

[LOGO OF ELECTRIC FUEL]/(R)/
Corporation

346,121 Shares of Common Stock

We are offering by this prospectus supplement an aggregate of 346,121 shares of our common stock. Our common stock is listed on the Nasdaq National Market under the symbol "EFCX." The last reported sale price for the common stock on September 10, 2001 as quoted on the Nasdaq National Market was \$2.75 per share.

We will issue the shares to the individuals identified under the caption "Plan of Distribution" in lieu of cash payments in exchange for services rendered or in payment of our share of certain shared expenses. We expect to deliver the shares in New York, New York on September 20, 2001.

See "Risk Factors" on page 3 of the accompanying prospectus for various risks you should consider before you purchase 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 supplement is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is September 17, 2001

You should rely only on the information contained or incorporated by reference in this prospectus supplement and the attached prospectus. We have not authorized any person to provide you with any information or to make any representations not contained or incorporated by reference in this prospectus supplement or the attached prospectus dated July 20, 2001. This prospectus supplement is part of, and you must read it in addition to, the attached prospectus. You should assume that the information contained or incorporated by reference in this prospectus supplement and the attached prospectus is accurate as of the date on the front cover of this prospectus supplement only.

The distribution of this prospectus supplement and the attached prospectus, and the offering of the common stock, may be restricted in some jurisdictions. You should inform yourself about, and observe, any of these restrictions. This prospectus supplement and the attached prospectus do not constitute, and may not be used in connection with, an offer to sell or a solicitation of an offer to buy any of the shares offered hereby in any jurisdiction to any person to whom it is unlawful to make such an offer in that jurisdiction.

USE OF PROCEEDS

We will not receive any proceeds from the issuance of the shares offered by us, other than the services rendered to us in exchange for the issuance of these shares.

PLAN OF DISTRIBUTION

We have agreed with Cinevision USA, Inc. that we will issue to Cinevision a total of 8,550 registered shares of common stock in compensation for services rendered by Cinevision for preparation of certain video point-of-purchase and sales demonstration materials for us, and we have agreed with Ceba Ltd. that we will issue to Ceba a total of 69,000 registered shares of common stock in compensation for marketing and sales promotion services rendered by Ceba in connection with our subsidiary in the United Kingdom. We have also agreed with Ceba that we may pay our share of their overhead costs, amounting to \$33,333.33 per month plus value added tax in the United Kingdom at a rate of 17.5%, or a total of \$39,166.67 per month, by issuing shares of our stock to Ceba. In this connection we are issuing a total of 268,571 shares to Ceba, having a value as of the end of trading on September 10, 2001 of \$470,000, which represents our share of Ceba's overhead costs for the year 2001. We are bearing the expenses of this registration.

Each of Cinevision and Ceba has advised us that it is not acting as an underwriter, placement agent, broker or dealer in connection with its acquisition of our common stock and that it is receiving our common stock for its own account and not with a view to distribution.

Electric Fuel(R)
Corporation

5,400,000 Shares
Common Stock

We may offer from time to time, in one or more issuances, up to 5,400,000 shares of our common stock.

We will provide you with the specific terms of any particular offering in supplements to this prospectus at the time a particular offer is made. You should read this prospectus and any supplement carefully before you invest. This prospectus may not be used to sell shares unless accompanied by a prospectus supplement.

We will offer our common stock in an amount and on terms that market conditions will determine at the time of the offering. Our common stock is listed on the Nasdaq National Market under the ticker symbol "EFCX". The last reported sale price for our common stock on July 19, 2001 as quoted on the Nasdaq National Market was \$2.35 per share.

See "Risk Factors" on page 3 for various risks that you should consider before you purchase 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 July 20, 2001

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that Electric Fuel Corporation ("we" or "Electric Fuel") filed with the Securities and Exchange Commission using a "shelf" registration process. Using this process, we may offer up to 350,000 of the shares of common stock described in this prospectus in one or more offerings. This prospectus provides you with a general description of the shares we may offer. Each time we offer shares, we will provide you a prospectus supplement and any pricing supplement that will contain information about the specific terms of that particular offering. The prospectus supplement or pricing supplement may also add, update or change information contained in this prospectus. To obtain additional information that may be important to you, you should read the exhibits filed by us with this registration statement or our other filings with the Securities and Exchange Commission. You also should read this prospectus and any prospectus supplement or pricing supplement together with the additional information described under the heading "Where You Can Find More Information."

Unless the context otherwise requires, references to us - Electric Fuel - refer to Electric Fuel Corporation and our subsidiaries.

