



MINUTES

**Board of Directors Meeting
Mission Memorial Annex
550 South King Street, Honolulu, Hawaii
Thursday, March 21, 2013, 10:00 A.M.**

PRESENT:	Carrie Okinaga	William "Buzz" Hong
	Ivan Lui-Kwan	Damien Kim
	Robert "Bobby" Bunda	Michael Formby
	George Atta	Keslie Hui
ALSO IN ATTENDANCE: (Sign-In Sheet and Staff)	Doug Chun	Daniel Grabauskas
	Lori Hiraoka	Brennon Morioka
	Russell Honma	Diane Arakaki
	Maurice Morita	Joyce Oliveira
	Wendell Lum	Gary Takeuchi
	Faith Miyamoto	Duane Sayers
	Liz Scanlon	Jeanne Mariani-Belding
	Jerry Iwata	Andrea Tantoco
	Laura Ray	Lena Kamae
	Winston Wong	Bill Brennan

I. Call to Order by Chair

Board Chair Carrie Okinaga called the meeting to order at 10:09 a.m.

II. Public Testimony on All Agenda Items

Ms. Okinaga called for public testimony. Wendell Lum provided testimony on solid oxide fuel cell technology which provides electricity. He suggested that the Honolulu Authority for Rapid Transportation (HART) consider this technology as a source of energy for the rail system. Mr. Lum's testimony is attached hereto as Attachment A.

Russell Honma provided testimony suggesting that HART look into the land use policy for areas around planned rail stations, and proposing a transit symposium to educate the general public, attract investors, and encourage community involvement.

III. Approval of Minutes of the February 28, 2013 Board of Directors Meeting

Ms. Okinaga called for the approval of the February 28, 2013, minutes of the Board of Directors meeting. There being no objections, the minutes were approved unanimously.

IV. Committee Reports

A. Report on the March 7, 2013 Government Affairs/Audit/Legal Matters Committee Meeting

Committee Chair Ivan Lui-Kwan reported on the March 7, 2013, Government Affairs/Audit/Legal Matters Committee meeting. A litigation update was provided by Deputy Corporation Counsel Gary Takeuchi, who reported on the filing of a motion to request technical corrections to the *Honolulutraffic.com* decision. Also, the parties had filed mediation questionnaires with the 9th Circuit. An update on the internal audit scope of work was presented to the committee by HART Chief Financial Officer (CFO) Diane Arakaki. Mr. Lui-Kwan commended Ms. Arakaki for her efforts in communicating with the committee members and constituent organizations on developing a scope of work for potential internal audit function.

B. Report on the March 7, 2013 and March 21, 2013 Joint Meetings of the Finance and Project Oversight Committee

Ms. Okinaga noted that Finance Committee Chair Don Horner was not present, and Project Oversight Committee Chair Damien Kim was not in attendance during the March 7, 2013 joint meeting of the Finance and Project Oversight Committees. She noted that since the two committees at the joint meetings comprise the entire membership of the Board, the committees would stand on the minutes of the joint meetings when circulated. Ms. Okinaga noted that as a result of the March 7 joint meeting, the two provisos on HART's budgets have been satisfied, and that this should be communicated to the Honolulu City Council accordingly.

C. Report on the March 21, 2013 Transit Oriented Development Committee Meeting

Committee Chair William "Buzz" Hong reported on the March 21, 2013, Transit Oriented Development Committee meeting. He reported that the Director of the State Office of Planning (SOP), Jesse Souki, provided an overview of the State's role as the largest land owner within ½ mile of the transit stations and gave a brief summary of the Smart Growth America policy. Mr. Hong stated that Mr. Souki agreed to work together with the Transit Oriented Development (TOD) Stakeholders Advisory Group to advance coordination and cooperation about TOD.

Mr. Lui-Kwan reported on discussions about the TOD Stakeholders Advisory Group concept, which derived from HART's Charter authority to promote, create and assist TOD around rail stations. He reported that the discussion included membership and goals of the group, which was described as organic. Ms. Okinaga suggested adding the TOD Stakeholders Advisory

Group to the next Board agenda as an action item. Mr. Hong solicited suggestions from the Board members regarding membership of the Stakeholders Advisory Group.

V. Presentation on Fiscal Year 2014 Capital Budget – Planning

HART Executive Director and CEO Daniel Grabauskas stated that the presentation on FY2014 Capital Budget for Planning is a continuation of the series of budget presentations made to the HART Board. Elizabeth Scanlon, Acting Director of Planning, Utilities, Permits, and Rights of Way, introduced herself to the Board, and introduced Chief Planner Faith Miyamoto to present the FY2014 Capital Budget for Planning. The presentation is attached hereto as Attachment B.

Ms. Okinaga observed that the Board now has the benefit of HART having presented the budget to the Honolulu City Council. She requested feedback on items or questions on these particular sections of the Capital Budget of interest to the Council or discussed at Council meetings.

Ms. Miyamoto presented the budget items in the FY2014 Capital Budget relating to the Programmatic Agreement (PA), which was executed in January 2011 pursuant to Section 106 of the National Historic Preservation Act. Parties to the agreement include the Federal Transit Administration (FTA), the Hawaii State Historic Preservation Officer, the United States Navy, and the Advisory Council on Historic Preservation, and the City Department of Transportation Services. Ms. Miyamoto explained that the PA seeks to identify and mitigate any adverse effects the rail project may have on historic properties.

Ms. Miyamoto reported that a total of \$300,000 is budgeted in FY2014 for the planning phase. \$200,000 is budgeted for the *kako 'o*, or independent PA manager, Pacific Legacy. The *kako 'o* monitors the City's progress in implementing the PA and reviewing deliverables or documents provided to consulting parties for review. \$100,000 has been budgeted for the Historic Preservation Committee to hire a historic architect. Ms. Miyamoto explained that there is a \$2 million preservation fund in the PA, the purpose of which is to provide funding to owners of qualified historic properties to do exterior improvements to their properties.

Ms. Miyamoto reported that \$1.65 million has been budgeted in FY2014 for the construction phase of the project. She explained that the \$900,000 budgeted for the Historic Preservation Committee would be for the actual exterior improvements to historic properties. \$750,000 is budgeted for park improvements to Mother Waldron Park, Irwin Park, and Walker Park pursuant to the park improvement plan that is part of the PA.

Board member George Atta noted that all building or renovation permits for structures over 50 years old are sent to SHPD. He asked whether this requirement would affect right of way acquisition or HART's budget requirements. Ms. Miyamoto responded that in the EIS and Section 106 processes, staff evaluated resources that would be 50 years or older based on the year 1967, so structures that might become eligible during the course of the construction phase had been inventoried.

Ms. Okinaga requested the overall project numbers for the items listed under the planning and construction phase in the presentation and Mr. Grabauskas said this would be provided to the Board. Ms. Okinaga asked if improvements for parks other than Mother Waldron Park, Irwin Park, and Walker Park would be funded by the budget item, and Ms. Miyamoto confirmed that only these three parks were identified as being adversely affected.

Ms. Okinaga asked for clarification on the process for the selection of the park which would receive funds for improvement. Ms. Miyamoto confirmed that the process has not been initiated and the park that would be the recipient of the funds has not been identified. Mr. Grabauskas noted that because of the potential for effects, one of the benefits of the project is that these parks will see improvements; however the park is to be determined.

Ms. Okinaga asked for further explanation for the \$100,000 budgeted for the Historic Preservation Committee. Ms. Miyamoto explained that it is for the historic architect who would be assisting applicants in preparing applications for the exterior historic property improvement funds. Mr. Grabauskas stated that while it may seem costly, there are few individuals qualified to participate, as the federal government sets a very high bar for qualifications. Ms. Miyamoto informed the Board that the Historic Preservation Committee is led by HART's Executive Director, and that membership of the committee, which is set forth in the PA, includes a representative from SHPD, HART Land Use Planner Bruce Nagao, and a representative from DPP. Other members include Native Hawaiian Civic Clubs' Mahealani Cypher, American Society of Landscape Architects' Dana Anne Yee and Historic Hawaii Foundation's Kiersten Faulkner.

Ms. Okinaga asked how many applications for exterior improvements to historic properties have been received, and Ms. Scanlon responded that less than 20 have been received. Ms. Okinaga inquired as to the timing of the selection process. Ms. Miyamoto responded that applications will be sent to the property owners who qualify for the next step in the beginning of April, and the final decision for executing agreements with property owners would be later in the year.

VI. Permitted Interaction Group on Fare Policy

Ms. Okinaga stated the formation of Permitted Interaction Group (PIG) on fare policy was suggested by Mr. Grabauskas, based on his knowledge of and experience in other jurisdictions. The scope of the PIG was put before the Board, and is attached hereto as Attachment C. Ms. Okinaga pointed out that the City Charter charges the Board with fixing and adjusting reasonable rates and charges for the fixed guideway system.

Mr. Grabauskas asserted that setting the fare policy is one of the most fundamental decisions the Board of Directors will make, as it would have significant impacts on the amount of subsidy required for operation of the rail, and on whether the community would be encouraged to ride the rail. He stated that HART staff would gather information on similar rail systems around the country and types of fare policy, in order to understand the impacts on communities with varying socioeconomic backgrounds. While the Board acts independently to set fares, there are federal, local, and financial implications that must be considered. He

also noted that the process will require close coordination between DTS, Oahu Transit Services (OTS), the HART Board, and the City Council.

In terms of fare structure, Mr. Grabauskas said that HART has pledged to have a unified fare system between the bus and rail. Decisions on fares will be informed by the study recently commissioned by DTS and OTS. Some fare decisions will drive the selection of fare technology, and HART has committed to buying such technology cooperatively with TheBus. He expressed his thanks to the HART Board chair and to the Board members that volunteered for the responsibility. Mr. Grabauskas stated that the PIG would be provided with information with which to recommend a fair fare policy that meets HART's fiduciary responsibility to operate with as much from the fare box as possible. Mr. Grabauskas expressed his hope that in two years there would be fare policies that could be considered and hopefully timed in concert with the type of technology that will be installed.

Ms. Okinaga stated that the PIG is not a standing committee and that the HART Board may form a number of these groups over the course of time. She read the scope of the PIG for the record and for the benefit of the public in attendance. Ms. Okinaga thanked the members of the Board who volunteered, and in particular thanked Mr. Formby and his staff for their critical role.

Ms. Okinaga called for a motion to adopt the establishment of a Permitted Interaction Group on Fare Policy. Mr. Kim made the motion, and Mr. Hong seconded the motion, which carried unanimously. Ms. Okinaga noted that should there be presentations appropriate for the full Board or committees, rather than the PIG alone, that can be arranged.

VII. Executive Session

Mr. Kim moved, and Mr. Formby seconded, that the HART Board enter into executive session to consult with its attorneys on questions and issues on matters pertaining to the Board's powers, duties, privileges, immunities and liabilities, pursuant to Hawaii Revised Statutes Section 92-4 and Section 92-5(a)(4). The motion carried unanimously.

Mr. Lui-Kwan recused himself due to a conflict of interest, as his law firm was involved in one of the matters. He was excused from participating in the executive session.

The Board entered into executive session at 10:56 a.m., and reconvened the regular public meeting at 11:58 a.m.

