

ACORN ENERGY, INC.
Form S-3
September 16, 2010

As filed with the Securities and Exchange Commission on September 16, 2010
Registration No. 333-

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

FORM S-3
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)

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

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

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)

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

Copies to:

Joe B. Cogdell, Jr., Esq.
Vice President, General Counsel and Secretary
Acorn Energy, Inc.
4 West Rockland Road
Montchanin, Delaware 19710
(302) 656-1707

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

Approximate date of commencement of proposed sale 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. "

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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. R

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please 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 R
 (Do not check if a smaller reporting company)

CALCULATION OF REGISTRATION FEE

| Title of Each Class of Securities to be Registered (1) | Proposed Maximum Aggregate offering Price | Amount of Registration Fee (2) |
|--------------------------------------------------------|-------------------------------------------|--------------------------------|
| Common Stock (\$.01 par value) | | |
| Debt Securities | | |
| Warrants | | |
| Rights to Purchase Common Stock | | |
| Units | | |
| Total | \$ 20,000,000 | \$ 1,426 |

(1) There are being registered hereunder an indeterminate number of shares of common stock, warrants to purchase common stock or debt securities, rights to purchase common stock and units and an indeterminate principal amount of debt securities as shall have an aggregate initial offering price not to exceed \$20,000,000. If any debt securities are issued at an original issued discount, then the offering price of such debt securities shall be in such greater principal amount as shall result in an aggregate offering price not to exceed \$20,000,000, less the aggregate dollar amount of all securities previously issued hereunder. Any securities registered hereunder may be sold separately or as units with the other securities registered hereunder. The securities registered hereunder are to be issued from time to time at prices to be determined. The securities registered hereunder also include such indeterminate number of shares of common stock and amount of debt securities as may be issued upon conversion of debt securities that provide for conversion or upon exercise of warrants. In addition, pursuant to Rule 416 under the Securities Act, the shares being registered hereunder include such indeterminate number of shares of common stock as may be issuable with respect to the shares being registered hereunder as a result of stock splits, stock dividends or similar transactions.

(2) The registration fee has been calculated, pursuant to Rule 457(o) under the Securities Act on the basis of the maximum aggregate offering price of the securities listed.

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 SEC acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. A registration statement relating to these securities has been filed with the Securities and Exchange Commission. These securities may not be sold nor may offers to buy be accepted until the registration statement 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 jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED SEPTEMBER 16, 2010

PROSPECTUS

\$20,000,000

Common Stock
Debt Securities
Warrants
Rights
Units

The securities covered by this prospectus may be offered and sold by us from time to time. When we offer securities, we will provide you with a prospectus supplement describing the specific terms of the specific issue of securities, including the offering price of the securities. You should carefully read this prospectus and the prospectus supplement relating to the specific issue of securities, together with the documents incorporated by reference into this prospectus and any prospectus supplement, before you decide to purchase any of these securities.

THIS PROSPECTUS MAY NOT BE USED TO OFFER OR SELL ANY SECURITIES UNLESS ACCOMPANIED BY A PROSPECTUS SUPPLEMENT.

We may offer the securities from time to time in amounts and on terms as we may determine through public or private transactions or through other means described in the section entitled "Plan of Distribution" beginning on page 13 of this prospectus. We may offer and sell these securities to or through one or more underwriters, dealers and agents, or directly to purchasers, on a continuous or delayed basis. The applicable prospectus supplement will provide the specific terms of the plan of distribution for the securities covered by such prospectus supplement.

Our common stock is listed on The Nasdaq Global Market under the ticker symbol "ACFN." The last reported sale price of our common stock on September 14, 2010 was \$4.50 per share. .

Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page 3 of this prospectus. You should carefully review the risks and uncertainties described under the heading "Risk Factors" contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus.

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 _____, 2010.

You should rely only on the information contained or incorporated by reference in this prospectus. We have not authorized anyone to provide you with different or additional information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information provided by this prospectus is accurate as of any date other than the date on the front of this prospectus. Our business, financial condition, results of operations and prospects may have changed since then.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, using a “shelf” registration process. Under this shelf registration process, we may, from time to time, offer and/or sell the securities referenced herein in one or more offerings up to a total amount of \$20,000,000. This prospectus includes a general description of the securities we may offer. Each time we offer our securities, we will provide a prospectus supplement that will contain more specific information about the offering. The prospectus supplement may also add, update or change information contained in this prospectus. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. If there is any inconsistency between the information in this prospectus and a prospectus supplement, you should rely on the information in that prospectus supplement. In addition, a prospectus supplement may include a discussion of any risk factors in addition to those described in this prospectus. You should read both this prospectus and any accompanying prospectus supplement or free writing prospectus together with the additional information described under the headings “Where You Can Find More Information” and “Incorporation of Certain Documents by Reference.”

You should rely only on the information contained in this prospectus, any applicable prospectus supplement and those documents incorporated by reference herein. We have not authorized anyone to provide you with different information. This prospectus may only be used where it is legal to sell these securities. This prospectus is not an offer to sell, or a solicitation of an offer to buy, in any state where the offer or sale is prohibited. The information in this prospectus, any prospectus supplement or any document incorporated herein or therein by reference is accurate as of the date contained on the cover of such documents. Neither the delivery of this prospectus or any prospectus supplement, nor any sale made under this prospectus or any prospectus supplement will, under any circumstances, imply that the information in this prospectus or any prospectus supplement is correct as of any date after the date of this prospectus or any such prospectus supplement.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the registration statement of which it forms a part, any prospectus supplement and the documents incorporated by reference into these documents contain forward-looking statements within the meaning of Section 27A of the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. We use words such as “anticipates,” “believes,” “plans,” “expects,” “future,” “intends,” “will,” “foresee” and similar expressions to identify these forward-looking statements. These forward-looking statements are subject to certain known and unknown risks and uncertainties, as well as assumptions that could cause actual results to differ materially from those reflected in these forward-looking statements. Factors that might cause actual results to differ include, but are not limited to, those referenced in the section entitled “Risk Factors” beginning on page 3 of this prospectus. Readers are cautioned not to place undue reliance on any forward-looking statements contained herein, which reflect management’s opinions only as of the date hereof. Except as required by law, we undertake no obligation to revise or publicly release the results of any revision to any forward-looking statements. You are advised, however, to consult any additional disclosures we have made or will make in our reports to the SEC on Forms 10-K, 10-Q and 8-K. All subsequent written and oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the cautionary statements contained in this prospectus.