Our executive offices are located at 632 Broadway, Suite 301, New York, New York 10012. Our telephone number at that address is (212) 529-9200, and our Internet address is www.electric-fuel.com. Information on our website does not constitute part of this prospectus.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We file annual, quarterly and special reports, proxy statements and other information with the Securities and Exchange Commission. You can read and copy any materials we file with the Securities and Exchange Commission at its Public Reference Room at 450 Fifth Street, N.W., Washington, D.C. 20549 and at its regional offices located at Seven World Trade Center, New York, New York 10048 and at 500 West Madison Street, Chicago, Illinois 60661. You can obtain information about the operations of the Securities and Exchange Commission Public Reference Room by calling the Securities and Exchange Commission at 1-800-SEC-0330. The Securities and Exchange Commission also maintains a Website that contains information we file electronically with the Securities and Exchange Commission, which you can access over the Internet at <http://www.sec.gov>.

This prospectus is part of a registration statement we have filed with the Securities and Exchange Commission relating to the shares of our common stock being offered hereby. As permitted by Securities and Exchange Commission rules, this prospectus does not contain all of the information we have included in the registration statement and the accompanying exhibits we file with the Securities and Exchange Commission. You may refer to the registration statement and the exhibits for more information about us and our common stock. The registration statement and the exhibits are available at the Securities and Exchange Commission's Public Reference Room or through its Website.

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INCORPORATION OF DOCUMENTS BY REFERENCE

The Securities and Exchange Commission allows us to "incorporate by reference" the information we file with it, which means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is an important part of this prospectus, and later information that we file with the Securities and Exchange Commission will automatically update and supersede some of this information. We incorporate by reference the documents listed below, and any future filings we make with the Securities and Exchange Commission under Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 until we sell all of the shares of our common stock being offered by this prospectus, or we terminate the offering. The documents we incorporate by reference are:

- . our quarterly report on Form 10-Q for the fiscal quarter ended March 31, 2001;
- . Our two current reports on Form 8-K filed with the Securities and Exchange Commission on May 7, 2001;
- . our annual report on Form 10-K for the year ended December 31, 2000; and
- . the description of our common stock contained in our registration statement on Form 8-A, Commission File No. 0-23336, as filed with the Securities and Exchange Commission on February 2, 1994.

We will provide to each person, including any beneficial owner, to whom this prospectus and applicable prospectus supplement are delivered, upon request, a copy of these filings (other than an exhibit to the filings unless we have specifically incorporated that exhibit by reference into the filing), at no cost, by writing or telephoning us at the following address:

Electric Fuel Corporation
632 Broadway, Suite 301
New York, New York 10012
Attention: Chief Executive Officer
(212) 529-9200

You should rely only on the information incorporated by reference or provided in this prospectus or any prospectus supplement. We have not authorized anyone else to provide you with different information. We may only use this prospectus to sell shares of common stock if it is accompanied by a prospectus supplement. This prospectus may only be used where it is legal to sell the shares of common stock being offered hereby. You should not assume that the information appearing in this prospectus or in any applicable prospectus

supplement is accurate as of any date other than the date on the front of those documents.

RISK FACTORS

You should consider carefully the following risk factors in addition to the other information in this prospectus and any prospectus supplement before purchasing our common stock. Investing in our common stock involves a high degree of risk. Any of the following risks could seriously harm our business and could result in a complete loss of your investment. See also the section entitled "Information Regarding Forward-Looking Statements" on page 9, below.

We have had a history of losses and may incur future losses.

We were incorporated in 1990 and began our operations in 1991. We have funded our operations principally from funds raised in each of the initial public offering of our common stock in February 1994, the offering of our common stock in February 1996, a private placement of our common stock in October 1996, and private placements of our common stock in December 1999, January 2000 and May 2000, and our public offerings in November 2000 and May 2001; funds from licensing arrangements; research contracts and supply contracts; funds received under research and development grants from the Government of Israel; and sales of Instant Power batteries, Instant Power chargers, and lifejacket lights. We incurred significant operating losses for the years ended December 31,

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1996, 1997, 1998, 1999 and 2000 and for the quarter ended March 31, 2001, and expect to continue to incur significant operating losses in the remainder of 2001. These losses may increase as we expand our research and development activities and establish production facilities, and these losses may fluctuate from quarter to quarter. There can be no assurance that we will ever achieve profitability or that our business will continue to exist.

We need significant amounts of capital to operate and grow our business.

We require substantial funds to conduct the necessary research, development and testing of our products; to establish commercial scale manufacturing facilities; and to market our products. In order to satisfy existing orders of batteries in commercial quantities, we need to implement our automated production line and, in the future, may need to upgrade or expand our automated production line to satisfy future orders. We plan to expand both sales and production activities, which will require additional funding. We continue to seek additional funding, including through the issuance of equity or debt securities. However, there can be no assurance that we will obtain any such additional financing in a timely manner and on acceptable terms. If additional funds are raised by issuing equity securities, stockholders may incur further dilution. If additional funding is not secured, we will have to modify, reduce, defer or eliminate parts of our anticipated future commitments and/or programs.

We cannot assure you of market acceptance of our products.