VIII. Eminent Domain Final Approval

- A. Resolution 2013-4 Authorizing the Acquisition of the Real Property Identified as Tax Map Key 1-9-6-004:006 by Eminent Domain
- B. Resolution 2013-5 Authorizing the Acquisition of the Real Property Identified as Tax Map Key 1-9-6-023:008 by Eminent Domain

Real Property Acquisition Manager Jerry Iwata presented for the Board's consideration and approval Resolution 2013-4, authorizing the institution of eminent domain proceedings to acquire property in the "Banana Patch," with an approximate area of 9.6 acres, and Resolution 2013-5, authorizing the institution of eminent domain proceedings to acquire property along Kamehameha Highway, a partial acquisition of approximately 2,211 square feet. The resolutions are attached hereto as Attachment D and Attachment E, respectively. Mr. Iwata added that HART remains in negotiations with the property owners, and is hoping to come to a reasonable settlement in each case, in lieu of condemnation.

At Mr. Grabauskas' request, Mr. Iwata outlined the next step in the condemnation timeline. He advised that to the complaints would need to be prepared, after which the defendants would need to be served. He stated that there is a need to start the process in the event that settlements are not achieved. Mr. Grabauskas asked if the process could be postponed if more time was needed for negotiation, and Deputy Corporation Counsel Winston Wong confirmed that there was some flexibility in the process.

Mr. Takeuchi noted for the record that since the Honolulu City Council chose not to object to the institution of eminent domain proceedings and their 45 day review period elapsed, HART could proceed. He also stated for the record that the three-day advance public notice of the resolutions had been published in the newspaper. Further, Mr. Takeuchi pointed out that the intention of the reference to HART in the fourth paragraph of both resolutions is for the CEO and Executive Director of HART to handle those responsibilities.

Ms. Okinaga requested a motion to approve adoption of Resolution 2013-4 and Resolution 2013-5. Mr. Kim made the motion and Mr. Bunda seconded. Mr. Hong stated that he was dissatisfied with the process for the selection of appraisers, noting that the usual process for selecting arbitrators is to create a list and have both parties select from the list. He thought this would be an appropriate process for the selection of appraisers. Mr. Hui commended HART's real estate team for their diligent efforts in attempting settlement with both property owners. He expressed his understanding that action is appropriate and necessary to keep the project on track.

Ms. Okinaga asked if there were any opposed to the motion adopting Resolution 2013-4 and Resolution 2013-5 and there were none. The motion carried unanimously and both resolutions were adopted.

IX. Executive Director and CEO's Report

Mr. Grabauskas reported that HART's budget was presented to the City Council on two occasions. He informed the Board that he attended the March 14, 2013, Budget Committee meeting where he presented HART's Operating and Capital Budgets. The first reading of HART's budget bills occurred on March 20, 2012, and the bills passed first reading without debate or comment. Ms. Okinaga thanked HART staff and HART Board Finance Committee Chair Horner for their efforts.

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Mr. Grabauskas mentioned an article in Pacific Business News that discussed HART's actions or potential future actions involving eminent domain and said that if there were questions about HART's process for property acquisition, a presentation could be made to the Project Oversight Committee.

Mr. Grabauskas reported that HART assisted in preparing materials for Senator Brian Schatz's meeting with Federal Transit Administrator Peter Rogoff. Senator Schatz expressed his strong personal support for the rail project during that meeting, and discussed the implications of sequestration. Mr. Grabauskas assured the Board that the \$255 million HART received will not be subject to sequestration, and reported that a reimbursement of \$67 million was received in Honolulu two weeks prior. Mr. Grabauskas stated that HART has a large cash reserve due to the construction delay, however depending on what happens with sequestration, cash flow could be affected. He said HART staff would be monitoring the actions of the United States Congress.

Mr. Grabauskas stated that as the State Office of Planning was seeking budget approval for a staff person dedicated to TOD, he suggested writing a letter to the State Legislature on behalf of HART in support of the position for additional planning staff or to provide testimony in support of their budget. Mr. Hong expressed his approval of the suggestion.

Mr. Grabauskas gave an update on several bills in the State Legislature of interest to HART. He testified before the House Transportation Committee on Senate Bill 571 Senate Draft 2, on March 18, 2013, in favor of the measure which seeks to decrease the State's automatic 10% share of the General Excise Tax (GET) to a lesser amount. He reported that there was strong support for the measure, which passed second reading as amended in House Draft 1, and was referred to the House Finance Committee. In response to a question regarding the implications of additional GET revenues, Mr. Grabauskas had indicated that it would reduce the likelihood of HART's need to utilize Section 5307 funds.

Mr. Grabauskas reported that HART submitted testimony on House Bill 1374, relating to procurement. The measure proposed that HART's Chief Procurement Officer (CPO) shall not be the HART Executive Director or CEO. HART testimony recommended not to change the current statutory requirements as the amendment would conflict with the powers and duties granted by the Charter to the Executive Director and CEO of HART. If such an amendment is advanced, HART testimony also recommended the CPO be an employee with experience in transit projects. Mr. Grabauskas asked if any members of the Board objected to the submitted testimony. Ms. Okinaga agreed that status quo should be kept. She asked whether the designation for CPO is by State law or Charter. Mr. Takeuchi clarified that the CPO designation is by State law.

Mr. Grabauskas reported that House Concurrent Resolution (HCR) 219, which requests an audit of the Hawaii State Department of Taxation (DoTax), is also being monitored. The measure was introduced by Representative Scott Saiki at the request of Mayor Kirk Caldwell, and was scheduled for hearing before the House Committee on Economic Development and Business on March 22, 2013. Mr. Grabauskas asked the Board if HART should take a

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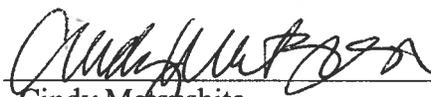
position on the measure. Ms. Okinaga stated that Finance Committee Chair Don Horner has been in discussions with DoTax staff. Ms Okinaga expressed reservations regarding the HART Board taking a position on an audit due to the absence of the Government Affairs/Audit/Legal Matters and Finance Committee chairs. Mr. Hong suggested requesting the methodology of GET surcharge collection, and also inquired as to whether a representative from DoTax could give a presentation to the Board. Mr. Bunda asserted that HCR 219 is a critical measure and asked if Mayor Caldwell requested support of the measure from HART. Ms. Okinaga recommended leaving the decision of supporting the measure to Mr. Grabauskas' discretion after speaking to the Government Affairs/Audit/Legal Matters and Finance Committee chairs. Mr. Atta stated that HART could make a direct request for information regarding the GET without asking for an audit. Mr. Grabauskas stated that HART staff is currently trying to schedule a meeting with DoTax staff and shared that Mr. Horner thought HART should formally request an explanation of how GET surcharge revenues are calculated. Mr. Grabauskas had also earlier stated that Mr. Takeuchi was reviewing a draft letter to that effect to DoTax.

Mr. Grabauskas reported on his meeting with Ko'olaupoko Hawaiian Civic Club in Kaneohe. He said the meeting went well and mentioned meeting residents of the Windward side of the island who support rail.

X. Adjournment

There being no further business before the Board, Ms. Okinaga adjourned the meeting at 12:21 p.m.

Respectfully Submitted,



Cindy Matsushita
Board Administrator

Approved:

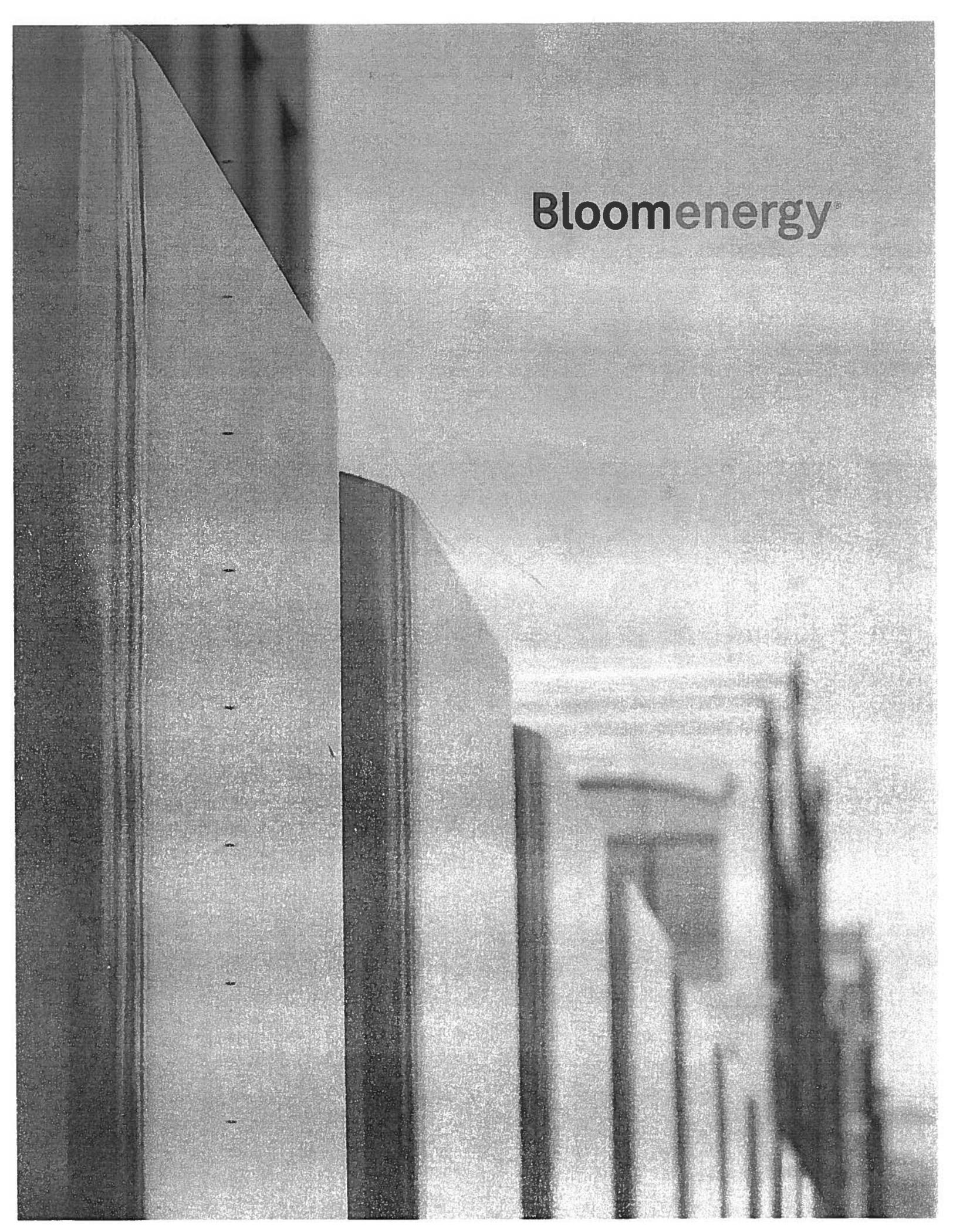


Carrie K.S. Okinaga
Chair, Board of Directors

APR 11 2013

Date

ATTACHMENT A

A black and white photograph of a hallway. On the left, a door is partially open, revealing a dark interior. On the right, a doorway leads to another room. The hallway is brightly lit, and the walls are light-colored. The Bloomenergy logo is overlaid in the upper right corner.