ABOUT ACORN ENERGY

This summary description of us and our business highlights selected information contained elsewhere in this prospectus or incorporated herein by reference. This summary may not contain all of the information that you should consider before buying securities in this offering. You should carefully read this entire prospectus and any applicable prospectus supplement or free writing prospectus, including each of the documents incorporated herein or therein by reference, before making an investment decision. As used herein, “we,” “us,” and “our” refer to Acorn Energy and its subsidiaries.

Our Company

Acorn Energy is a publicly-traded holding company with equity interests in CoaLogix, Coreworx, DSIT, Gridsense and US Sensor Systems Inc. These companies leverage advanced technologies to transform and upgrade the energy infrastructure around the world. Acorn companies are focused on three problems in the energy sector: improving the efficiency of the energy grid, reducing the risk for owners of large energy assets, and reducing the environmental impact of the energy sector. Acorn’s strategy is to take primarily controlling positions in companies led by great entrepreneurs.

Through our majority- or wholly-owned operating subsidiaries, we provide the following services and products:

- SCR (Selective Catalytic Reduction) catalyst and management services are provided through our CoaLogix subsidiary. SCR systems are used by coal-fired power plants to reduce nitrogen oxides (NOx) emissions.
- Naval and RT Solutions whose activities are focused on the following areas – sonar and acoustic related solutions for energy, defense and commercial markets and other real-time and embedded hardware & software development and production. Naval and RT Solutions activities are provided through our DSIT Solutions Ltd. subsidiary.
- Software for integrated project information and cost control solutions in the energy exploration and power generation markets. The software is used primarily for management of large capital projects. The software and solutions are provided by our Coreworx subsidiary and by Decision Dynamics which was acquired by Coreworx in April 2010.
- Smart grid distribution automation products and services are provided by GridSense which was acquired by us in May 2010. GridSense’s activities also includes the activities of On-Line Monitoring Inc. (“OMI”), a manufacturer of on-line substation monitoring equipment based in Exton, PA which was acquired by GridSense in May 2010. OMI is recognized as a leader in the monitoring of transformer bushings and offers products that provide continuous online testing and measurement of critical substation assets.
- Energy and security sensor systems are provided by our USSI subsidiary which was effectively acquired by us in February 2010. USSI’s primary focus is to develop and produce fiber optic sensing systems for the energy and security markets.

Our Corporate Information

Our executive offices are located at 4 West Rockland Road, Montchanin, Delaware 19710, our telephone number at that location is (302) 656-1707, and our website can be accessed at www.acornenergy.com. Information contained in our website does not constitute part of this prospectus.

RISK FACTORS

An investment in our securities involves a high degree of risk. You should carefully consider the specific risks described under the heading “Risk Factors” in the applicable prospectus supplement, and under the caption “Risk Factors” in any of our filings with the SEC pursuant to Sections 13(a), 14 or 15(d) of the Exchange Act, which are incorporated herein by reference, before making an investment decision. Each of the risks described could adversely and materially affect our business, financial conditions and operating results. As a result, the trading price of our common stock could decline and you may lose all or a part of your investment in our common stock. For more information see “Where You Can Find More Information” and “Incorporation of Certain Documents By Reference,” on page 16 of this prospectus.

USE OF PROCEEDS

Unless we state otherwise in the applicable prospectus supplement accompanying this prospectus, we expect to add substantially all of the net proceeds of the sale of securities by us to our general funds for general corporate purposes, including working capital, the repayment or reduction of long-term and short-term debt and possible acquisitions. We may invest funds that we do not immediately require in short-term marketable securities.

From time to time, we may engage in additional public or private financings of a character and amount which we may deem appropriate.

SECURITIES WE MAY OFFER

We may, from time to time offer under this prospectus, separately or together:

- common stock;
- debt securities;
- warrants to purchase securities;
- rights to purchase common stock; and
- units.

The aggregate initial offering price of the offered securities will not exceed \$20,000,000.

DESCRIPTION OF CAPITAL STOCK

General

Our Certificate of Incorporation, as amended, (the "Certificate of Incorporation") authorizes 30,000,000 shares of capital stock, all of which has been designated as common stock, \$.01 par value per share. We do not have any authorized preferred stock. The foregoing and the following description of capital stock give effect to the Certificate of Incorporation and the provisions of the applicable Delaware law.

Common Stock

The holders of common stock are entitled to one vote per share on all matters to be voted upon by the stockholders. The holders of common stock are entitled to receive ratably any dividends that may be declared from time to time by the board of directors out of funds legally available for that purpose. In the event of our liquidation, dissolution or winding up, the holders of our common stock are entitled to share ratably in all assets remaining after payment of liabilities. The common stock has no preemptive or conversion rights or other subscription rights.

Warrants and Options

As of June 30, 2010, warrants to purchase 233,306 shares of our common stock at a weighted average exercise price of \$4.50 per share, and options to purchase 1,872,665 shares of our common stock at a weighted average exercise price of \$3.82 per share, were outstanding.

Anti-Takeover Provisions

Our By-Laws establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to the board of directors. At an annual meeting, stockholders may consider a proposal or nomination by a person who was a stockholder of record on the record date for the meeting, who is entitled to vote at the meeting and who has given to the Secretary timely written notice, in proper form, of his or her intention to bring that business before the meeting. Our By-laws do not give the board of directors the power to approve or disapprove stockholder nominations of candidates or proposals regarding other business to be conducted at a special or annual meeting of the stockholders. However, our By-laws may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed. These provisions may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of us.