In 2000, we began commercial deliveries of our cell phone battery and charger products. However, our battery and charger for cell phones have not yet been widely accepted by the consumer products market for this application. Furthermore, while we have developed batteries and chargers for several models of cell phones and PDAs, we do not have such products for many models. We cannot assure you that the Electric Fuel cell phone battery or charger will be competitive either in terms of price or performance or that we will be able to sell our cell phone batteries or chargers in commercial quantities. While we have successfully marketed our products to retailers such as Wal-Mart, certain of our customers have indicated to us in response to slower than anticipated initial sales results that we would benefit from educating consumers as to the advantages of disposable batteries and chargers for cellphones and PDAs.

Other than our cell phone battery and charger and a signal light powered by water-activated batteries for use in life jackets and other rescue apparatus, we currently have no commercial products available for sale. While we expect to increase production of our cell phone batteries and chargers to commercial levels in 2001, significant resources will be required to develop our capacity to produce cell phone batteries and chargers on a commercial scale. Additional development will also be necessary in order to commercialize our technology and each of the components of the Electric Fuel System for electric vehicles and defense products. We cannot assure you that we will be able to successfully develop, engineer or commercialize our products, technology or system components, or that we will be able to develop products for commercial sale or that, if developed, they can be produced in commercial quantities or at acceptable costs or be successfully marketed. The likelihood of our future success must be considered in light of the risks, expenses, difficulties and delays frequently encountered in connection with the operation and development of a relatively early stage business and with development activities generally.

We believe that public pressure and government initiatives are important factors in creating an electric vehicle market. However, there can be no

assurance that there will be sufficient public pressure or that further legislation or other governmental initiatives will be enacted, or that current legislation will not be repealed, amended, or have its implementation delayed. In addition, we are subject to the risk that even if an electric fuel vehicle market develops, a different form of zero emission or low emission vehicle will dominate the market. In addition, we cannot assure you that other solutions to the problem of containing emissions created by internal combustion engines will not be invented, developed and produced. Any other solution could achieve greater market acceptance than electric vehicles. The failure of a significant market for electric vehicles to develop would have a material adverse effect on our ability to commercialize this aspect of our technology. Even if a significant market for electric vehicles develops, there can be no assurance that our technology will be commercially competitive within that market.

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We will need to develop the experience to manufacture our products in commercial quantities and at competitive prices.

We currently have limited experience in manufacturing in commercial quantities and have, to date, produced only limited quantities of components of the batteries for electric vehicles. In order for us to be successful in the commercial market, our products must be manufactured to meet high quality standards in commercial quantities at competitive prices. The development of the necessary manufacturing technology and processes will require extensive lead times and the commitment of significant amounts of financial and engineering resources, which may not be available to us. We cannot assure you that we will successfully develop this technology or these processes. Moreover, we cannot assure you that we will be able to successfully implement the quality control measures necessary for commercial manufacturing.

The price of our common stock is volatile.

The market price of our common stock has been volatile in the past and may change rapidly in the future. The following factors, among others, may cause significant volatility in our stock price:

- . Announcements by us, our competitors or our customers;
- . The introduction of new or enhanced products and services by us or our competitors;
- . Changes in the perceived ability to commercialize our technology compared to that of our competitors;
- . Rumors relating to our competitors or us;
- . Actual or anticipated fluctuations in our operating results; and
- . General market or economic conditions.

Our field of business is highly competitive.

The competition to develop consumer batteries, defense and safety products and electric vehicle battery systems, and to obtain funding for the development of these products is, and is expected to remain, intense. Our technology competes with other battery technologies, as well as other zinc-air technologies. The competition consists of development stage companies, major international companies and consortia of such companies, including battery manufacturers, automobile manufacturers, energy production and transportation companies, consumer goods companies and defense contractors, many of which have financial, technical, marketing, sales, manufacturing, distribution and other resources significantly greater than ours.

Various battery technologies are being considered for use in electric vehicles, consumer batteries and defense and safety products by other manufacturers and developers, including the following: lead-acid, nickel-cadmium, nickel-iron, nickel-zinc, nickel-metal hydride, sodium-sulfur, sodium-nickel chloride, zinc-bromine, lithium-ion, lithium-polymer, lithium-iron sulfide, primary lithium, rechargeable alkaline and zinc-air. Additionally, some manufacturers of primary alkaline batteries offer alkaline battery packs for cell phone users.

Some of the components of our technology and our products pose potential safety risks which could create potential liability exposure for us.

Some of the components of our technology contain elements that are known to pose potential safety risks. Also, because electric vehicle batteries contain large amounts of electrical energy, they may cause injuries if not handled properly. In addition to these risks, and although we incorporate safety procedures in our research, development and manufacturing processes, there can be no assurance that accidents in our facilities will not occur. Any accident, whether occasioned by the use of all or any part of our products or technology or by our manufacturing operations, could adversely affect commercial acceptance

of our products and could result in significant production delays or claims for damages resulting from injuries. Any of these occurrences would materially adversely affect our operations and financial condition.

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Failure to receive required permits from or to comply with the various regulatory regimes we are subject to could adversely affect our business.