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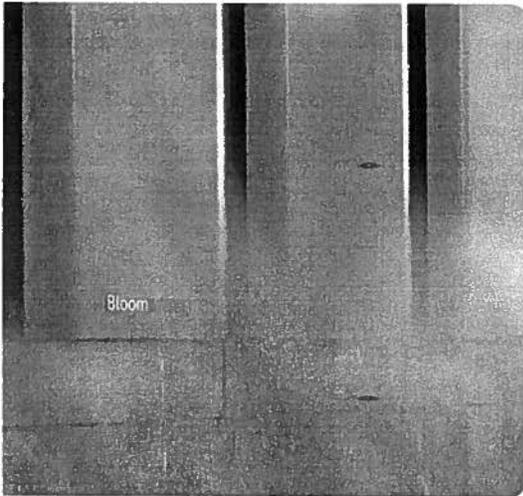
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Bloom Energy® is making clean, reliable energy affordable. Our unique on-site power generation systems utilize an innovative fuel cell technology with roots in the NASA Mars space program. Derived from a common sand-like powder and leveraging breakthrough advances in materials science, our technology significantly reduces operating costs while dramatically lowering greenhouse gas emissions, practically anywhere. By generating power where it's consumed, Bloom Energy offers increased electrical reliability, improved energy security, and a clear path to energy independence. Bloom's Energy Server™ is an easy, smart choice in today's economically minded and environmentally focused business climate.

"eBay believes in the power of our business model to make a real difference in the world, and that includes how we embrace innovation to reduce our carbon footprint. When Bloom came to us, it was an easy decision to become an early-adopter of their cutting-edge new technology. As a result, we're meeting financial and environmental goals with the project while fueling a more energy efficient global marketplace. That's good for us, our customers and the planet."

— John Donahoe, CEO, eBay

The Best of Both Worlds

In debating whether to save money or go green, companies have for too long been forced to choose between their budget and their conscience. Bloom Energy is changing that paradigm.

Bloom allows you to save money first. The efficiency built into our fuel cell systems means our solution provides an attractive financial payback and positive return on investment.

But the economics aren't the only story. Customers can also cut their CO2 emissions by 40%-100% compared to the U.S. grid (depending on their fuel choice) and virtually eliminate all SOx, NOx, and other harmful smog forming particulate emissions. Installing Bloom Energy Servers allows you to dramatically reduce your carbon footprint, but not at the cost of your bottom line.

When operating on pipeline-delivered natural gas, Bloom systems efficiently and electrochemically convert that fuel into low-carbon, baseload electricity. The same Energy Servers can also provide a carbon neutral generation solution operating on renewable fuels such as biogas. Bloom's fuel flexibility allows customers to choose the solution that's right for them.

With Bloom Energy, reducing your carbon footprint and your energy costs are no longer mutually exclusive.

Why Bloom is the Perfect Choice

- **Lower Cost of Electricity:** Our customers produce their own electricity for less than they pay today. We help them accomplish this by using widely available, inexpensive materials, leveraging proven manufacturing techniques, and delivering an energy system nearly twice as efficient as conventional technologies.
- **Sustainability:** By using fossil fuels more efficiently, without combustion, and by supporting renewable fuels like biogas, our systems produce far fewer emissions than legacy technologies, thereby providing a sustainable future.
- **Increased Reliability and Scalability:** Our systems are built around a modular architecture of simple repeating elements. This architecture delivers a solution that's extremely reliable and easy to scale. Our technology is able to generate power 24/7/365.
- **Simple Installation and Maintenance:** Our system is 'plug and play'. It is designed to easily fit into existing facility infrastructure and requires no end-user maintenance. Bloom Energy handles all operations and maintenance of the systems.

Each Bloom Energy Server provides 200kW of power, enough to meet the baseload needs of 160 average homes or a mid-sized office building in the footprint equivalent of a standard parking space. For more power simply add more Energy Servers in 100kW increments, making it simple to adapt to your energy needs.

The Economic Upside for Customers

Electricity price increases have been an unfortunate fact of life in the past decade. And while no one knows what the future holds for grid electricity prices, most experts conclude they'll continue to increase because of rising fuel costs, emissions regulations, and large investments required to overhaul the antiquated grid infrastructure.

For those uncomfortable with the status quo, Bloom Energy can help you take control of your energy economics. Our customers generate their own electricity for less than they pay the power company.

Our systems generate electricity cheaper than the power company for two main reasons. First, Bloom's unmatched efficiency in converting fuel to electricity means that our systems produce significantly more electricity for the same fuel costs. Second, our ability to generate electricity on-site eliminates the need for costly transmission and distribution infrastructure.

Bloom Energy is dedicated to making clean, reliable energy affordable for everyone in the world and our customers are the cornerstone of that vision. Today, our Energy Server technology is deployed by leading companies across a broad range of industry segments. We help them lower energy costs, reduce carbon footprints, improve their energy security, and showcase their commitment to a better future.

Bloom Energy is changing the way the world generates and consumes energy.

Join us. Be the solution.

Partial Customer List

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STAPLES

at&t

Walmart

COX
ENTERPRISES

Bank of America

FedEx
Express

The Coca-Cola Company

NOKIA

NASA

SAFEWAY

Caltech

Corporate Backgrounder

- Overview:** Bloom Energy is changing the way the world generates and consumes energy. The company's unique on-site power generation systems utilize an innovative new fuel cell technology with roots in NASA's Mars program. Derived from a common sand-like powder, and leveraging breakthrough advances in materials science, Bloom Energy's technology is able to produce clean, reliable, affordable power, practically anywhere, from a wide range of renewable or traditional fuel sources, including natural gas, wind, solar, and biomass. Bloom Energy Servers™ are among the most efficient energy generators available, providing for significantly reduced electricity costs and dramatically lower greenhouse gas emissions. By generating power on-site where it is consumed, Bloom Energy offers increased electrical reliability and improved energy security, providing a clear path to energy independence.
- Founded:** 2001
- Headquarters:** Sunnyvale, California
- Primary Investors:** Kleiner Perkins Caufield & Byers, New Enterprise Associates, Morgan Stanley
- Management Team:** KR Sridhar, Ph.D; Principal Co-Founder and Chief Executive Officer
Bill Kurtz; Chief Financial Officer and Chief Commercial Officer
Girish Paranjpe; Managing Director of Bloom Energy International
Gary Convis; Chief Operations Officer
Venkat Venkataraman, Ph.D; Executive Vice President of Engineering & CTO
Matt Ross; Chief Marketing Officer
John Mufich, Ph.D; Chief Information Officer
Bill Thayer; Executive Vice President Sales and Service
Jim Cook; Senior Vice President Strategic Materials
Peter Gross; Vice President of Mission Critical Systems
David Barber; Vice President Human Resources
Gary Workman; Vice President Quality
- Board of Directors:** John Doerr; Kleiner Perkins Caufield & Byers
General Colin Powell; Former U.S. Secretary of State
TJ Rodgers; Chairman, SunPower
Scott Sandell; New Enterprise Associates
Jagdeep Singh Bachher, Ph.D., ICD.D; Alberta Investment Management Corporation
KR Sridhar, Ph.D; Co-Founder and Chief Executive Officer
Eddy Zervigon; Morgan Stanley
- Product:** Built with our patented solid oxide fuel cell technology, Bloom's Energy Server™ is a new class of distributed power generator, producing clean, reliable, affordable electricity on site for each customer.

Fuel cells are devices that convert fuel into electricity through a clean electro-chemical process rather than dirty combustion. They are similar to batteries except that they never lose power. Bloom Energy's fuel cell technology is superior to legacy "hydrogen" fuel cells in four main ways:

- Lower cost materials – Bloom Energy cells use a common beach sand powder instead of precious metals such as platinum or corrosive materials like acids.
- Higher electrical efficiency – Bloom Energy can convert fuel into electricity at nearly twice the rate of some legacy technologies.
- Fuel flexibility – Bloom Energy's systems are capable of using either renewable or fossil fuels.
- Reversible – The technology is capable of both energy generation and storage

Each Bloom Energy Server provides 100 kilowatts of power, enough to meet the baseload needs of 100 average homes or a small office building — day and night, in roughly the footprint of a standard parking space. In addition, the modular system allows customers needing more power to simply add more energy servers. Customers generate their own electricity at a cost savings that typically translates to a 3-5 year payback on their investment.

Company Timeline:	2001	Company founded
	2002	First round of funding
	2003-2005	Research and development
	2006-2007	Field trials, product testing, and validation
	2008	First commercial shipment
	2009	Sales and manufacturing ramp
	2010	Public launch
	2011	Bloom Electrons Service launch

Announced Customers: Adobe, AT&T, Bank of America, BD, Caltech, The Coca-Cola Company, Cox Enterprises, eBay, Fedex, Fireman's Fund, Google, Kaiser Permanente, NTT, Safeway, Staples, Sutter Home Winery, Walmart

Statistics: Since the company's initial commercial installation in 2008, Bloom Energy has produced more than 100 million kilowatt hours for its customers and reduced their carbon footprints by over 140 million lbs.



KR Sridhar, Ph.D

Principal Co-Founder and Chief Executive Officer

KR Sridhar is the principal co-founder and CEO of Bloom Energy. Bloom Energy develops a flexible fuel cell system that produces clean, reliable and affordable energy from a wide range of fuels. Bloom's technology enables consumers to generate their own electricity for less than they pay their utility, and to reduce their carbon emissions by 50-100% per kW depending on the fuel.

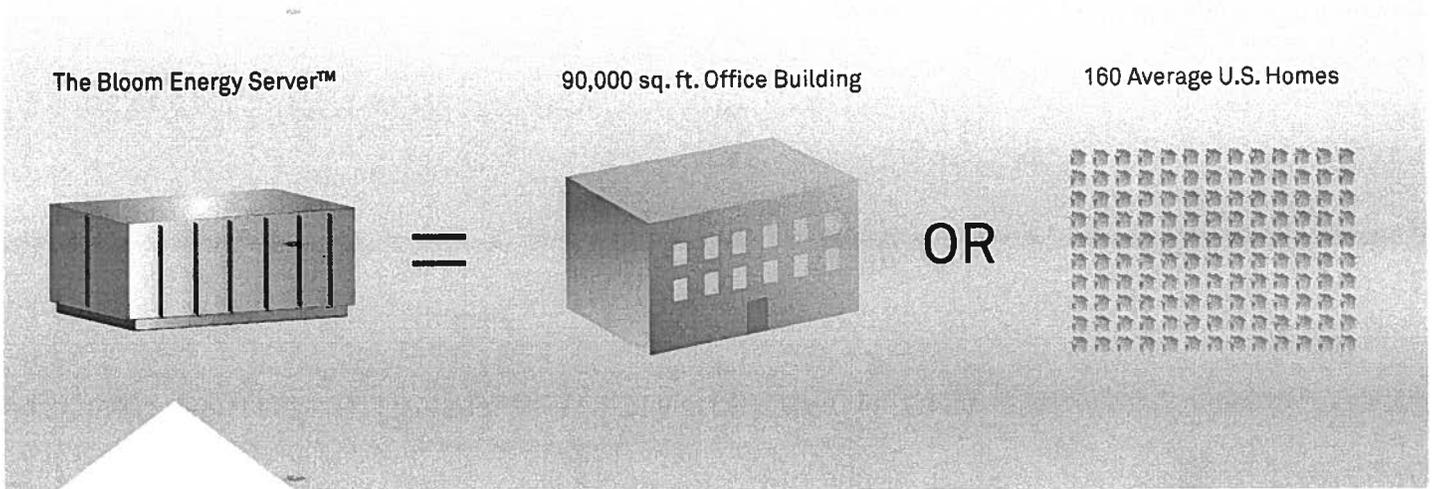
Prior to founding Bloom Energy, Dr. Sridhar led a team developing technologies to sustain life on Mars for NASA. For his work, Fortune Magazine cited him as "one of the top five futurists that are inventing tomorrow today". Before this Dr. Sridhar was a professor of Aerospace and Mechanical Engineering as well as Director of the renowned Space Technologies Laboratory (STL) at the University of Arizona.