Under Delaware law, a special meeting of stockholders may be called by the board of directors or by any other person authorized to do so in our Certificate of Incorporation or our By-Laws. Our By-Laws authorize only our board of directors or our President to call a special meeting of stockholders. Because our stockholders do not have the right to call a special meeting, a stockholder could not force stockholder consideration of a proposal over the opposition of the board of directors by calling a special meeting of stockholders prior to such time as a majority of the board of directors believed or the President believed the matter should be considered or until the next annual meeting provided that the requestor met the notice requirements. The restriction on the ability of stockholders to call a special meeting means that a proposal to replace the board also could be delayed until the next annual meeting.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer and Trust Company LLC, 59 Maiden Lane, Plaza Level, New York, NY 10038.

DESCRIPTION OF DEBT SECURITIES

This prospectus describes the general terms and provisions of the debt securities we may offer and sell by this prospectus. When we offer to sell a particular series of debt securities, we will describe the specific terms of the series in a prospectus supplement. We will also indicate in the prospectus supplement whether the general terms and provisions described in this prospectus apply to a particular series of debt securities.

We may offer under this prospectus up to \$20,000,000 in aggregate principal amount of debt securities, or if debt securities are issued at a discount, or in a foreign currency or composite currency, such principal amount as may be sold for an initial offering price of up to \$20,000,000. We may offer debt securities in the form of either senior debt securities or subordinated debt securities. The senior debt securities and the subordinated debt securities are together referred to in this prospectus as the “debt securities.” Unless otherwise specified in a prospectus supplement, the senior debt securities will be our direct, unsecured obligations and will rank equally with all of our other unsecured and unsubordinated indebtedness. The subordinated debt securities generally will be entitled to payment only after payment of our senior debt.

The debt securities will be issued under an indenture between us and a trustee, the form of which is filed as an exhibit to the registration statement of which this prospectus forms a part. We have summarized the general features of the debt securities to be governed by the indenture. The summary is not complete. The executed indenture will be incorporated by reference from a Current Report on Form 8-K. We encourage you to read the indenture, because the indenture, and not this summary, will govern your rights as a holder of debt securities. Capitalized terms used in this summary will have the meanings specified in the indenture. References to “we,” “us” and “our” in this section, unless the context otherwise requires or as otherwise expressly stated, refer to Acorn Energy, Inc., excluding its subsidiaries.

Additional Information

The terms of each series of debt securities will be established by or pursuant to a resolution of our board of directors, or a committee thereof, and set forth or determined in the manner provided in an officers’ certificate or by a supplemental indenture. The particular terms of each series of debt securities will be described in a prospectus supplement relating to such series, including any pricing supplement.

We may issue an unlimited amount of debt securities under the indenture, and the debt securities may be in one or more series with the same or various maturities, at par, at a premium or at a discount. Except as set forth in any prospectus supplement, we will also have the right to “reopen” a previous series of debt securities by issuing additional debt securities of such series without the consent of the holders of debt securities of the series being reopened or any other series. Any additional debt securities of the series being reopened will have the same ranking, interest rate, maturity and other terms as the previously issued debt securities of that series. These additional debt securities, together with the previously issued debt securities of that series, will constitute a single series of debt securities under the terms of the applicable indenture.

We will set forth in a prospectus supplement, including any pricing supplement, relating to any series of debt securities being offered, the aggregate principal amount and other terms of the debt securities, which will include some or all of the following:

- the title;

- any limit on the amount that may be issued;

- whether or not we will issue the series of debt securities in global form, and, if so, the terms and the name of the depository;

- the maturity date;

- the interest rate, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

- whether or not the debt securities will be secured or unsecured, and the terms of any securities;

- classification as senior or subordinated debt securities;

- in the case of subordinated debt securities, the degree, if any, to which the subordinated debt securities of the series will be senior to or be subordinated to other indebtedness of our in right of payment, whether the other indebtedness is outstanding or not;

- the terms on which any series of debt securities may be convertible into or exchangeable for our common stock or other of our securities, including (a) provisions as to whether conversion or exchange is mandatory, at the option of the holder or at our option and (b) provisions pursuant to which the number of shares of common stock or other securities of ours that the holders of the series of debt securities receive would be subject to adjustment;

- the place where payments will be payable;

- our right, if any, to defer payment of interest and the maximum length of any such deferral period;

- the date, if any, after which, and the price at which, we may, at our option, redeem the series of debt securities pursuant to any optional redemption provisions;

- the date, if any, on which, and the price at which we are obligated, pursuant to any mandatory sinking fund provisions or otherwise, to redeem, or at the holder's option to purchase, the series of debt securities;

- whether the indenture will restrict our ability to pay dividends, or will require us to maintain any asset ratios or reserves;

- whether we will be restricted from incurring any additional indebtedness;

- any listing of a series of debt securities on a securities exchange or market;

- the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof; and

- any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities.

We will provide information on the applicable United States income tax considerations and other special considerations applicable to any of these debt securities in the applicable prospectus supplement.

If we denominate the purchase price of any of the debt securities in a foreign currency or currencies or a foreign currency unit or units, or if the principal of, and premium and interest on, any series of debt securities is payable in a foreign currency or currencies or a foreign currency unit or units, we will provide you with information on the restrictions, elections, general tax considerations, specific terms and other information with respect to that issue of debt securities and such foreign currency or currencies or foreign currency unit or units in the applicable prospectus supplement.

Transfer And Exchange

Each debt security will be represented by either one or more global securities registered in the name of The Depository Trust Company, as Depository, or a nominee (we will refer to any debt security represented by a global debt security as a “book-entry debt security”), or a certificate issued in definitive registered form (we will refer to any debt security represented by a certificated security as a “certificated debt security”) as set forth in the applicable prospectus supplement.