Regulations in Europe, Israel, the United States and other countries impose various controls and requirements relating to various components of our technology. While we believe that our current and contemplated operations conform to those regulations we cannot assure you that we will not be found to be in non-compliance. We have applied for, and received, the necessary permits under the Israel Dangerous Substances Law, 5753-1993, required for the use of potassium hydroxide and zinc metal. However, there can be no assurance that changes in regulations will not impose costly compliance requirements on us or otherwise subject us to future liabilities.

Our business is dependent on patents and proprietary rights that may be difficult to protect and could affect our ability to compete effectively.

Our ability to compete effectively will depend on our ability to maintain the proprietary nature of our technology and manufacturing processes through a combination of patent and trade secret protection, non-disclosure agreements and licensing arrangements. We hold patents, or patent applications, covering elements of our technology in the United States and in Europe. In addition, we have patent applications pending in the United States and in foreign countries, including the European Community, Israel and Japan. We intend to continue to file patent applications covering important features of our technology. We cannot assure you, however, that patents will issue from any of these pending applications or, if patents issue, that the claims allowed will be sufficiently broad to protect our technology. In addition, we cannot assure you that any of our patents will not be challenged or invalidated or that any of our issued patents will afford protection against a competitor.

Litigation, or participation in administrative proceedings, may be necessary to protect our patent position. This type of litigation can be costly and time consuming, and this could harm us even if we were to be successful in the litigation. The invalidation of patents owned by or licensed to us could have a material adverse effect on our business. In addition, patent applications filed in foreign countries are subject to laws, rules and procedures that differ from those of the United States. Therefore, there can be no assurance that foreign patent applications related to patents issued in the United States will be granted. Furthermore, even if these patent applications are granted, some foreign countries provide significantly less patent protection than the United States. In the absence of patent protection, and despite our reliance upon our proprietary confidential information, our competitors may be able to use innovations similar to those used by us to design and manufacture products directly competitive with our products. In addition, no assurance can be given that others will not obtain patents that we will need to license or design around. To the extent any of our products are covered by third-party patents, we could require a license under such patents to develop and market our patents.

Despite our efforts to safeguard and maintain our proprietary rights, we may not be successful in doing so. In addition, competition is intense, and there can be no assurance that our competitors will not independently develop or patent technologies that are substantially equivalent or superior to our technology. Moreover, in the event of patent litigation, we cannot assure you that a court would determine that we were the first creator of inventions covered by our issued patents or pending patent applications or that we were the first to file patent applications for those inventions. If existing or future third-party patents containing broad claims were upheld by the courts or if we were found to infringe third party patents, we may not be able to obtain the required licenses from the holders of such patents on acceptable terms, if at all. Failure to obtain these licenses could cause delays in the introduction of our products or necessitate costly attempts to design around such patents, or could foreclose the development, manufacture or sale of our products. We could also incur substantial costs in defending ourselves in patent infringement suits brought by others and in prosecuting patent infringement suits against infringers.

We also rely on trade secrets and proprietary know-how that we seek to protect, in part, through non-disclosure and confidentiality agreements with our customers, employees, consultants, strategic partners and potential strategic partners. We cannot assure you that these agreements will not be breached, that we would have adequate remedies for any breach or that our trade secrets will not otherwise become known or be independently developed by competitors.

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We are dependent on key personnel and our business would suffer if we fail to retain them.

We are highly dependent on certain members of our management and engineering staff, and the loss of the services of one or more of these persons could adversely affect us. We are especially dependent on the services of our President and Chief Executive Officer, Yehuda Harats, and our Chairman of the Board of Directors and Chief Financial Officer, Robert S. Ehrlich. The loss of either of these persons could have a material adverse effect on us. We are party to employment agreements with Messrs. Harats and Ehrlich, each of which agreements expires in 2002, with an option on our part to extend to 2003. We do not have key-man life insurance.

We are subject to significant influence by some stockholders that may have the effect of delaying or preventing a change in control.

As of May 31, 2001, our directors, executive officers and principal stockholders and their affiliates collectively owned approximately 28.6% of the outstanding shares of our common stock. As a result, these stockholders are able to exercise significant influence over matters requiring stockholder approval, including the election of directors and approval of significant corporate transactions. This concentration of ownership may have the effect of delaying or prevent a change in control.

If we are unable to manage our growth, our operating results will be impaired.

We are currently experiencing a period of development activity which could place a significant strain on our personnel and resources. Our activity has resulted in increased levels of responsibility for both existing and new management personnel. Many of our management personnel have had limited or no experience in managing growing companies. We have sought to manage our current and anticipated growth through the recruitment of additional management and technical personnel and the implementation of internal systems and controls. However, our failure to manage growth effectively could adversely affect our results of operations.

We may be subject to increased United States taxation.