Dr. Sridhar received his Bachelors Degree in Mechanical Engineering with Honors from the University of Madras, India, as well as his M.S. in Nuclear Engineering and Ph.D. in Mechanical Engineering from the University of Illinois, Urbana-Champaign.

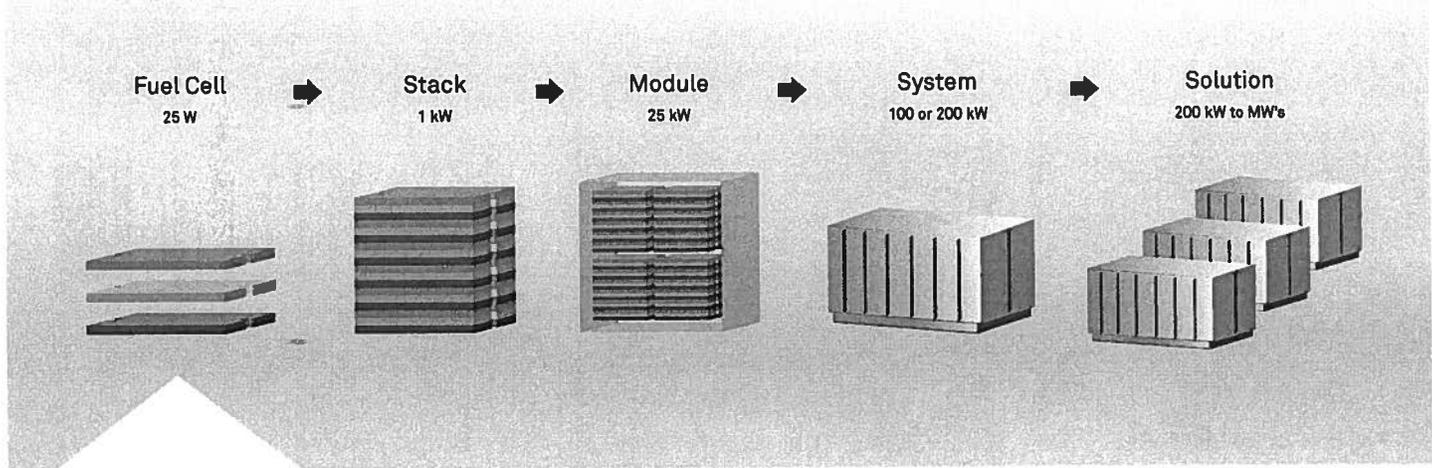
Dr. Sridhar has served on many technical committees, panels and boards. He has over fifty publications and is a sought-after speaker and advisor on energy and environmental issues. He is outspoken in his belief that the climate crisis we face is also a tremendous economic opportunity, that energy policy must be technology-neutral and performance-based and that we can solve our current energy problems through a combination of technology, innovation and conservation.

How Bloom Energy Servers Create Electricity

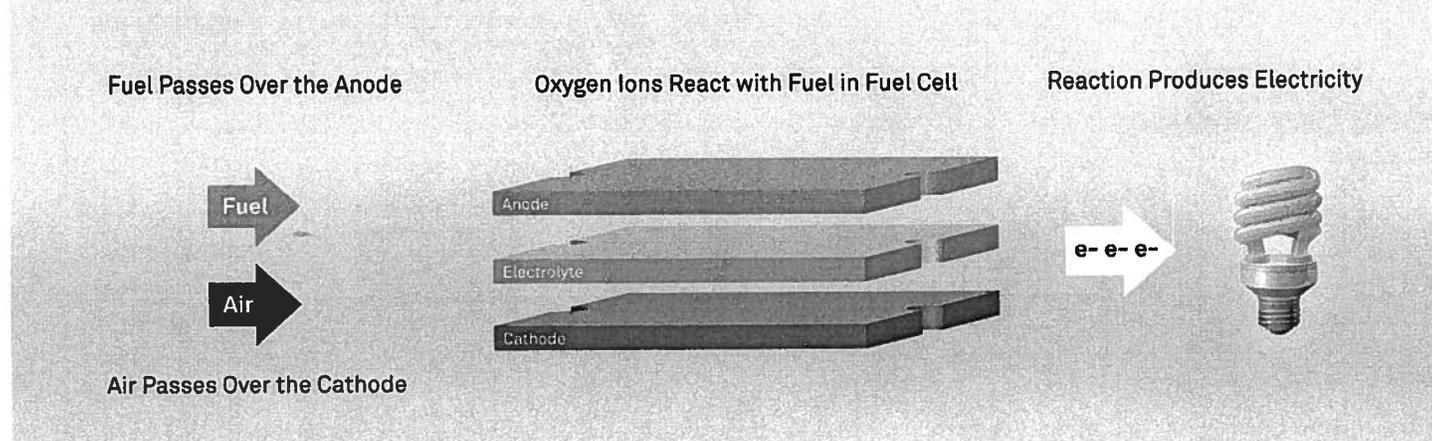
Each Bloom Energy Server, with a footprint of a parking space, provides 200kW of power to customers.



What's in the Bloom Energy Server?



How Does the Bloom Energy Server Fuel Cell Work?



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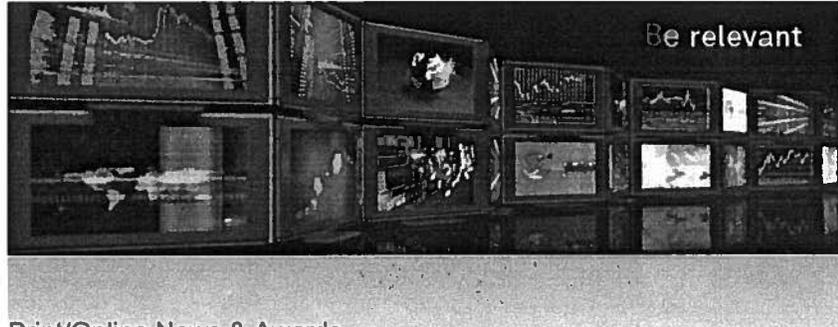
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Print/Online News & Awards

Global Media takes notice of Bloom Energy



Forbes | January 2, 2013
With Hines La Jolla Project, Net Zero Comes to Larger Office Buildings



SmartPlanet | December 5, 2012
Apple plans to double down on fuel cell power



ZDNet | November 5, 2012
San Jose hockey arena activates Bloom energy servers



TriplePundit | October 3, 2012
AT&T Takes Control of its "Energy Destiny" with Bloom Energy Fuel Cells



San Jose Mercury News | October 2, 2012
Exclusive: AT&T becomes Bloom Energy's largest corporate customer



Earth Techling | July 8, 2012
Rising Demand Is Giving Blogas A Big Lift



CIO Insight | June 22, 2012
eBay to Power Utah Data Center With Renewable Fuel Cells



Greenpeace | June 22, 2012
eBay Rightly Quits the Coal Grid for Data Centre



DatacenterDynamics | June 22, 2012
EBay goes for second Bloom Box installation



PC Magazine | June 21, 2012
eBay Commits to Renewable Energy for Next Data Center



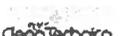
USA Today | June 21, 2012
eBay to build U.S.'s largest fuel cell data center



Data Center Knowledge | June 21, 2012
eBay: Bloom Boxes Will Power Utah Data Center



GigaOm | June 21, 2012
eBay to build huge Bloom Energy fuel cell farm at data center

	New York Times June 20, 2012 EBay Plans Data Center That Will Run on Alternative Energy Fuel Cells
	GreenBiz May 8, 2012 Hope for U.S. cleantech jobs. Bloom Energy plans Delaware factory
	Delaware First Media News April 30, 2012 Bloom Energy breaks ground on new Delaware facility
	Newsworks April 30, 2012 Fuel cell maker begins construction on east coast facility in Newark, Delaware
	San Jose Mercury News April 30, 2012 Sunnyvale-based Bloom Energy expands to East Coast behind NUMMI veteran
	NBC 10 Philadelphia April 30, 2012 New Jobs "Bloom" in Delaware
	DelawareOnline April 30, 2012 Bloom Energy launches Newark production site
	DatacenterDynamics April 30, 2012 Apple's green credentials Bloom with fuel cell installation
	CNET April 30, 2012 Apple data center helps fuel Bloom Energy move to East Coast
	TechWeek Europe March 21, 2012 Bloom Energy Eyes Up Data Centre Niche For Fuel Cells
	EDF March 19, 2012 Energy Innovation Series Feature #2 Fuel Cell Technology From Bloom Energy
	Data Center Knowledge March 19, 2012 Bloom Energy Sharpens Focus on Data Centers
	FuelCellToday March 15, 2012 Bloom Energy Launches Mission Critical Systems Business
	ZDNet March 15, 2012 Bloom Energy hires HP exec. expands data center energy focus
	GigaOm March 14, 2012 Bloom Energy launches data center focus for its fuel cells
	CleanTechnica February 28, 2012 Attractive Options for Modular Energy Architecture the Bloom Energy Server
	DelawareOnline February 25, 2012 Former auto plant ready for Bloom to take root
	1X57 February 6, 2012 Bloom Energy, an upstart — from start-up to acceleration, this company is winning
	Los Angeles Times February 5, 2012 Energy cells help power Century City skyscraper
	SmartPlanet January 31, 2012 Adobe fuel cell installation blooms in San Francisco
	SmartPlanet October 20, 2011 Bloom Energy Clinches Lucrative Fuel Cell Deal



Environmental Leader | August 2, 2011
NTT America Data Center to be Powered by Biogas, Bloom Servers



GigaOm | July 28, 2011
Bloom Energy attracts data center operators in Cali



Silicon Valley/San Jose Business Journal | July 13, 2011
Bloom Energy partners with AT&T on 11 sites



Daily Tech | July 12, 2011
AT&T Partners with Bloom Energy for California Bloom Box Fuel Cell Installations



San Jose Mercury News | July 12, 2011
AT&T partners with Bloom Energy



GigaOm | July 12, 2011
AT&T To Install Bloom Energy Fuel Cells



Greentech Media | July 12, 2011
Mixed Greens: AT&T Buys 7.5 MW of Bloom Boxes, Solar Diversity, and More

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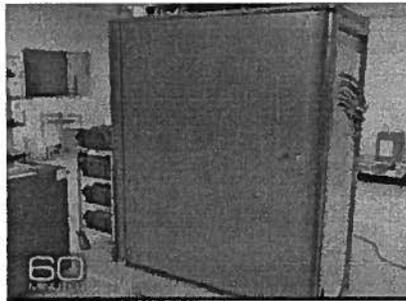
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Bloom Energy: Is its 'power plant in a box' worth all the hype?