You may transfer or exchange certificated debt securities at any office we maintain for this purpose in accordance with the terms of the indenture. No service charge will be made for any transfer or exchange of certificated debt securities, but we may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection with a transfer or exchange.

You may effect the transfer of certificated debt securities and the right to receive the principal of, and any premium and interest on, certificated debt securities only by surrendering the certificate representing those certificated debt securities and either reissuance by us or the trustee of the certificate to the new holder or the issuance by us or the trustee of a new certificate to the new holder.

No Protection in the Event of a Change of Control

Unless we state otherwise in the applicable prospectus supplement, the debt securities will not contain any provisions which may afford holders of the debt securities protection in the event we undergo a change in control or in the event of a highly leveraged transaction (whether or not such transaction results in a change in control) which could adversely affect holders of debt securities.

Covenants

We will set forth in the applicable prospectus supplement any restrictive covenants applicable to any issue of debt securities.

Consolidation, Merger and Sale of Assets

We may not consolidate with or merge with or into, or convey, transfer or lease all or substantially all of our properties and assets to, any person, which we refer to as a successor person, unless:

- we are the surviving corporation or the successor person (if other than us) expressly assumes our obligations on the debt securities and under the indenture;
-

immediately after giving effect to the transaction, no event of default, and no event which, after notice or lapse of time, or both, would become an event of default, shall have occurred and be continuing under the indenture; and

- certain other conditions are met, including any additional conditions described in the applicable prospectus supplement.

Events of Default

Event of default means, with respect to any series of debt securities, any of the following:

- default in the payment of any interest upon any debt security of that series when it becomes due and payable, and continuance of that default for a period of 30 days (unless the entire amount of the payment is deposited by us with the trustee or with a paying agent prior to the expiration of the 30-day period);
- default in the payment of principal of or premium on any debt security of that series when due and payable;
- default in the performance or breach of any other covenant or warranty by us in the indenture (other than a covenant or warranty that has been included in the indenture solely for the benefit of a series of debt securities other than that series), which default continues uncured for a period of 90 days after we receive written notice from the trustee or we and the trustee receive written notice from the holders of not less than a majority in principal amount of the outstanding debt securities of that series as provided in the indenture;
 - certain events of bankruptcy, insolvency or reorganization of our company; and
- any other event of default provided with respect to debt securities of that series that is described in the applicable prospectus supplement.

No event of default with respect to a particular series of debt securities (except as to certain events of bankruptcy, insolvency or reorganization) necessarily constitutes an event of default with respect to any other series of debt securities. The occurrence of an event of default may constitute an event of default under our bank credit agreements in existence from time to time. In addition, the occurrence of certain events of default or an acceleration under the indenture may constitute an event of default under certain of our other indebtedness outstanding from time to time.

If an event of default with respect to debt securities of any series at the time outstanding occurs and is continuing, then the trustee or the holders of not less than a majority in principal amount of the outstanding debt securities of that series may, by a notice in writing to us (and to the trustee if given by the holders), declare to be due and payable immediately the principal (or, if the debt securities of that series are discount securities, that portion of the principal amount as may be specified in the terms of that series) of, and accrued and unpaid interest, if any, on all debt securities of that series. In the case of an event of default resulting from certain events of bankruptcy, insolvency or reorganization, the principal (or such specified amount) of and accrued and unpaid interest, if any, on all outstanding debt securities will become and be immediately due and payable without any declaration or other act on the part of the trustee or any holder of outstanding debt securities. At any time after a declaration of acceleration with respect to debt securities of any series has been made, but before a judgment or decree for payment of the money due has been obtained by the trustee, the holders of a majority in principal amount of the outstanding debt securities of that series may rescind and annul the acceleration if all events of default, other than the non-payment of accelerated principal and interest, if any, with respect to debt securities of that series, have been cured or waived as provided in the indenture. We refer you to the prospectus supplement relating to any series of debt securities that are discount securities for the particular provisions relating to acceleration of a portion of the principal amount of such discount securities upon the occurrence of an event of default.

The indenture provides that the trustee will be under no obligation to exercise any of its rights or powers under the indenture at the request of any holder of outstanding debt securities, unless the trustee receives indemnity satisfactory to it against any loss, liability or expense. Subject to certain rights of the trustee, the holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee or exercising any trust or power conferred on the trustee with respect to the debt securities of that series.

No holder of any debt security of any series will have any right to institute any proceeding, judicial or otherwise, with respect to the indenture or for the appointment of a receiver or trustee, or for any remedy under the indenture, unless:

- that holder has previously given to the trustee written notice of a continuing event of default with respect to debt securities of that series; and
- the holders of at least a majority in principal amount of the outstanding debt securities of that series have made written request, and offered reasonable indemnity, to the trustee to institute the proceeding as trustee, and the trustee has not received from the holders of a majority in principal amount of the outstanding debt securities of that series a direction inconsistent with that request and has failed to institute the proceeding within 60 days.

Notwithstanding the foregoing, the holder of any debt security will have an absolute and unconditional right to receive payment of the principal of, and any premium and interest on, that debt security on or after the due dates expressed in that debt security and to institute suit for the enforcement of payment.

If any securities are outstanding under the indenture, the indenture requires us, within 120 days after the end of our fiscal year, to furnish to the trustee a statement as to compliance with the indenture. The indenture provides that the trustee may withhold notice to the holders of debt securities of any series of any default or event of default (except in payment on any debt securities of that series) with respect to debt securities of that series if it in good faith determines that withholding notice is in the interest of the holders of those debt securities.