We believe that we and our wholly-owned Israeli subsidiary, Electric Fuel Limited, will be treated as personal holding companies for purposes of the personal holding company (PHC) rules of the Internal Revenue Code of 1986. Under the PHC rules, a PHC is subject to a special 39.6% tax on its "undistributed PHC income," in addition to regular income tax. We believe that we and Electric Fuel Limited have not had any material undistributed PHC income. However, no assurance can be given that we and Electric Fuel Limited will not have undistributed PHC income in the future.

Approximately 20.9% of the stock of Electric Fuel Limited was owned (indirectly by application of certain attribution rules) as of May 31, 2001 by two United States citizens. If 50% of our shares is ever acquired or deemed to be acquired by five or fewer individuals (including, if applicable, those individuals who currently own an aggregate of 20.9% of our shares) who are United States citizens or residents, Electric Fuel Limited would satisfy the foreign personal holding company (FPHC) stock ownership test under the Internal Revenue Code, and we could be subject to additional U.S. taxes (including PHC tax) on any "undistributed FPHC income" of Electric Fuel Limited. We believe that Electric Fuel Limited has not had any material undistributed FPHC income. However, no assurance can be given that Electric Fuel Limited will not become a FPHC and have undistributed FPHC income in the future.

A significant portion of our operations takes place in Israel.

The offices and facilities of our principal subsidiary are located in Israel. Although we expect that most of our sales will be made to customers outside Israel, we are nonetheless directly affected by economic, political and military conditions in that country. Accordingly, any major hostilities involving Israel or the interruption or curtailment of trade between Israel and its present trading partners could have a material adverse effect on our operations. Since the establishment of the State of Israel in 1948, a state of hostility has existed, varying in degree and intensity, between Israel and the Arab countries, and, since October 2000, there has been a significant increase in violence between Israel and the Palestinians, primarily in the West Bank and Gaza Strip areas. Historically, Arab states have boycotted any direct trade with Israel and to varying degrees have imposed a secondary boycott on any company carrying on trade with or doing business in Israel. Although in October 1994, the states comprising the Gulf Cooperation Council (Saudi Arabia, the United Arab Emirates, Kuwait, Dubai, Bahrain and Oman) announced that they

would no longer adhere to the secondary boycott against Israel, and Israel has entered into certain agreements with Egypt, Jordan, the Palestine Liberation Organization and the Palestinian Authority, no prediction can be made as to whether a full resolution of these problems will be achieved or as to the nature of any such resolution.

Many of our employees are currently obligated to perform annual reserve duty in the Israel Defense Forces and are subject to being called for active military duty at any time. No assessment can be made of the full impact of such requirements on us in the future, particularly if emergency circumstances occur, and no prediction can be made as to the effect on the Company of any expansion of these obligations.

Any failure to obtain the tax benefits from the State of Israel that we expect to receive could negatively impact our plans and prospects.

We benefit from various Israeli government programs, grants and tax benefits, particularly as a result of the "approved enterprise" status of a substantial portion of our existing facilities and the receipt of grants from the Office of the Chief Scientist of the Israeli Ministry of Industry and Trade. To be eligible for some of these programs, grants and tax benefits, we must continue to meet certain conditions, including producing in Israel and making specified investments in fixed assets. If we fail to meet such conditions in the future, we could be required to refund grants already received, adjusted for inflation and interest. From time to time, the government of Israel has discussed reducing or eliminating the benefits available under approved enterprise programs. We cannot assure you that these programs and tax benefits will be continued in the future at their current levels or at all. The Government of Israel has announced that programs receiving approved enterprise status in 1996 and thereafter will be entitled to a lower level of government grants than was previously available. The termination or reduction of certain programs and tax benefits (particularly benefits available to us as a result of the approved enterprise status of a substantial portion of our existing facilities and approved programs and as a recipient of grants from the office of the Chief Scientist) could have a material adverse effect on our business, results of operations and financial condition. In addition, our Israeli subsidiary has granted a floating charge over all of its assets as a security to the State of Israel to secure its obligations under the approved enterprise programs.

Exchange rate fluctuations between the dollar and the NIS may negatively affect our earnings.

Although a substantial majority of our revenues and a substantial portion of our expenses are denominated in U.S. dollars, a significant portion of our costs, including personnel and facilities-related expenses, is incurred in New Israeli Shekels (NIS). Inflation in Israel will have the effect of increasing the dollar cost of our operations in Israel, unless it is offset on a timely basis by a devaluation of the NIS relative to the dollar.

A substantial number of our shares are available for sale in the public market and sales of those shares could adversely affect our stock price.

Sales of a substantial number of shares of common stock into the public market, or the perception that those sales could occur, could adversely affect our stock price or could impair our ability to obtain capital through an offering of equity securities. As of May 31, 2001, we had 26,359,397 shares of common stock issued and outstanding. Of these shares, 19,311,134 are freely transferable without restriction under the Securities Act of 1933 and 7,048,263 may be sold subject to the volume restrictions, manner-of-sale provisions and other conditions of Rule 144 under the Securities Act of 1933.

Exercise of the warrants could adversely affect our stock price.