February 22, 2010 11:35 AM
 Camille Ricketts

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Bloom Energy finally emerged from stealth mode, unveiling its “Bloom Box” fuel cell during a 60 Minutes segment with Lesley Stahl yesterday (click here for bonus videos). Capable of powering more than 100 homes while producing close to zero emissions, just one of these boxes could radically alter how people get their energy. But is it the godsend that some are saying it is?

Wireless and neatly compartmentalized, the Bloom Box could one day be a fixture in your backyard or basement, transmitting clean energy to your home as needed, Bloom CEO K.R. Sridhar says. Right now, it’s available on a large scale, with each box costing as much as \$800,000. In the next five to 10 years, Bloom says it will release smaller boxes for individual households costing less than \$3,000. If this happens, there is a chance that Bloom Boxes could supplant utilities and long-distance transmission lines — not to mention capital intensive wind farms and solar arrays.

Bloom investor John Doerr of Kleiner Perkins Caufield & Byers, who played a big role in last night’s 60 Minutes debut, says it is definitely Bloom Energy’s goal to disrupt, and even replace the country’s electrical grid. This is a bold assertion, considering how much time, effort and money is being sunk into the creation of the so-called Smart Grid. Incidentally, Bloom Energy was Kleiner Perkins’ first investment in the green sector, which has now become a huge area of focus for the firm. Since then, former Secretary of State Colin Powell has also joined the board of directors.

If this doesn’t inspire confidence in Bloom’s lofty claims, its roster of current customers probably will. Google was actually the first to install Bloom Boxes on its campus 18 months ago, followed soon after by eBay, FedEx, Wal-Mart and 16 other big names. EBay CEO John Donahoe gave the Box a strong endorsement last night, reporting that the several fuel cells it installed nine months ago have already saved the company \$100,000 in energy costs — and are putting out five times more energy than its extensive rooftop solar system.

Last night also marked the first glimpse anyone has gotten at Bloom’s actual technology. Each Bloom Box is filled with stacks of razor-thin discs made out of baked beach sand and coated with green and black proprietary inks (this component

remains secretive). When the Box is infused with a source of fuel, whether it be natural gas, biomass-produced gas or even solar energy, each of these discs puts out enough electricity to power a light bulb. Together, they can light up whole city blocks. The design was adapted from a similar product that Sridhar worked on at NASA.

As Greentech Media editor-in-chief Michael Kanellos pointed out during last night's segment, previous attempts at similar fuel cells have been prohibitively expensive — especially when it comes to scaling the technology. But Bloom's Sridhar says it has dramatically reduced the costs associated with building fuel cells. Not only does it use a cheaper metal alloy between each of its discs instead of the typical platinum, but it has replaced the expensive, pure hydrogen gas that used to be required, with more plentiful gas-based fuels. The bigger problem might be that the company only has the capacity to build about one box per day after raising upwards of \$400 million.

After letting Sridhar sing his Box's praises at the beginning of the segment, 60 Minutes correspondent Lesley Stahl turned to potential problems and challenges. Notably, if the Bloom Box becomes available (and affordable) for average consumers, won't threatened utilities start to push back? Sridhar and Doerr have foreseen this problem and reasonably argue that utilities could become major Bloom Box buyers themselves, selling the power the Boxes produce to their residential and commercial customers. After all, utilities already buy wind farms and nuclear reactors to do the same.

Stahl also called attention to some of the technical difficulties existing Bloom customers have encountered. For instance, early on, one of Google's Bloom Boxes used to power a data center abruptly shut down. Sridhar admits that not every Box has performed perfectly and acknowledges that several Boxes have had problems with air filter clogs. But he maintains that the technology is still being refined, and that the early adopters are playing an important role in providing feedback and making the product more commercially viable.

Kanellos provided perhaps the most salient counterpoint: Companies like General Electric and Siemens have been working on their own fuel cell models for decades. If Bloom Energy succeeds as widely as Sridhar and Doerr say it will, what's stopping these bigger players from investing their immense capital in developing their own branded solutions? Kanellos articulately framed this issue, agreeing that fuel cells may indeed become a staple in household basements in the next decade, but that they'll bear the GE logo, not Bloom's.

Even after shedding some mystery, Bloom still seems to hold an amazing amount of potential. It will be interesting to see which companies sign up to be in its second flock of big-name customers. At what point will it begin to approach major utilities as potential buyers? And what will happen to fledgling competitors like home fuel-cell maker ClearEdge Power? Will Bloom's technology be adapted for automotive applications as well? Could it revolutionize the developing work with off-the-grid electricity? There are many more questions yet to be answered, but for now, it looks like Bloom deserves all the buzz.

So that you can decide for yourself, here, in full, is the 13-minute segment that aired on last night's episode of 60 Minutes with Lesley Stahl:

<http://cnettv.cnet.com/av/video/cbsnews/atlantiss2/player-dest.swf>
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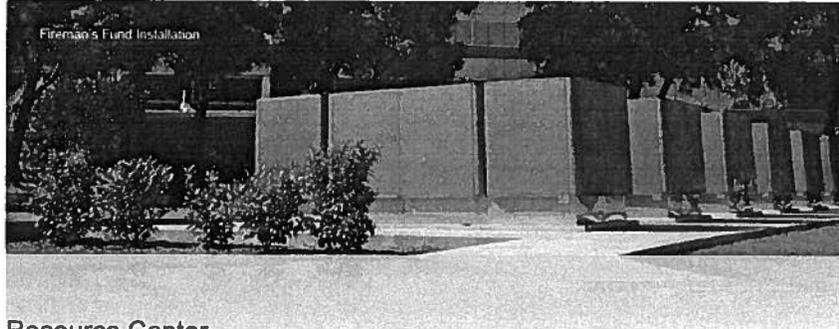
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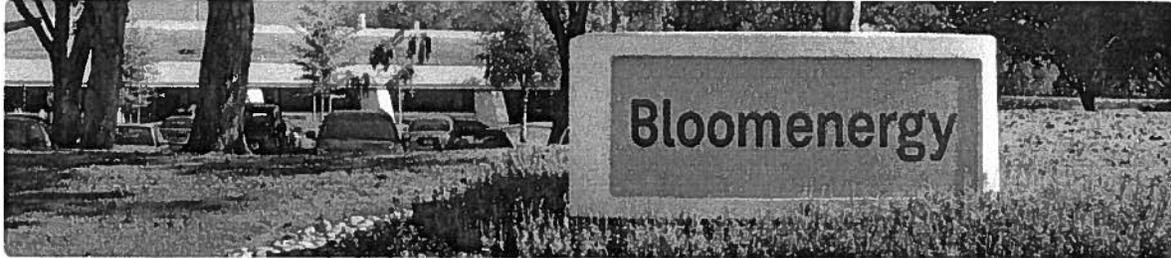
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1 Securing the Energy Future

The grid is a shared, centralized resource which means that energy security is impacted by many factors beyond the energy users control and not optimized for use onsite. For example, the "Northeast Blackout of 2003" occurred when a failure to trim trees in Ohio set off a chain of events across the grid that ultimately cut power to 55 million people in eight U.S. states and Canada.



Dependence on the aging grid leaves energy users exposed to surges, brownouts and unexpected service interruptions, and requires costly investments in backup equipment and power quality solutions that sit idle over 99% of the time. Bloom Energy provides a way to take control of your power quality and energy security.

2 Distributed Generation is the Answer

Distributed generation refers to power generation at the point of consumption. Generating power on-site, rather than centrally, eliminates the cost, complexity, interdependencies, and inefficiencies associated with transmission and distribution, and shifts control to the consumer.

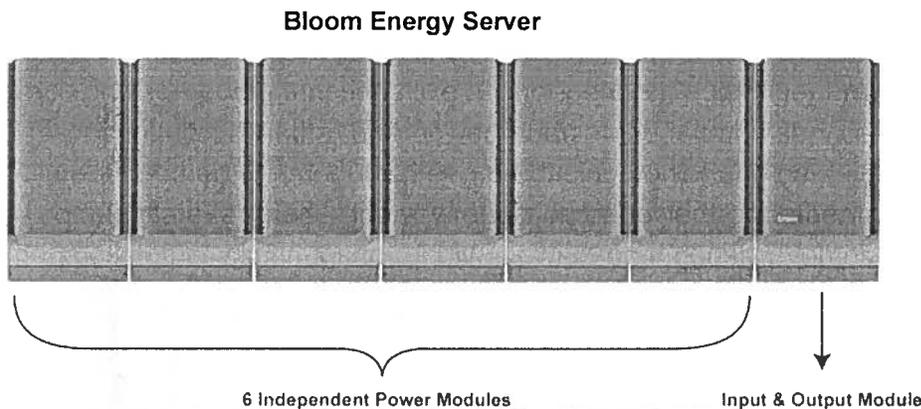
In addition to providing distributed generation, Bloom's technology offers several other key benefits contributing to energy security and reliability.

- Bloom's modular building block architecture is fault tolerant, helping to ensure the highest levels of power availability.
- The natural gas infrastructure and supply utilized for Bloom Energy Servers is highly reliable and available in abundance in North America.
- In the highly unlikely event of a natural gas disruption, Bloom Energy Servers have the capability to run on locally stored fuels.
- The systems operate in a business resiliency configuration providing superior power quality and continuous power when there are grid outages or power quality issues.

3 Modularity

Each Bloom Energy Server consists of six power modules and an input-output module. Each power module functions like an independent power generator that can function on its own. In the event that one power module needs to be serviced or experiences a failure, the other five modules keep producing power and can even increase power output to compensate for the temporary reduction of power from other modules. The net result is that a customer continues to receive power continuously even during typical Bloom service.

The input-output module supports this functionality through hot swappable inverters in an N + 1 configuration. With multiple Bloom Energy Servers this effect is further enhanced, i.e. with two energy servers there are now twelve independent power modules and so on. Through this modular design and minimization of single points of failure Bloom Energy Servers provide a robust and reliable distributed energy solution.



4 Natural Gas

Bloom Energy Servers use natural gas or Directed Biogas in a highly efficient electrochemical reaction to generate electricity without any combustion. Natural gas is an abundant North American fuel with approximately 90% of the natural gas consumed in the US being produced domestically. The recent discovery and availability of large quantities of shale gas will further allow the United States to decrease its reliance on foreign oil and consume a domestically produced fuel.

Shale natural gas has increased the US domestic reserves by over 30% and will help meet domestic demand for the long-term domestic needs.