Modification And Waiver

We may modify and amend the indenture with the consent of the holders of at least a majority in principal amount of the outstanding debt securities of each series affected by the modifications or amendments. We may not make any modification or amendment without the consent of the holders of each affected debt security then outstanding if that amendment will:

- reduce the amount of debt securities whose holders must consent to an amendment or waiver;
- reduce the rate of or extend the time for payment of interest (including default interest) on any debt security;
- reduce the principal of, or premium on, or change the fixed maturity of, any debt security or reduce the amount of, or postpone the date fixed for, the payment of any sinking fund or analogous obligation with respect to any series of debt securities;
- reduce the principal amount of discount securities payable upon acceleration of maturity;

- waive a default in the payment of the principal of, or premium or interest on, any debt security (except a rescission of acceleration of the debt securities of any series by the holders of at least a majority in aggregate principal amount of the then outstanding debt securities of that series and a waiver of the payment default that resulted from such acceleration)
- make the principal of, or premium or interest on, any debt security payable in currency other than that stated in the debt security;
- make any change to certain provisions of the indenture relating to, among other things, the right of holders of debt securities to receive payment of the principal of, and premium and interest on, those debt securities and to institute suit for the enforcement of any such payment and to waivers or amendments; or
 - waive a redemption payment with respect to any debt security.

Except for certain specified provisions, the holders of at least a majority in principal amount of the outstanding debt securities of any series may on behalf of the holders of all debt securities of that series waive our compliance with provisions of the indenture. The holders of a majority in principal amount of the outstanding debt securities of any series may on behalf of the holders of all the debt securities of such series waive any past default under the indenture with respect to that series and its consequences, except a default in the payment of the principal of, or any premium or interest on, any debt security of that series or in respect of a covenant or provision, which cannot be modified or amended without the consent of the holder of each outstanding debt security of the series affected; provided, however, that the holders of a majority in principal amount of the outstanding debt securities of any series may rescind an acceleration of the debt securities of such series and its consequences, including any related payment default that resulted from the acceleration.

Discharging Our Obligations

We may choose to either discharge our obligations on the debt securities of any series in a legal defeasance, or to release ourselves from our covenant restrictions on the debt securities of any series in a covenant defeasance. We may do so at any time after we deposit with the trustee sufficient cash or government securities to pay the principal, interest, any premium and any other sums due to the stated maturity date or a redemption date of the debt securities of the series. If we choose the legal defeasance option, the holders of the debt securities of the series will not be entitled to the benefits of the indenture except for registration of transfer and exchange of debt securities, replacement of lost, stolen, destroyed or mutilated debt securities, conversion or exchange of debt securities, sinking fund payments and receipt of principal and interest on the original stated due dates or specified redemption dates.

We may discharge our obligations under the indenture or release ourselves from covenant restrictions only if, in addition to making the deposit with the trustee, we meet some specific requirements. Among other things:

- we must deliver an opinion of our legal counsel that the discharge will not result in holders having to recognize taxable income or loss or subject them to different tax treatment. In the case of legal defeasance, this opinion must be based on either an IRS letter ruling or change in federal tax law;
 - we may not have a default on the debt securities discharged on the date of deposit;
 - the discharge may not violate any of our agreements; and

- the discharge may not result in our becoming an investment company in violation of the Investment Company Act of 1940.

Governing Law

The indenture and the debt securities will be governed by, and construed in accordance with, the internal laws of the State of New York, without regard to conflict of law principles that would result in the application of any law other than the laws of the State of New York.

DESCRIPTION OF WARRANTS

We may issue, either separately or together with other securities, warrants for the purchase of any securities, including any combination of common stock or debt securities that we may sell under this prospectus. Warrants may be issued separately or together with other securities.

The warrants will be issued under warrant agreements to be entered into between us and the warrant holder as set forth in the applicable prospectus supplement relating to any or all warrants with respect to which this prospectus is being delivered. Copies of the form of agreement for each warrant, which we refer to collectively as “warrant agreements,” including the forms of certificates representing the warrants, which we refer to collectively as “warrant certificates,” and reflecting the provisions to be included in such agreements that will be entered into with respect to a particular offering of each type of warrant, will be filed with the SEC and incorporated by reference as exhibits to the registration statement of which this prospectus is a part or as an exhibit to a Current Report on Form 8-K.

The following description sets forth certain general terms and provisions of the warrants to which any prospectus supplement may relate. The particular terms of the warrants to which any prospectus supplement may relate and the extent, if any, to which the general provisions may apply to the warrants so offered will be described in the applicable prospectus supplement. To the extent that any particular terms of the warrants, warrant agreements or warrant certificates described in a prospectus supplement differ from any of the terms described in this section, then the terms described in this section will be deemed to have been superseded by that prospectus supplement. We encourage you to read the applicable warrant agreement and certificate for additional information before you purchase any of our warrants.

General

The prospectus supplement will describe the terms of the warrants with respect to which this prospectus is being delivered, as well as the related warrant agreement and warrant certificates, including the following, where applicable:

- the number of, securities purchasable upon exercise of each warrant and the initial price at which the number of securities may be purchased upon such exercise;
- the designation and terms of the securities, if other than common stock, purchasable upon exercise of the warrants and of any securities, if other than common stock, with which the warrants are issued;
- the procedures and conditions relating to the exercise of the warrants;
- the date, if any, on and after which the warrants, and any securities with which the warrants are issued, will be separately transferable;

- the offering price, if any, of the warrants;
- the date on which the right to exercise the warrants will commence and the date on which that right will expire;

if applicable, a discussion of the material United States federal income tax considerations applicable to the exercise of the warrants;

whether the warrants represented by the warrant certificates will be issued in registered or bearer form and, if registered, where they may be transferred and registered;

- call provisions, if any, of the warrants;
- antidilution provisions, if any, of the warrants; and
- any other material terms of the warrants.

The description of warrants in the prospectus supplement will not necessarily be complete and will be qualified in its entirety by reference to the warrant agreement and warrant certificate relating to the warrants being offered.