Holder of our warrants will probably exercise them only at a time when the price of our common stock is higher than the exercise price of the warrants. Accordingly, we may be required to issue shares of our common stock at a price substantially lower than the market price of our stock. This could adversely affect our stock price.

Investors should not purchase our common stock with the expectation of receiving cash dividends.

We currently intend to retain any future earnings for funding growth and, as a result, do not expect to pay any cash dividends in the foreseeable future.

INFORMATION REGARDING FORWARD-LOOKING STATEMENTS

When used in this prospectus, the words "expects," "anticipates," "estimates" and similar expressions identify forward-looking statements. We believe that these statements are "forward-looking" statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. These statements, which include statements under the caption "Risk Factors" and elsewhere in this prospectus, refer to the stage of development of our products, the uncertainty of the market for disposable cell phone batteries, significant future capital requirements and our plans to implement our growth strategy, continue our research and development, expand our manufacturing capacity, develop strategic relationships for marketing and other purposes and

carefully manage our growth. The forward-looking statements also include our expectations concerning factors affecting the markets for our products.

These forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from the results that we anticipate. These risks and uncertainties include, but are not limited to, those risks discussed in this prospectus and in the documents incorporated by reference in this prospectus.

We assume no obligation to update these forward-looking statements or to update the reasons actual results could differ materially from the results anticipated in the forward-looking statements.

You should rely only on the information in this prospectus and the additional information described under the heading "Where You Can Find More Information." We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely upon it. You should assume that the information in this prospectus was accurate on the date of the front cover of this prospectus only. Our business, financial condition, results of operations and prospects may have changed since that date.

ABOUT ELECTRIC FUEL CORPORATION

We are a world leader in primary and refuelable Zinc-Air fuel cell technology, pioneering advancements in consumer electronics, electric vehicles and defense and safety products.

We based our line of Instant Power disposable batteries for cellular telephones on our patented Zinc-Air fuel cell technology. The batteries, which come fully charged and ready to use right out of the pack, provide consumers with up to five times more talk and stand-by time when compared with conventional batteries (of equivalent size or weight). Instant Power disposable batteries are currently compatible with select models of Ericsson, Motorola, Nokia and Samsung cellphones and are on sale at retail outlets throughout the United States, Europe and Israel, including at such well-known retailers as Circuit City, CompUSA, Fred Meyer Stores, CarToys, and Wal-Mart (under the EverActive brand name) , and other cellular and retail stores in the United States, and at the Carphone Warehouse, BT Retail, and other cellular and retail stores in the United Kingdom.

Additionally, we recently began selling our new Instant Power charger for cellphones and PDAs, a pocket-sized recharger weighing less than three ounces that plugs directly into a cellphone or PDA, allowing it to be recharged and used on the move without an electrical outlet.

We are also engaged in the design, development and commercialization of our proprietary battery technology for other portable consumer electronic devices, such as camcorders, as well as for electric vehicles and defense and safety product applications. We are also seeking ways to continue to commercialize our disposable zinc-air battery technology for other such devices, such as notebook and laptop computers.

We have been engaged in research and development in the field of zinc-air electrochemistry and battery design for over ten years, as a result of which we have developed our current technology and its applications. We have successfully applied our technology to our Instant Power line of disposable high-capacity zinc-air batteries and rechargers for cellular telephones. We have also applied our technology to the development of a refuelable zinc-air battery for powering zero emission electric vehicles, which we have successfully demonstrated in "on-the-road" programs in Germany, Sweden, Italy, Israel and the United States. Through these efforts, we have sought to position ourselves as a world leader in the application of zinc-air technology to innovative primary and refuelable battery systems.

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While zinc-air technology has been in use for over a century in a great variety of typically low-power devices (such as hearing aids), we have developed technologies that provide our (environmentally-friendly) batteries with enhanced performance in both power and energy at a low manufacturing cost. Our high-energy, high-power zinc-air battery is composed of a zinc anode and an air (oxygen reduction) cathode. It is different from most other battery technologies in that one of the electrodes - the air cathode - is not consumed during discharge, but instead acts as a kind of electrochemical membrane that extracts oxygen from the atmosphere and introduces it into the cell. During discharge, the oxygen is electrochemically reduced to hydroxide ions at the cathode, and zinc at the anode is consumed by conversion to zinc oxide. In electric vehicles, fresh zinc replaces the oxidized zinc in a regeneration process. In our batteries and rechargers for consumer electronics devices, we construct the entire pack from low-cost, recyclable components and thus can be disposed of in an environmentally-safe manner.

To fully utilize our zinc-air battery technology for a wide selection of

applications, we operate in three business segments: Instant Power (formerly Consumer Batteries), Electric Vehicles, and Defense and Safety Products.