Natural gas is highly reliable with extremely few disruptions ever occurring. The reliability of natural gas approaches 99.999% with an average of less than 10 minutes of annual downtime. As a source of energy that is independent from the electric grid, natural gas

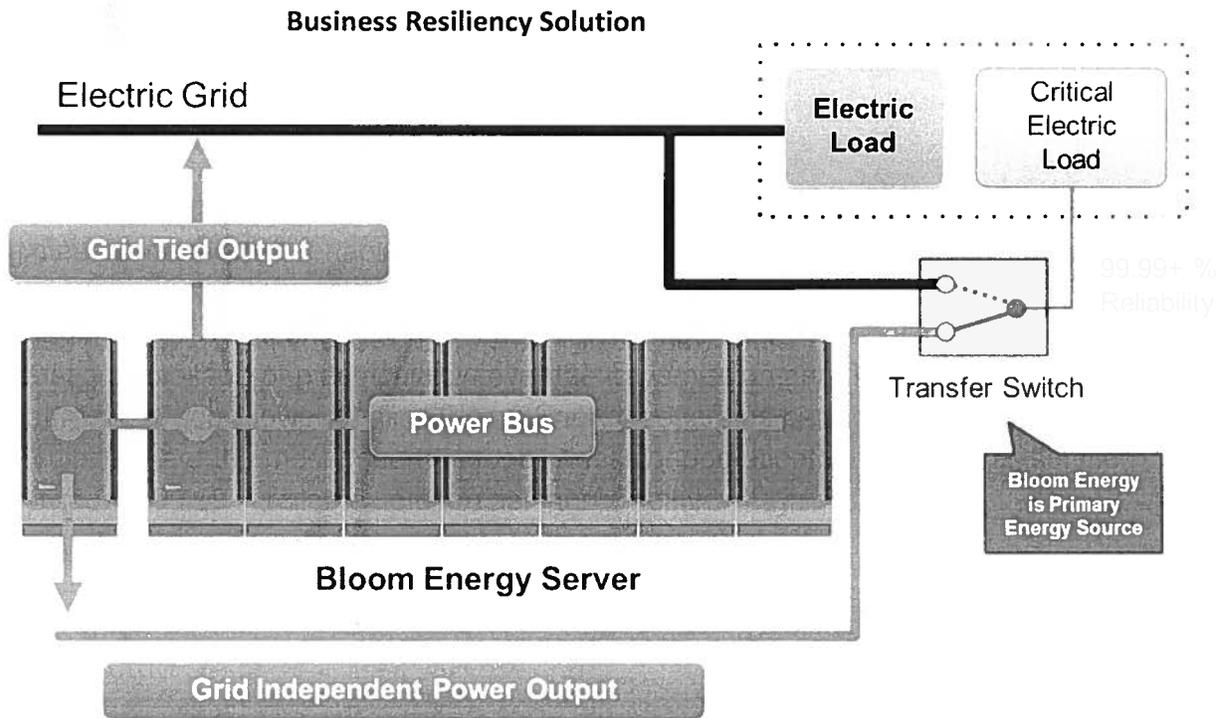
greatly enhances the overall electric reliability of facilities running on Bloom Energy Servers.

5 Onsite Fuel Option

For facilities that require very high levels of reliability onsite compressed natural gas (CNG) storage can be used as a seamless backup fuel source for Bloom Energy Servers. In case of a highly unlikely disruption in the natural gas supply the Bloom Energy Servers can automatically detect an interruption and cut over from a primary natural gas to a backup CNG source. The amount of CNG storage can be based on the specific number of hours of backup supply of fuel required at a given facility.

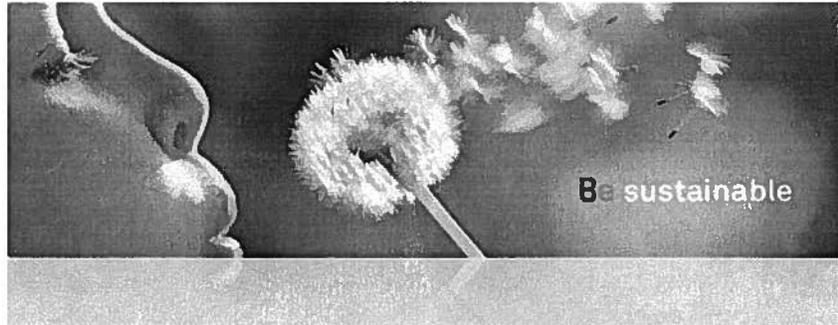
6 Business Resiliency Operation

Bloom Energy Servers can provide continuous, high quality power to designated circuits in standalone mode to enable business resiliency. In this configuration, the Bloom Energy Servers provide both primary and backup power with no interruption when grid power outages and restorations occur. In today's digital age, many technologies suffer from variation in voltage or electrical flow over the transmission and distribution infrastructure that result in poor power quality. Bloom Energy generates perfect waveform for the circuits that are the most important for business or operation continuity. This solution provides > 99.99% reliable solution as shown below:



7 Conclusion

Bloom Energy Servers are a highly reliable and secure distributed generation. The modularity of the systems combined with a robust and secure domestic natural gas supply provides a solution that is dependable and secure. For facilities that require extremely high reliability and power quality the Bloom Energy Servers can function as both the primary and backup power source for business or operations continuity without any disruption during grid outages or restorations.

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All electrons are *not* created equal. Only Bloom Energy delivers electrons that are clean and reliable at the same time... and just for you. That makes them better electrons.

Bloom Energy generates clean, reliable power onsite with minimal environmental impact, making the Bloom Energy Server one of the most sustainable solutions on the market today. When compared to alternative sources, Bloom delivers superior results, whether sustainability is measured in terms of greenhouse gas emissions reductions, avoided air pollutants, reduced water use, small physical footprint, quiet operation, recyclability, high efficiency — or all of the above.

Higher Efficiency

Bloom Energy Servers convert natural gas or renewable biogas into electricity using a direct electrochemical reaction rather than combustion. This highly efficient process is not bound by the same thermodynamic constraints¹ for creating electricity, and thus enables exceptionally high conversion efficiency. Today, Bloom ships systems with an industry-leading 60+ percent electrical efficiency, based on the lower heating value (LHV) of the fuel — a figure that has increased markedly since our first commercial shipments in 2008. Looking forward, we see a clear pathway to deliver even higher efficiency.

By contrast, the average coal-fired power plant — with over a century of R&D behind it — converts only 33 percent of its energy input into electricity.² Yet because no one wants a coal plant in their "backyard", this electricity must be transported over hundreds of miles of power lines, which lose a part of the produced power — anywhere from 7 - 10 percent in the developed world, and up to 50 percent³ in developing economies. Since Bloom Energy Servers typically generate power at the customer's site, energy is generated & provided directly where it is needed, thus avoiding these losses altogether.

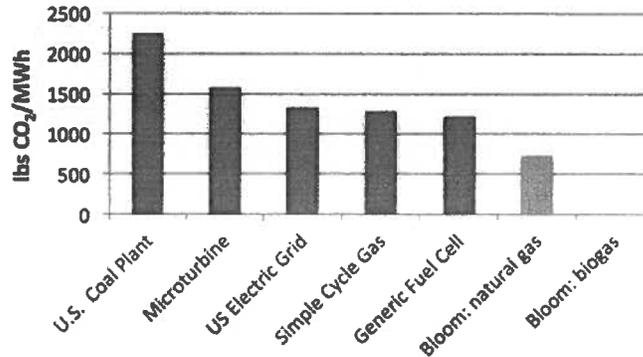
As the world transitions to a renewable energy future, the most sustainable pathway is to consume our precious resources more efficiently. It's also smarter — fuel savings mean saving money.

Virtually no Smog Forming Particulates

Bloom Energy Servers convert fuel into delivered electricity at the highest level of efficiency amongst commercially available technologies. Greater efficiency means less fuel consumed to produce the same output of electricity and that lower fuel consumption corresponds to less CO₂ emitted. Even when compared to the most advanced, centralized combined cycle gas turbine power plants, Bloom has higher delivered electricity efficiency and therefore a lower CO₂ footprint.

The flexibility of the Bloom Energy Server allows customers to dramatically reduce their carbon emissions while continuing to power their operations reliably. When fueled with biogas, the Bloom Energy Server provides 100 percent carbon neutral power generation. When powered by natural gas, it releases a fraction of the CO₂ produced by coal-fired plants or even modern combined cycle natural gas plants, when one accounts for line losses (as recommended by regulators). As businesses prepare for a carbon-constrained future, the Bloom Energy Server offers an elegant and flexible solution to meet a customer's sustainability needs.

CO₂ Emissions



Low CO₂ Emissions

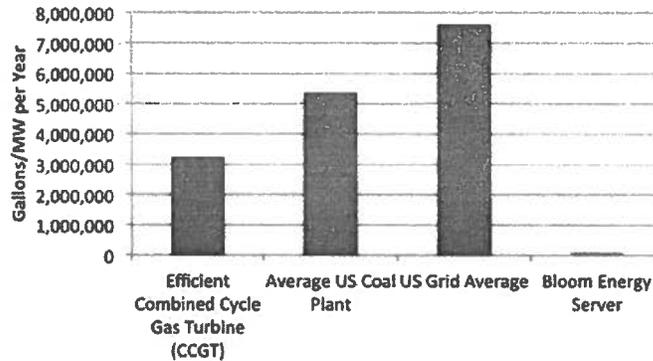
Because Bloom uses solid oxide fuel cell technology that converts fuel into electricity via an electrochemical reaction rather than combustion, Bloom Energy Servers virtually eliminate smog forming particulates and harmful NOx and SOx emissions that are emitted by conventional power plants. These invisible emissions cause smog, asthma, and harm human health². Bloom Servers also generate only a fraction of the carbon dioxide produced by a conventional modern power plant equipped with the best available control technology (BACT) — the US EPA’s benchmark

Land Savings

Large centralized power plants, whether they are gas fired, wind, solar or hydropower, require large land areas far from most population centers. The electricity they produce is diminished through transmission and distribution losses. The Bloom Energy Server, on the other hand, is a compact solution with units occupying only a slightly larger footprint than a parking space. They are located onsite — eliminating T&D losses — and are well-suited for urban environments.

Bloom Energy Servers also deliver extraordinary water savings. Bloom’s technology uses no water beyond a 240-gallon injection at start up. By comparison, the average U.S. coal plant uses 1.07 million gallons per 200 kW annually, and combined cycle natural gas plants use 648,240 gallons per 200 kW annually. A supermarket powered by a 200 kW Bloom Energy Server saves more than 1 million gallons a year

Water Consumption



Additionally, the simple, modular, building-block architecture is easy to install and easy to buy. As your energy needs grow, Bloom can grow with you, all the while delivering clean, reliable electricity —the benefits of Better Electronics™.

¹ http://en.wikipedia.org/wiki/Thermal_efficiency#Carnot_efficiency

² <http://www.worldcoal.org/coal-the-environment/coal-use-the-environment/improving-efficiencies/>, efficiency reported here as the lower heating value (LHV) of the fuel.

³ <http://www.teriin.org/upfiles/pub/papers/ft33.pdf>

⁴ http://www.arb.ca.gov/cc/scopingplan/document/appendices_volume2.pdf

⁵ http://www.aqmd.gov/smog/historical/smog_and_health.htm

Business Resiliency >

Power Through Any Storm

Natural disasters are increasingly disrupting business operations with outages that hurt productivity. Bloom Energy offers businesses increased **electrical reliability**, improved **energy security**, and a clear path to **energy independence**. Our unique on-site power generation systems produce power where it's consumed, so our customers avoid the threat of disruption while benefitting from clean and affordable electricity.