Exercise of Warrants

Each warrant will entitle the holder to purchase for cash that principal amount of, or number of, securities, as the case may be, at the exercise price set forth in, or to be determined as set forth in, the applicable prospectus supplement relating to the warrants. If mentioned in the relevant prospectus supplement, securities may be surrendered as all or part of the exercise of the warrants. Unless otherwise specified in the applicable prospectus supplement, warrants may be exercised as indicated in the applicable prospectus supplement at any time up to the close of business, New York City time, on the expiration date set forth in the applicable prospectus supplement. After the close of business, New York City time, on the expiration date, unexercised warrants will become void. Upon receipt of payment and the warrant certificate properly completed and duly executed, we will, as soon as practicable, issue the securities purchasable upon exercise of the warrant. If less than all of the warrants represented by the warrant certificate are exercised, a new warrant certificate will be issued for the remaining amount of warrants.

No Rights of Security Holder Prior to Exercise

Before the exercise of their warrants, holders of warrants will not have any of the rights of holders of the securities purchasable upon the exercise of the warrants, and will not be entitled to, among other things, vote or receive dividend payments or similar distributions on the securities purchasable upon exercise.

Exchange of Warrant Certificates

Warrant certificates may be exchangeable for new warrant certificates of different denominations as indicated in the applicable prospectus supplement.

DESCRIPTION OF RIGHTS

We may issue rights to our stockholders for the purchase of shares of our common stock. Each series of rights will be issued under a separate rights agreement to be entered into between our company and a bank or trust company, as rights agent, all as set forth in the prospectus supplement relating to the particular issue of rights. The rights agent will act solely as an agent of our company in connection with the certificates relating to the rights of such series and will not assume any obligation or relationship of agency or trust for or with any holders of rights certificates or beneficial owners of rights. The rights agreement and the form of rights certificate relating to each series of rights will be filed with the SEC and incorporated by reference as an exhibit to the registration statement of which this prospectus is a part or as an exhibit to a Current Report on Form 8-K. We encourage you to read the applicable rights agreement and form of rights certificate before you purchase any of our rights.

DESCRIPTION OF UNITS

We may issue units to purchase one or more of the securities referenced herein. The terms of such units will be set forth in a prospectus supplement. The form of units and the applicable unit agreement will be filed with the SEC and incorporated by reference as exhibits to the registration statement of which this prospectus is a part or as an exhibit to a Current Report on Form 8-K. We encourage you to read the applicable unit agreement and form of unit before you purchase any of our units.

PLAN OF DISTRIBUTION

We may sell the offered securities (1) through underwriters or dealers; (2) directly to purchasers, including our affiliates and shareholders, or in a rights offering; (3) through agents; or (4) through a combination of any of these methods. The prospectus supplement will include the following information:

- the terms of the offering;
- the names of any underwriters, dealers or agents;
- the name or names of any managing underwriter or underwriters;
- the purchase price of the securities;
- the net proceeds from the sale of the securities;
- any over-allotment options under which underwriters may purchase additional securities from us;
- any delayed delivery arrangements;
- any underwriting discounts or commissions or agency fees and other items constituting underwriters' or agent's compensation;
- any discounts, commissions, or concessions allowed or reallocated or paid to dealers;
- any commissions paid to agents; and
- any securities exchanges or markets on which the securities may be listed.

Any initial public offering price and any discounts or concessions allowed or reallocated or paid to dealers may be changed from time to time.

Underwriters may offer and sell the offered securities from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. If underwriters are used in the sale of any securities, the securities will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions described above. The securities may be either offered to the public through underwriting syndicates represented by managing underwriters, or directly by underwriters. Unless we inform you otherwise in the prospectus supplement or free-writing prospectus, the underwriters' obligations to purchase the securities will be subject to certain conditions precedent and the underwriters will be obligated to purchase all of the securities if they purchase any of the securities. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement or free writing prospectus, naming the underwriter, the nature of any such relationship.

We may sell the securities directly or through agents from time to time. The prospectus supplement or free writing prospectus will name any agent involved in the offer or sale of the securities and any commissions we pay to them. Unless we inform you otherwise in the prospectus supplement or free-writing prospectus, any agent will be acting on a best efforts basis for the period of its appointment.

We may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act with respect to any sale of those securities. We will describe the terms of any such sales in the prospectus supplement or free-writing prospectus.

We may also make direct sales through subscription rights distributed to our existing stockholders on a pro rata basis that may or may not be transferable. In any distribution of subscription rights to our stockholders, if all of the underlying securities are not subscribed for, we may then sell the unsubscribed securities directly to third parties or we may engage the services of one or more underwriters, dealers or agents, including standby underwriters, to sell the unsubscribed securities to third parties.

Offered securities also may be offered and sold, if so indicated in the applicable prospectus supplement or free-writing prospectus, in connection with a remarketing upon their purchase, in accordance with a redemption or repayment pursuant to their terms, or otherwise, by one or more remarketing firms, acting as principals for their own accounts or as agents for us. Any remarketing firm will be identified and the terms of its agreements, if any, with us and its compensation will be described in the applicable prospectus supplement. Remarketing firms may be deemed to be underwriters, as that term is defined in the Securities Act, in connection with the securities remarketed.

We may engage in at-the-market offerings of our common stock. An at-the-market offering is an offering of our common stock at other than a fixed price or through a market maker.

We may authorize underwriters, dealers or agents to solicit offers by certain purchasers to purchase the securities from us at the public offering price set forth in the prospectus supplement or free writing prospectus pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. The contracts will be subject only to those conditions set forth in the prospectus supplement or free writing prospectus, and the prospectus supplement or free writing prospectus will set forth any commissions we pay for solicitation of these contracts.

Agents and underwriters may be entitled to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments which the agents or underwriters may be required to make in respect thereof. Agents and underwriters may be customers of, engage in transactions with, or perform

services for us in the ordinary course of business.

All securities we offer, other than common stock, will be new issues of securities with no established trading market. Any underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. We cannot guarantee the liquidity of the trading markets for any securities.

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Overallotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases of the securities in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time.