Our Instant Power Division develops and has introduced our first consumer products: disposable primary zinc-air batteries as a substitute for lower performing and initially more expensive rechargeable batteries, and a ready-to-use zinc-air charger for rechargeable cellphone batteries that gives consumers the option to keep talking on an empty battery during the charging process. We manufacture and market four different models of our Instant Power disposable cellphone batteries, suitable for various models of cellphones produced by Nokia, Motorola, Ericsson and Samsung. Additionally, we manufacture and market the Instant Power charger for cellphones and PDAs, which lets wireless users "charge without electricity" and keep talking or working while recharging, even with a dead battery. These products are currently on sale at retail outlets throughout the United States, the United Kingdom, certain countries in Europe and Asia, and Israel. Other consumer and industrial applications based on the same zinc-air cells are currently under development.

Through our Electric Vehicle Division, we are continuing to focus on fleet applications of the zinc-air battery system with our partners in Europe and the United States. The division is implementing, in cooperation with, among others, General Electric, a program subcontracted to us by the U.S. federal government for developing an all-electric battery-powered transit bus in Nevada that is currently in Phase II of development, conducting evaluation of the system and vehicle performance. As of early 2001, the division is also cooperating with a consortium of industrial companies in Germany to advance the use of zinc-air technology in fleet vehicles through a demonstration project partially funded by the German government.

Our Defense and Safety Products Division continues to expand the development of other uses of the battery technology, including a portable high-power zinc-air battery pack for the U.S. Army. This division also oversees our water-activated safety light products (based on our patented magnesium-cuprous chloride technology) for the commercial aviation and marine markets and is pursuing further development of the safety products business.

While marketing and establishing automatic production facilities for our existing products, we also intend to develop new products based on the same zinc-air cell technology.

We conduct our research, development and production activities primarily through Electric Fuel Limited at its facility in Beit Shemesh, Israel. We also have a small battery research and development facility in Auburn, Alabama that builds and tests prototype cells and batteries.

USE OF PROCEEDS

We cannot guarantee that we will receive any proceeds in connection with this offering.

Unless we inform you otherwise in the prospectus supplement, we will use the net proceeds from the sale of the shares offered by this prospectus, if any, for general corporate purposes. These purposes may include working capital and capital expenditures. Pending their uses, we intend to invest the net proceeds of this offering in interest-bearing bank accounts or in short-term, interest-bearing, investment-grade securities.

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PLAN OF DISTRIBUTION

We may sell the shares offered under this prospectus through underwriters, agents or dealers or directly to purchasers.

Shares may also be sold pursuant to what is known as an "equity line of credit" or a "structured equity line financing" arrangement, whereby shares would be sold at a discount to market to an investor, who would then resell some or all of such shares to the public; such an investor would be considered an "underwriter" within the meaning of Section 2(a)(11) of the Securities Act.

Additionally, we may from time to time issue shares to one or more distributors, sales agents, sales persons, or other service providers in lieu of cash payments in exchange for services rendered or as incentive awards.

The distribution of the shares may be effected from time to time in one or more transactions:

- . at a fixed price or prices, which may be changed from time to time;
- . at market prices prevailing at the time of sale;
- . at prices related to those prevailing market prices; or

- . at negotiated prices.

Each prospectus supplement will describe the method of distribution of the shares and any applicable restrictions.

The applicable prospectus supplement will describe the terms of the offering of the shares, including the following:

- . the name or names of any agents or underwriters;
- . the public offering or purchase price;
- . any discounts and commissions to be allowed or paid to the agent(s) or underwriters;
- . all other items constituting underwriting compensation;
- . any discounts and commissions to be allowed or paid to dealers; and
- . any exchanges on which the shares will be listed.

Only the agents or underwriters named in the prospectus supplement are agents or underwriters in connection with the shares being offered pursuant to the applicable prospectus supplement.

If the applicable prospectus supplement indicates, we will authorize dealers or our agents to solicit offers by various institutions to purchase offered shares from us pursuant to contracts that provide for payment and delivery on a future date. We must approve all institutions, but they may include, among others:

- . commercial and savings banks;
- . insurance companies;
- . pension funds;
- . investment companies; and
- . educational and charitable institutions.

The institutional purchaser's obligations under a contract will be subject only to the condition that the purchase of the offered shares at the time delivery is allowed by any laws that govern the purchaser. The dealers and our agents will not be responsible for the validity or performance of the contracts.

We may sell shares directly to the public, without the use of underwriters, dealers or agents.

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Underwriters, dealers and agents participating in a sale of shares may be deemed to be underwriters as defined in the Securities Act of 1933, and any discounts and commissions received by them and any profit realized by them on resale of the shares may be deemed to be underwriting discounts and commissions under the Securities Act. We may have agreements with the agents, underwriters and dealers to indemnify them against various civil liabilities, including liabilities under the Securities Act, or to contribute to payments that the agents, underwriters or dealers may be required to make as a result of those civil liabilities.

Our common stock is currently listed on the Nasdaq National Market system under the symbol "EFCX." Unless we indicate differently in a prospectus supplement, we will not list the shares of our common stock on any other securities exchange. If we sell shares offered under this prospectus to an underwriter for public offering and sale, the underwriter may make a market for that security but is not obligated to do so. Therefore, we cannot give any assurances to you concerning the liquidity of any shares offered under this prospectus.

