

# The Foster Bryan Report on Fuel Cells

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**The Foster Bryan Report on Fuel Cells is available by subscription beginning April 25, 2003.**

The report analyzes all fuel cell technologies and the most important companies in the global fuel cell industry. The report also provides critical details and statistics about both the industry and the market. Among the many questions the report answers:

- Which fuel cell technologies are – and will be – the leaders?
- Which application could become the killer app?
- What were the sales of fuel cell systems in 2002?
- Why is Foster Bryan's fuel cell forecast so different from other firm's?
- What role does platinum play in the future of fuel cells?
- What political and economic developments could change the course of fuel cell development?

The report covers 17 companies in the fuel cell industry with important details and useful summaries. The report also discusses the technology focus and applications of 17 privately held companies and 17 subsidiaries or divisions of large companies.

The subscription includes frequent and regular updates on new fuel cell designs and their market impact, the financial condition and position of key competitors, the most likely technologies to dominate key market segments, important data on critical raw materials and their effect on investment decisions, and details on the most important acquisitions, mergers, exits, and startups.

To help subscribers make better, faster decisions, Foster Bryan's subscriptions are interactive; subscribers have direct access (by telephone, by e-mail, and in person) to analysts, leading scientists, and other technology experts. (See page 3 for more information on what subscribers receive.)

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## The Foster Bryan Report on Fuel Cells Table of Contents

### Summary

1. What are the critical facts?
2. What are the key analytical insights?

### Section 1 - Overview of Distributed Energy

1. What is the growth rate of global and regional energy demand?
2. What are trends that could change energy use globally?
3. Is electricity usage growing faster than other energy usage?
4. What are the changes in fuel use for electricity generation throughout the world?
5. What are the important transmission and delivery grid issues around the globe?
6. What is distributed energy?
7. What is driving demand for distributed energy?
8. What are purchase and installation costs?
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5. What is the status of current fuel reserves?

### Section 3 - Fuel Cell Technology Analysis

1. How does a fuel cell work?
2. What is the history of fuel cells?
3. What is the rate of change (technological obsolescence)?

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4. What needs do fuel cells meet? How are these needs met currently?
5. What are the major current and potential applications? How narrow or broad are potential applications?
6. What is the current dominant technology of the major fuel cell types? What is the market share for each?
7. What are the differences between the major fuel cell types? What are the strengths and limitations of each?
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9. What likely developments could affect fuel cells within the next year? The next two years? The next five years?
10. What are the technological barriers limiting fuel cell development? When are these barriers likely to be broken? By whom?
11. How could similar, competitive, peripheral, or new technologies or developments affect this one?
12. What are the current research interests in fuel cells?
13. What are the biggest research questions about fuel cells?
14. Who are the experts in fuel cells? What universities or other organizations are doing the best research and development?
15. How expensive is researching and developing this technology?
16. Is the cost of research and development a barrier to others?
17. What is the past and forecast rate of substitution for this technology?
18. What is the past and forecast rate of diffusion?
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20. What are the economic, sociological, demographic, geographic, political, or other implications of fuel cells?
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22. How do government regulations and subsidies affect this technology?
23. Are fuel cells likely to come under United States export control?

24. What are the best applications for this technology?

## Section 4 - Fuel Cell Industry Analysis

1. Is the fuel cell industry fragmented or concentrated?
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3. How many competitors are in the industry?
4. How many alliances are there among companies?
5. What are some of the new companies to watch?
6. Which companies pretend to make fuel cells?
7. Which governments are providing support?
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9. How profitable are fuel cell companies?
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11. How do alternatives to fuel cells compare?
12. What are the claims of cost reduction?
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18. What is industry capacity?
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20. Who are the key suppliers to the fuel cell industry?
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22. Who is building the hydrogen infrastructure?
23. How complex is hydrogen processing and storage?
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8. Which competitors are in each segment?
9. What are some innovations that could affect market growth?
10. What are some political or other events that could affect market growth?
11. What is the fuel cell adoption forecast?

### Section 6 - Fuel Cell Company Information

#### Public companies analyzed

1. Astris Energy
2. Ballard
3. Energy Conversion Devices
4. Fuel Cell Energy
5. Fuel Cell Technologies
6. Global Thermoelectric
7. Hydrogenics
8. Mechanical Technology
9. Medis Technologies
10. Millennium Cell
11. Pacific Fuel Cell
12. Palcan Fuel Cell
13. Plug Power
14. Powerball International
15. Proton Energy Systems
16. Quantum Fuel Systems
17. Stuart Energy Systems

#### Private companies mentioned

1. Acumentrics
2. Anuvu
3. Apollo Energy
4. DAIS- Analytic
5. Ceramic Fuel Cells
6. Clean Fuel Generation
7. H2 Fuel
8. Ion Power
9. Jadoo Power Systems
10. Labtech International
11. MOSAIC Energy
12. Neah Power Systems
13. Nuvera Fuel Cells
14. Polyfuel
15. Smart Fuel Cells
16. SOFCO
17. ZTEK

#### Large companies mentioned

1. 3M
2. Avista
3. Ball Aerospace
4. Daimler-Chrysler
5. Delphi
6. Du Pont
7. GE/Honeywell
8. IDACORP
9. Johnson Matthey
10. McDermott International
11. Motorola
12. Siemens Power
13. Sulzer
14. Teledyne Technologies
15. Toyota Motor
16. United Technologies
17. W. L. Gore & Associates