Weather related outages increasing

- Over 20 million East Coast customers have lost power in the past 15 months
- Backup power failures and fuel shortages leave businesses stranded
- Aging infrastructure is increasingly vulnerable

"Our Bloom Energy Servers in New Castle, Delaware rode through Hurricane Sandy without incident and continued to feed power to the regional power grid despite all the challenges the storm presented."

— Gary Stockbridge
President, Delmarva Power

Take control of your energy destiny

- Increased reliability – provides always-on, uninterruptible power
- Predictable costs – delivers long term, predictable view of energy expenses
- Runs on natural gas – leverages reliable system to provide power when it is needed most

Learn how companies like yours are powering through.

Fill out the form to download the Bloom Energy Business Resiliency Kit



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Title

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Employee Range.

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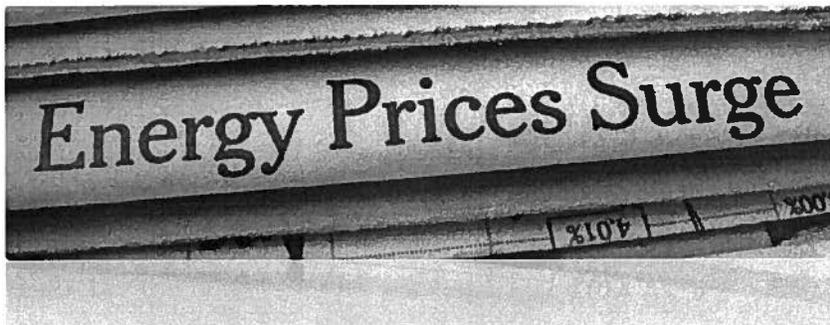
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Reduce Energy Costs: Lower & Lock-In Energy Costs

Take Control of your Energy Economics

Depending solely on your local utility for your power needs leaves you exposed to significant risk. Prices are increasing and volatile and outages are unpredictable leaving you vulnerable to damages from brownouts, surges, and unexpected service interruptions.

Lack of consistent service isn't the only consideration, because if history means anything, electricity prices aren't likely to go down. In fact, in places like California, they've gone up on average ~6% per year over the last 40 years. And while no one knows for sure what the future holds for grid electricity prices, most experts conclude that they will continue to increase significantly over the next decade due to a combination of rising fuel costs, pending carbon legislation, and large investments required to overhaul the antiquated grid infrastructure to keep pace with our modern world.

For those uncomfortable with this status quo, Bloom Energy can help you take control of your energy economics.

Reduce Energy Costs

Bloom Energy enables you to save money by **reducing your electricity costs**. Our customers today generate their own electricity for less than they pay their power company. The savings typically provide a 3-5 year payback on their initial capital investment.

Our systems can generate electricity cheaper than the power company for two main reasons. First, Bloom's unmatched efficiency in converting fuel to electricity means that our systems produce significantly more electricity for the same fuel costs. Second, our ability to generate the electricity on-site eliminates the need for costly transmission and distribution infrastructure.

Lock-in Pricing

While reducing energy costs is important, for some it is even more critical to make them predictable. Bloom Energy offers you a way to lock-in your electricity costs for the long term. You can fix your electricity costs by entering into a long term fuel contract with your gas supplier and taking advantage of our ability to consistently produce clean electricity from that fuel.

Pay As You Grow

Bloom Energy provides a modular solution that allows you to incrementally increase your onsite generating capacity *if, and when, your energy needs grow*. Instead of being forced to anticipate your power demand for the next ten to twenty years and paying upfront for equipment capacity you can't use, our solution allows you to match your initial deployment to your current base load and to pay as you grow.

...AND IT'S CLEANER TOO

Bloom Energy doesn't believe that achieving your sustainability goals should cost you more. Given the opportunity to save money *and* help the environment, the right decision becomes an easy one.

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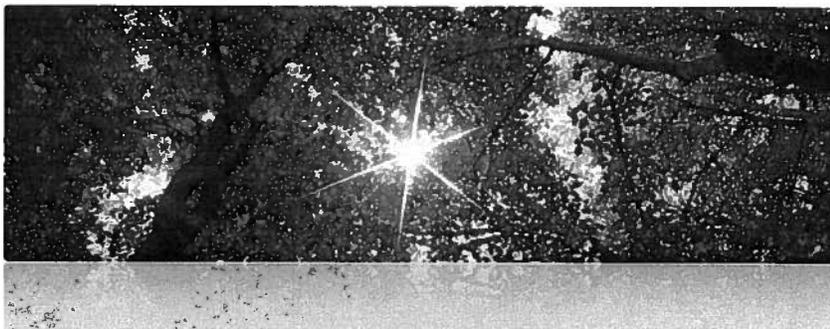
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Best of Both Worlds – You Don't Have to Choose

Few would pay more to be green, but wouldn't everybody go green to save money? For far too long, companies have been forced to choose between their budget and their conscience. Bloom Energy is changing that paradigm.

Bloom allows you to save money first. The high efficiency built into Bloom's fuel cell systems coupled with ease of implementation and 24/7 availability combine to provide compelling economics to our customers—making it an easy and financially sound choice.

But the economics aren't the only story. Customers can also reduce their CO₂ emissions by 40%-100% compared to the U.S. grid (depending on their fuel choice) and virtually eliminate all SO_x, NO_x, and other harmful smog forming particulate emissions. Installing Bloom Energy Servers allows you to dramatically reduce your carbon footprint, but not at the cost of your bottom line.

When operating on pipeline-delivered natural gas, Bloom systems efficiently and electrochemically convert that fuel into low-carbon, baseload electricity. The same Energy Servers can also provide a carbon neutral generation solution operating on renewable fuels such as biogas. Bloom's fuel flexibility allows customers to choose the solution that is right for them.

Bloom Energy proves that reducing your carbon footprint and your energy costs are no longer mutually exclusive.

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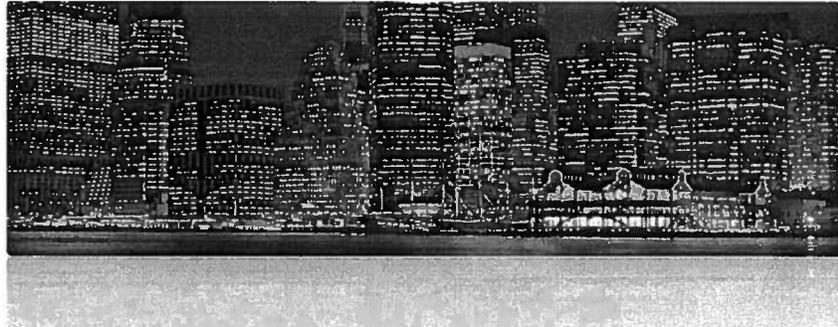
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Energy Security

Securing Your Energy Future

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In addition to providing distributed generation, Bloom's technology offers several other key benefits contributing to energy security.

Bloom's modular building block architecture is fault tolerant, helping to ensure the highest levels of power availability.

The systems are capable of running on a wide range of pipeline and locally stored fuels and can automatically detect an interruption and cut over from a primary to a backup fuel source.

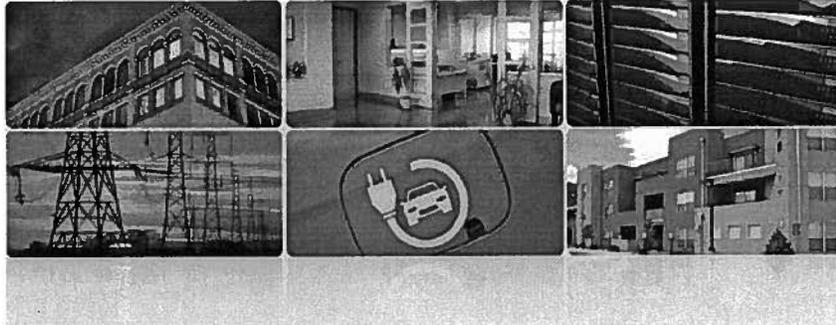
The systems can operate in grid parallel mode — the grid provides a great backup and surge handler.

In addition to availability, power quality is also an important issue. In today's digital age, many technologies suffer from variation in voltage or electrical flow over the transmission and distribution infrastructure that result in poor power quality. Bloom generates perfect waveform at the point of consumption. That means perfect power quality for our digital age.

Bloom puts your energy future in your control.

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More Benefits & Applications

Bloom has a Broader Vision

Historically, businesses have been required to install many different energy technologies to address all their energy needs. To ensure power reliability, they purchased costly backup solutions. For increased power quality, they purchased power conditioning equipment. If they simply wanted clean power, they installed solar panels or purchased Renewable Energy Credits. All individual solutions that solve individual problems.

Bloom is Different

Bloom Energy's versatile fuel cell technology is essentially a flexible energy platform, providing multiple benefits simultaneously for a wide range of applications. In addition to clean, reliable, affordable electricity, Bloom customers can realize a multitude of other advantages:

Carbon Sequestration: The electrochemical reaction occurring within Bloom Energy systems generates electricity, heat, some H₂O, and pure CO₂. Traditionally, the most costly aspect of carbon sequestration is separating the CO₂ from the other effluents. The pure CO₂ emission allows for easy and cost-effective carbon sequestration from the Bloom systems.

Reverse Backup: Businesses often purchase generators, uninterruptible power supplies and other expensive backup applications that sit idle 99% of the time, while they purchase their electricity from the grid as their primary source. The Bloom solution allows customers to flip that paradigm, by using the Energy Server as their primary power, and only purchasing electricity from the grid to supplement the output when necessary. Increased asset utilization leads to dramatically improved ROI for Bloom Energy's customers.

Time to Power: The ease of placing Bloom Energy Servers across a broad variety of geographies and customer segments allows systems to be installed quickly, on demand, without the added complexity of cumbersome combined heat and power applications or large space requirements of solar. These systems' environmental footprint enables them to be exempt from local air permitting requirements, thus streamlining the approval process. Fast installation simply requires a concrete pad, a fuel source, and an internet connection.

DC Power: Bloom systems natively produce DC power, which provides an elegant solution to efficiently power DC data centers and/or be the plug-and-play provider for DC charging stations for electric vehicles.

Hydrogen Production: Bloom's technology, with its NASA roots, can be used to generate electricity and hydrogen. Coupled with intermittent renewable resources like solar or wind, Bloom's future systems will produce and store hydrogen to enable a 24 hour renewable solution and provide a distributed hydrogen fueling infrastructure for hydrogen powered vehicles.

Bloom is proud to deliver one of the most robust and dynamic energy platforms on the market today.

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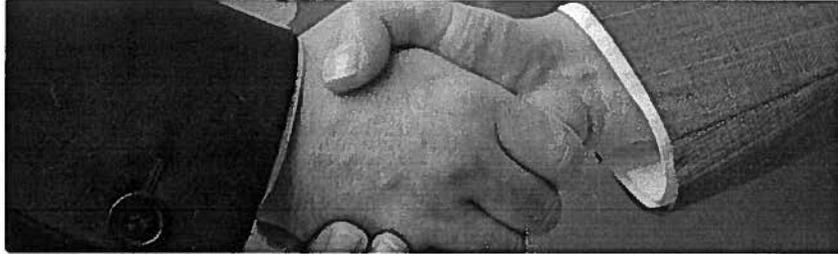
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Fuel Cell Purchase Options

Bloom Energy offers our customers different purchase options to best meet their individual needs.