Agents and underwriters and their affiliates may be customers of, engage in transactions with, or perform services for us or our subsidiary companies in the ordinary course of business.

DESCRIPTION OF CAPITAL STOCK

General

Our authorized capital stock consists of 100,000,000 shares of common stock par value \$.01 per share, and 1,000,000 shares of preferred stock, par value \$.01 per share. As of May 31, 2001, 26,359,397 shares of common stock were issued and outstanding, 5,333 shares of common stock were held as treasury shares, and no shares of preferred stock were issued and outstanding.

The additional shares of our authorized stock available for issuance might be issued at times and under circumstances so as to have a dilutive effect on earnings per share and on the equity ownership of the holders of our common stock. The ability of our board of directors to issue additional shares of stock could enhance the board's ability to negotiate on behalf of the stockholders in a takeover situation but could also be used by the board to make a change-in-control more difficult, thereby denying stockholders the potential to sell their shares at a premium and entrenching current management. The following description is a summary of the material provisions of our capital stock. You should refer to our restated certificate of incorporation, as amended, and bylaws for additional information.

Common Stock

The holders of common stock are entitled to one vote for each share held of record on all matters submitted to a vote of stockholders. Except as required under Delaware law or the rules of the Nasdaq National Market, the rights of stockholders may not be modified otherwise than by a vote of a majority or more of the shares outstanding. Subject to preferences that may be applicable to any outstanding shares of preferred stock, the holders of common stock are entitled to receive ratably any dividends as may be declared by the board of directors out of funds legally available for the payment of dividends. In the event of our liquidation, dissolution or winding up, the holders of common stock are entitled to share ratably in all assets, subject to prior distribution rights of the preferred stock, if any, then outstanding. Holders of common stock have no preemptive rights or rights to convert their common stock into any other securities. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and non-assessable, and the shares of common stock to be issued in the offering will be fully paid and non-assessable.

Preferred Stock

Our board of directors has the authority, within the limitations and restrictions stated in our restated certificate of incorporation, to provide by resolution for the issuance of shares of preferred stock, and to fix the rights, preferences, privileges and restrictions thereof, including dividend rights, conversion rights, voting rights, terms of redemption, liquidation preference and the number of shares constituting any series of the designation of such series. The issuance of preferred stock could have the effect of decreasing the market price of the common stock, impeding

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or delaying a possible takeover and adversely affecting the voting and other rights of the holders of our common stock. At present, we have no plans to issue preferred stock.

Stock Options

As of May 31, 2001:

- . options to purchase a total of 2,724,425 shares of common stock were outstanding, 1,151,913 of which were vested and exercisable within 60 days, at a weighted average exercise price of \$3.82 per share; and
- . up to 3,523,907 additional shares of common stock may be issued under our 1993 Stock Option and Restricted Stock Purchase Plan and our Non-Employee Director Stock Option Plan.

Warrants

As of May 31, 2001, there were outstanding warrants to purchase a total of 1,595,453 shares of common stock at a weighted average exercise price of \$4.61 per share.

Certain Charter Provisions

Provisions of our restated certificate of incorporation may have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from attempting to acquire, control of us. These provisions could limit the price that certain investors might be willing to pay in the future for shares of our common stock.

These provisions:

- . divide our board of directors into three classes serving staggered three-year terms;
- . only permit removal of directors by stockholders "for cause," and require the affirmative vote of at least 85% of the outstanding common stock to so remove; and
- . allow us to issue preferred stock without any vote or further

action by the stockholders.

The classification system of electing directors and the removal provision may tend to discourage a third-party from making a tender offer or otherwise attempting to obtain control of us and may maintain the incumbency of our board of directors, as the classification of the board of directors increases the difficulty of replacing a majority of the directors. These provisions may have the effect of deferring hostile takeovers, delaying changes in our control or management, or may make it more difficult for stockholders to take certain corporate actions. The amendment of any of these provisions would require approval by holders of at least 85% of the outstanding common stock.

LEGAL MATTERS

Harris Beach LLP, Rochester, New York will pass upon the validity of the shares of common stock offered by this prospectus for us.

EXPERTS

Our consolidated financial statements for the fiscal years ended December 31, 2000 and 1999, which have been incorporated by reference in this prospectus, have been audited by independent accountants Kost Forer & Gabbay (a member firm of Ernst & Young International Limited). Our consolidated financial statements for the fiscal year ended December 31, 1998, which have also been incorporated by reference in this prospectus, were audited by our former independent accountants, Kesselman & Kesselman (a member firm of PricewaterhouseCoopers International). Such financial statements have been so included in reliance on the reports of such independent accountants given on the authority of such firms as experts in accounting and auditing.

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5,400,000 Shares
Common Stock

Electric Fuel(R)

PROSPECTUS

July 20, 2001

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