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### **The Foster Bryan Report on Fuel Cells Subscription Information**

#### What does a subscriber receive?

All subscriptions include:

- A comprehensive report annually on fuel cells
- Direct access (by telephone, by e-mail, and in person) to the analysts and scientists who researched and wrote the report
- Quarterly updates to the report
- Flash reports on technology, industry, and market developments
- Rapid in-depth analyses of breaking technology and business developments
- Access to our audio conferences on the most important events, issues, and developments
- Access to our library of all past reports and data on fuel cells

#### What is the price of an annual subscription?

The price for an annual subscription to the fuel cell report and service is \$44,000 for up to four seats. Additional seats are available for a fee.

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## Background on Foster Bryan

### What does Foster Bryan do?

An independent analysis firm based in Atlanta, Foster Bryan focuses on emerging technologies and the companies bringing them to market.

We offer primary-source analytical reports and services that are factual, objective, authoritative, and comprehensive. Our subscribers are investment managers and venture capitalists.

Our reports cover emerging-technology companies, their industries, and their markets. In each report, we focus on leading technology innovators generally with less than \$1 billion in revenue, including publicly held micro-, small-, and mid-cap companies and privately held companies.

### What sets Foster Bryan's research and analysis above others?

1. Our methodology has been proved at more than 50 companies in the past five years. Our report structure provides answers to more than 100 critical questions – the most critical questions – on specific technologies, companies, their industries, and their markets.
2. Our contractual relationship with the Georgia Tech Research Institute (GTRI) provides immediate access to more than 500 applied-research scientists and engineers who focus on practical applications of technology in more than 25 technical core competences. We also have relationships with preeminent scientists and engineers at the Massachusetts Institute of Technology (MIT), the University of Cambridge in England, National Taiwan University, and other leading universities throughout the world.

### What sets Foster Bryan apart from others?

We are a fully independent research company. We have no affiliation with any investment bank, broker-dealer, or other company posing a conflict of interest. Should a potential conflict of interest arise, we fully and promptly disclose it.

We offer our subscribers direct contact (by telephone, by e-mail, or in person) with all of our people who contribute to our analyses, reports, and services; every report bears their signatures.

We make neither buy nor sell recommendations on companies. We present facts, explain data, discern trends, identify patterns, answer the most important questions, and offer a range of expert opinions based on sound research and practical experience.

### What does Foster Bryan offer?

We offer subscriptions in three technology groups:

1. Distributed energy (including fuel cells, batteries, waste to energy and alternate fuels, and cogeneration and combined heat and power)
2. Homeland security
3. Bioengineering

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## Foster Bryan's Executive Team

**John C. Bacon**, 57, chairman of the board of directors. Mr. Bacon is president of Venturos Capital Advisors. He was a software entrepreneur for more than 15 years, during which he ran several venture-capital-backed companies and took two of them public, one in the United States and one in Europe. Mr. Bacon was an executive for more than 15 years with Scientific-Atlanta, Inc.; he was managing director of the company's United Kingdom operation, building and marketing satellite communications equipment in Europe, the Middle East, and North Africa. He holds a degree from the Georgia Institute of Technology (BS, Industrial Engineering) and has done advanced management development work at Harvard Business School and the Wharton School.

**Jonathan Giuliano**, 43, managing director. Mr. Giuliano was a partner with Palmer Bryan & Company, which provides global strategic analyses to the presidents and boards of directors of manufacturers of technical, industrial products. His experience includes senior operating positions in general management, strategy, marketing, finance, and operations with successful start-ups and New York Stock Exchange corporations. He has directed acquisitions and led business turnarounds in the United States and Europe. As a consultant with Price Waterhouse and Palmer Bryan, he has advised manufacturing and technology companies. He also worked at the American Enterprise Institute for Public Policy Research, a Washington, DC, think tank, and on Capitol Hill. He received degrees at Colgate University (AB, Political Science) and the University of Virginia (MBA with a concentration in Marketing).

**James L. Throckmorton**, 59, managing director. Mr. Throckmorton was also a partner with Palmer Bryan & Company. He has held senior operating positions in general management, marketing, sales, operations, administration, materials management, new product development, finance, and information technology. He has worked with small businesses and large companies, including Xerox Corp. and Donaldson Co. Inc. He has been involved in several business turnarounds in the United States and Europe. He received degrees at the Ohio State University (BS, Mathematics; MS, Computer and Information Science) and the University of Minnesota (Executive MBA).

**Neil W. Lareau**, 44, managing director. Mr. Lareau is a senior research engineer at the Georgia Tech Research Institute, where he leads the Electronic Systems Laboratory's Technology Application Branch, which is responsible for commercial product development. He also is a coordinator of the Georgia Tech Logistics and Maintenance Applied Research Center. Before joining GTRI, he was an engineer with Lockheed Missile and Space Co. and Scientific-Atlanta, Inc. He has written numerous papers on technology insertion and business issues. He is a graduate of the University of South Carolina (BS and MS, Electrical and Computer Engineering), where he was the Institute of Electrical and Electronics Engineers' Graduate Student of the Year.

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