Any underwriters who are qualified market makers on the Nasdaq Global Market may engage in passive market making transactions in our common stock, warrants, debt securities, rights or units, as applicable, on the Nasdaq Global Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

Broker-dealers engaged by us may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from us (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this Prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with NASD Rule 2440; and in the case of a principal transaction a markup or markdown in compliance with NASD IM-2440-1 and IM-2440-2.

In connection with the sale of the common stock or interests therein, we may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. We may also sell shares of the common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. We may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

We and any broker-dealers or agents that are involved in selling the securities 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 securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. In no event shall any broker-dealer receive fees, commissions and markups which, in the aggregate, would exceed eight percent (8%).

LEGAL MATTERS

The validity of the issuance of securities offered by this prospectus will be passed upon for us by Eilenberg & Krause LLP, New York, New York.

EXPERTS

The financial statements incorporated in this Prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2009 of Acorn Energy, Inc. 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. Such consolidated financial statements have been so included in reliance upon the report of such firm given upon their authority as experts in accounting and auditing. The financial statements of Decision Dynamics Technology Ltd. incorporated in this prospectus by reference to Amendment No. 1 on Form 8-K/A filed on July 15, 2010 to our Current Report on Form 8-K ("Amendment No. 1") have been so incorporated in reliance on the report of KPMG LLP, independent registered public accounting firm, included in Amendment No. 1, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file reports, proxy statements and other information with the SEC. Copies of our reports, proxy statements and other information may be inspected and copied at the SEC's Public Reference Room at 100 F. Street, N.E., Washington, D.C. 20549. Copies of these materials can also be obtained by mail at prescribed rates from the Public Reference Room of the SEC, 100 F. Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an internet site that contains reports, proxy and information statements and other information regarding our company and other issuers that file electronically with the SEC. The address of the SEC internet site is www.sec.gov. This information is also available on our website at www.acornenergy.com. Information contained in our website does not constitute part of this prospectus.

We have filed a registration statement on Form S-3 under the Securities Act with the SEC with respect to the securities to be sold hereunder. This prospectus has been filed as part of that registration statement. This prospectus does not contain all of the information set forth in the registration statement because certain parts of the registration statement are omitted in accordance with the rules and regulations of the SEC. We will provide a copy of any and all of the information that is incorporated by reference in this prospectus, without charge, upon written or oral request. If you would like to obtain this information from us, please direct your request, either in writing or by telephone, to Investor Relations, Acorn Energy, Inc., 4 West Rockland Road, Montchanin, DE 19710, Attention: Joe B. Cogdell, Jr., Secretary, (302) 656-1707.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus the information we have filed with the SEC. This means that we can disclose important information by referring you to those documents. All documents that we subsequently file with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, prior to the termination of this offering, will be deemed to be incorporated by reference into this prospectus and to be a part hereof from the date of filing of such documents. Unless expressly incorporated into this prospectus, a Current Report (or portion thereof) furnished, but not filed, on Form 8-K shall not be incorporated by reference into this prospectus. Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus shall be deemed to be modified or superseded for purposes of this prospectus 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 prospectus.

We incorporate by reference the following documents that we have filed with the SEC and any filings that we will make with the SEC in the future under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act until this offering is terminated:

- Annual Report on Form 10-K for the fiscal year ended December 31, 2009 filed on March 22, 2010;
- Current Report on Form 8-K filed on February 24, 2010 (except as to Item 7.01 thereof which is not incorporated by reference herein)
- Current Report on Form 8-K filed on March 4, 2010 (except as to Item 7.01 thereof which is not incorporated by reference herein);
 - Current Report on Form 8-K filed on March 9, 2010;
 - Current Report on Form 8-K filed on April 9, 2010;
- Current Report on Form 8-K filed on May 4, 2010 (except as to Item 7.01 thereof which is not incorporated by reference herein) and amended on Form 8-K/A filed on May 5, 2010 and amended on Form 8-K/A filed on July 15, 2010;
 - Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2010 filed on May 13, 2010;
- Current Report on Form 8-K filed on May 13, 2010 (except as to Item 7.01 thereof which is not incorporated by reference herein) and amended on Form 8-K/A filed on June 17, 2010;
 - Current Report on Form 8-K filed on June 16, 2010;
 - Current Report on Form 8-K filed July 27, 2010;
- Current Report on Form 8-K filed July 30, 2010 and amended on Form 8-K/A filed on July 30, 2010;
- Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2010 filed on August 12, 2010;
- The description of our Common Stock contained in our Form 8-A filed December 13, 2007; and
- All documents filed by us with the SEC pursuant to the Exchange Act after the date of the initial filing of the registration statement of which this prospectus is a part and prior to the effectiveness thereof.

Copies of these filings are available free of charge by writing to Acorn Energy, Inc., 4 West Rockland Road, Montchanin, Delaware 19710, Attention: Joe B. Cogdell, Jr., Secretary, or by telephoning us at (302) 656-1707. We will also provide to each person, including any beneficial owner, to whom a prospectus is delivered, a copy of any or all of the information that has been incorporated by reference in the prospectus but not delivered with the prospectus. See "Where You Can Find More Information."

Any statement made in this prospectus concerning the contents of any contract, agreement or other document is only a summary of the actual document. You may obtain a copy of any document summarized in this prospectus at no cost by writing to or telephoning us at the address and telephone number given above. Each statement regarding a contract, agreement or other document is qualified in its entirety by reference to the actual document.

\$20,000,000

Common Stock

Debt Securities

Warrants

Rights

Units

_____, 2010

PART II

INFORMATION NOT REQUIRED IN THE PROSPECTUS

ITEM 14. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

Expenses payable in connection with the registration and distribution of the securities being registered hereunder, all of which will be borne by the Registrant, are as follows. All amounts are estimates, except the SEC registration fee.

| | | |
|------------------------------|----|-----------|
| SEC registration fee | \$ | 1,426.00 |
| Printer expenses | | 5,000.00 |
| Trustee fees and expenses | | 15,000.00 |
| Legal fees and expenses | | 15,000.00 |
| Accounting fees and expenses | | 15,000.00 |
| Miscellaneous | | 2,000.00 |
| Total | \$ | 53,426.00 |

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.

