 |
| /s/ RICHARD RIMER Richard Rimer | Director | March 30, 2009 |
| /s/ RICHARD J. GIACCO Richard J. Giacco | Director | March 30, 2009 |
| * Samuel Zentman | Director | March 30, 2009 |
| /s/ JOE MUSANTI Joe Musanti | Director | March 30, 2009 |

*By: /s/ JOHN A. MOORE March 30, 2009
 Attorney-in-Fact