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ITEM 16. EXHIBITS

The following exhibits are filed herewith or incorporated by reference herein:

| Exhibit | Description |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1 | Certificate of Incorporation of the Registrant, with amendments thereto (incorporated herein by reference to Exhibit 3.1 to the Registrant's Registration Statement on Form S 1 (File No. 33- 70482). |
| 3.2 | Certificate of Ownership and Merger dated September 15, 2006 effecting the name change to Acorn Factor, Inc. (incorporated herein by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed September 21, 2006) |
| 3.3 | Certificate of Ownership and Merger dated December 21, 2007 effecting the name change to Acorn Energy, Inc. (incorporated herein by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed January 3, 2008). |
| 3.4 | Certificate of Amendment to the Certificate of Incorporation, filed with the Secretary of State of the State of Delaware on June 15, 2010 (incorporated herein by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed June 16, 2010). |
| 3.5 | By laws of the Registrant (incorporated herein by reference to Exhibit 3.2 to the Registrant's Registration Statement on Form S-1 (File No. 33-44027). |
| 3.6 | Amendments to the By-laws of the Registrant adopted December 27, 1994 (incorporated herein by reference to Exhibit 3.3 of the Registrant's Current Report on Form 8-K dated January 10, 1995). |
| 4.1 | Specimen certificate for the Common Stock (incorporated herein by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-1 (File No. 33-44027). |
| 4.2 | Form of Indenture for Debt Securities of Acorn Energy, Inc. (incorporated herein by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S 1 (File No. 333-161315) filed on August 13, 2009). |
| **4.3 | Form of Debt Securities. |
| **4.4 | Form of Warrant Agreement. |
| **4.5 | Form of Unit Agreement. |
| **4.6 | Form of Rights Agreement. |
| *5.1 | Opinion of Eilenberg & Krause LLP. |
| *23.1 | Consent of Kesselman & Kesselman. |
| *23.2 | Consent of KPMG LLP |
| *23.2 | Consent of Eilenberg & Krause LLP (included in Exhibit 5.1). |

- *24.1 Power of Attorney of certain directors and officers of the Registrant (included in signature page of this Registration Statement).
- 25.1 Statement of Eligibility of trustee on Form T-1 (to be filed pursuant to Rule 302(b)(2) of the Trust Indenture Act).

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* Filed herewith.

**If applicable, to be filed by amendment or by a report filed under the Securities Exchange Act of 1934, as amended, and incorporated herein by reference.

ITEM 17. UNDERTAKINGS

(a) 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 the 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 SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20-percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;

(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 (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 or Form F-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 SEC by the registrant pursuant to section 13 or section 15(d) of the Exchange Act 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, 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.

(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 to any purchaser:

(i) If the registrant is relying on Rule 430B:

(A) Each prospectus filed by the registrant pursuant to Rule 424 (b)(3) shall be deemed to be part of this Registration Statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424 (b)(2), or (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. 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 effective date, 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 effective date; or

(ii) If the registrant is subject to Rule 430C, 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, 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 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) 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 Section 13(a) or Section 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.

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(c) The undersigned registrant hereby undertakes to supplement the prospectus, after the expiration of the subscription period, to set forth the results of the subscription offer, the transactions by the underwriters during the subscription period, the amount of unsubscribed securities to be purchased by the underwriters, and the terms of any subsequent reoffering thereof. If any public offering by the underwriters is to be made on terms differing from those set forth on the cover page of the prospectus, a post-effective amendment will be filed to set forth the terms of such offering.

(d) The undersigned registrant hereby undertakes to deliver or cause to be delivered with the prospectus, to each person to whom the prospectus is sent or given, the latest annual report to security holders that is incorporated by reference in the prospectus and furnished pursuant to and meeting the requirements of Rule 14a-3 or Rule 14c-3 under the Exchange Act; and, where interim financial information required to be presented by Article 3 of Regulation S-X are not set forth in the prospectus, to deliver, or cause to be delivered to each person to whom the prospectus is sent or given, the latest quarterly report that is specifically incorporated by reference in the prospectus to provide such interim financial information.

(e) 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 SEC, 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 the Act and will be governed by the final adjudication of such issue.

(f) The undersigned registrant hereby undertakes that:

(1) for purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective; and

(2) for the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus 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.

(g) The undersigned registrant hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the Commission under Section 305(b)(2) of the Act.

SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant certifies that it has reasonable grounds to believe it meets all requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Montchanin, State of Delaware, on September 16, 2010.

ACORN ENERGY, INC.

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

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints John A. Moore, Joe B. Cogdell, Jr., or either of them, his or her true and lawful attorney-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement, and to sign any related Registration Statement filed pursuant to Rule 462(b) under the Security Act of 1933, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granted unto said attorney-in-fact and agents, full power and authority to do and to perform each and every act and thing required and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agents, or any of them or their substitutes or substitutes, could lawfully do or cause to be done by virtue hereof. Pursuant to the requirements of the Securities Act, this Registration Statement has been signed by the following persons in the capacities indicated on September 16, 2010.

| Signature | Title |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <p>/s/ John A. Moore John A. Moore</p> | <p>Chairman of the Board, President, Chief Executive Officer and Director (Principal Executive Officer)</p> |
| <p>/s/ Michael Barth Michael Barth</p> | <p>Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)</p> |
| <p>/s/ Richard J. Giacco Richard J. Giacco</p> | <p>Director</p> |
| <p>/s/ George Morgenstern George Morgenstern</p> | <p>Director</p> |
| <p>Joseph Musanti</p> | <p>Director</p> |

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/s/ Richard Rimer
Richard Rimer

Director

/s/ Samuel M. Zentman
Samuel M. Zentman

Director

Steven Ledger

Director

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