Equipment Purchase

Customers who want to maximize their return on investment can purchase and install Bloom Energy Servers at their facilities and capture all of the economic benefits of producing their own power for significantly less than the price of electricity purchased from the grid.

Bloom Electrons™ Service

The Bloom Electrons service is designed to let customers purchase only the electricity they consume. Customers can experience the benefits of clean, reliable affordable energy on their own terms without any upfront costs.

Service Agreements

Bloom Energy is committed to providing customers with operating and maintenance support programs that best meets a customer's needs. The various service offerings are designed to ensure that our customers are given the best service available with easy and affordable options to constantly assure the superior quality performance of our Energy Servers.

All services are performed by certified service technicians.

Contact us today at sales@bloomenergy.com to learn more about the service agreement options available to our customers.

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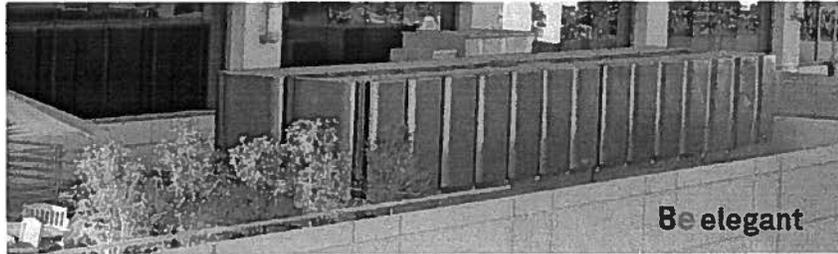
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What is an Energy Server?

Built with our patented solid oxide fuel cell technology, Bloom's Energy Server™ is a new class of distributed power generator, producing clean, reliable, affordable electricity at the customer site.

Fuel cells are devices that convert fuel into electricity through a clean electro-chemical process rather than dirty combustion. They are like batteries except that they always run. Our particular type of fuel cell technology is different than legacy "hydrogen" fuel cells in three main ways:

1. Low cost materials – our cells use a common sand-like powder instead of precious metals like platinum or corrosive materials like acids.
2. High electrical efficiency – we can convert fuel into electricity at nearly twice the rate of some legacy technologies
3. Fuel flexibility – our systems are capable of using either renewable or fossil fuels

Each Bloom Energy Server provides 200kW of power, enough to meet the baseload needs of 160 average homes or an office building... day and night, in roughly the footprint of a standard parking space. For more power simply add more energy servers.

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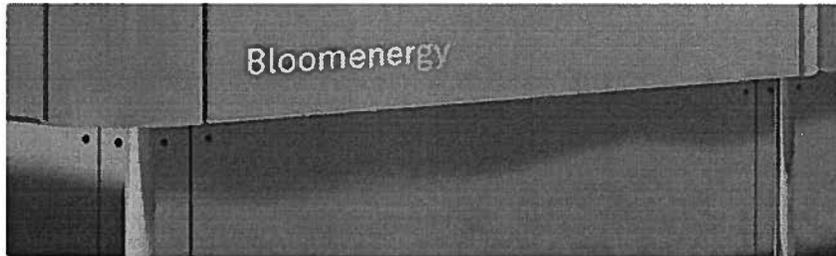
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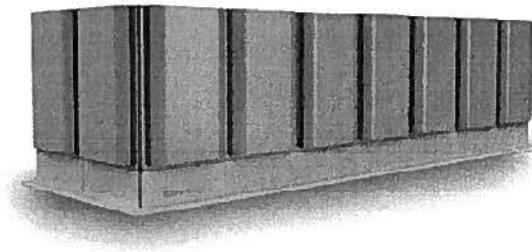
Energy Server Architecture

At the heart of every Energy Server™ is Bloom's patented solid oxide fuel cell technology.

Each Energy Server consists of thousands of Bloom's fuel cells. Each cell is a flat solid ceramic square made from a common sand-like "powder."

Each Bloom Energy fuel cell is capable of producing about 25W... enough to power a light bulb. For more power, the cells are sandwiched, along with metal interconnect plates into a fuel cell "stack". A few stacks, together about the size of a loaf of bread, is enough to power an average home.

In an Energy Server, multiple stacks are aggregated together into a "power module", and then multiple power modules, along with a common fuel input and electrical output are assembled as a complete system.



For more power, multiple Energy Server systems can be deployed side by side.

In addition to Bloom's unmatched performance, this modular architecture offers...

- easy and fast deployment
- inherent redundancy for fault tolerance
- high availability (one power module can be serviced while all others continue to operate)
- mobility

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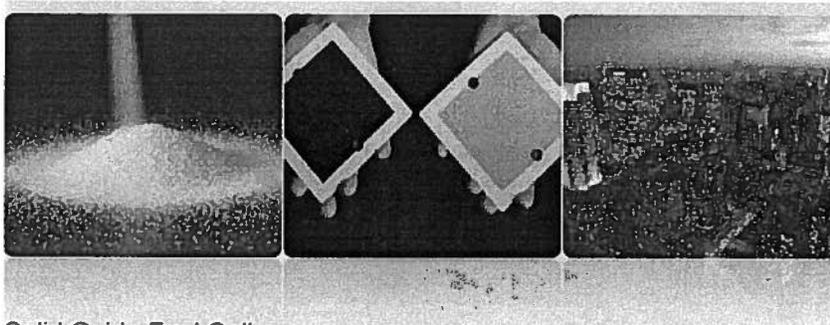
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Solid Oxide Fuel Cells

[How a SOFC Works](#)

Fuel cells were invented over a century ago and have been used in practically every NASA mission since the 1960's, but until now, they have not gained widespread adoption because of their inherently high costs.

Legacy fuel cell technologies like proton exchange membranes (PEMs), phosphoric acid fuel cells (PAFCs), and molten carbonate fuel cells (MCFCs), have all required expensive precious metals, corrosive acids, or hard to contain molten materials. Combined with performance that has been only marginally better than alternatives, they have not been able to deliver a strong enough economic value proposition to overcome the status quo.

Some makers of legacy fuel cell technologies have tried to overcome these limitations by offering combined heat and power (CHP) schemes to take advantage of their wasted heat. While CHP does improve the economic value proposition, it only really does so in environments with exactly the right ratios of heat and power requirements on a 24/7/365 basis. Everywhere else the cost, complexity, and customization of CHP tends to outweigh the benefits.

For decades, experts have agreed that solid oxide fuel cells (SOFCs) hold the greatest potential of any fuel cell technology. With low cost ceramic materials, and extremely high electrical efficiencies, SOFCs can deliver attractive economics without relying on CHP. But until now, there were significant technical challenges inhibiting the commercialization of this promising new technology. SOFCs operate at extremely high temperature (typically above 800°C). This high temperature gives them extremely high electrical efficiencies, and fuel flexibility, both of which contribute to better economics, but it also creates engineering challenges.

Bloom has solved these engineering challenges. With breakthroughs in materials science, and revolutionary new design, Bloom's SOFC technology is a cost effective, all-electric solution.

Over a century in the making, fuel cells are finally clean, reliable, and most importantly **affordable**.

[Click here to see how a Solid Oxide Fuel Cell works.](#)

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What is Distributed Generation?

Distributed generation (DG) refers to power generation at the point of consumption. Generating power on-site, rather than centrally, eliminates the cost, complexity, interdependencies, and inefficiencies associated with transmission and distribution. Like distributed computing (i.e. the PC) and distributed telephony (i.e. the mobile phone), distributed generation shifts control to the consumer.

The World Needs Distributed Generation that is Clean and Continuous

Historically, distributed generation meant combustion generators (e.g. diesel gensets). They were affordable, and in some cases reliable, but they were not clean. While many people will tolerate dirty generation thousands of miles away from them, they think twice when it is outside their bedroom window or office door.

Recently, solar has become a popular distributed generation option. Although the output is clean it is also intermittent, making it an incomplete strategy for businesses that need power around the clock, including when the sun is not shining.

The Benefits of Bloom Energy

Bloom Energy is a Distributed Generation solution that is clean and reliable and affordable all at the same time. Bloom's Energy Servers can produce clean energy 24 hours per day, 365 days per year, generating more electrons than intermittent solutions, and delivering faster payback and greater environmental benefits for the customer. And while other DG systems may require lengthy installations, sunny locations, or demand for consistent 24/7/365 heat load, Bloom's systems are easy and fast to install, practically anywhere.

As Distributed Generation moves to the forefront of corporate consciousness, Bloom Energy Servers are perfectly designed to meet the demanding needs of today's economically and environmentally minded companies.

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Reliable Power for Mission Critical Systems

Data center electricity demand continues to soar and today's data center operators are increasingly challenged to rely on an aging electric grid to fuel their growth. Operators are finding conventional approaches inadequate to scale with today's increasing IT demands.

Bloom Energy has developed a simpler way to power data centers and mission critical facilities. Bloom's modular, always-on architecture simultaneously addresses the key challenges of traditional data center design: reliability, energy efficiency, reduced operational cost, phased use of capital, and air and water sustainability

Increased Reliability – and Lower Total Cost of Ownership (TCO)

Bloom Energy delivers a continuous source of UPS-quality power. Modular architecture enables operators to specify the level of availability and N+M configurations to suit multiple needs. Bloom draws fuel from the highly reliable natural gas grid, and utilizes the electric grid as backup. This delivers an order-of-magnitude greater reliability than traditional approaches at lower lifetime costs.

Avoid Uninterruptible Power Systems (UPS) & Diesel Generation

A data center powered by Bloom Energy eliminates the need for traditional backup equipment like diesel generators, UPS, batteries, and complex switchgear. This suite of legacy components is still too expensive, unreliable, and cumbersome. Bloom enables data center operators to rely on a simpler, cleaner, lower cost solution.

Energy Efficient, No Water Use

Bloom Energy Servers generate power at unmatched electrical efficiencies. Further, by generating power onsite, they avoid 7 to 15 percent losses from transmission across the grid, and also avoid similar additional losses from duplicative UPS systems. Bloom can run on 100 percent renewable biogas, and consumes no water during normal operation.

Future Applications

This is just the beginning. Bloom Energy can be deployed across the globe, tailored to any need. From urban nodes for low-latency, to core data centers at low TCO, Bloom Energy's solution will be a catalyst for reimagining how data centers are designed & deployed worldwide.

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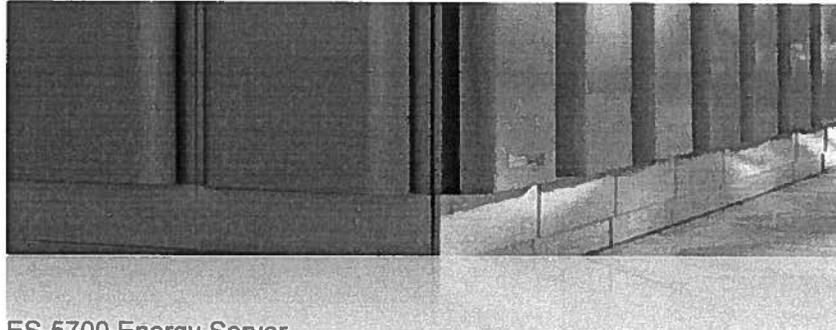
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ES-5700 Energy Server

 ES-5700 Energy Server Data Sheet

Technical Highlights	
Inputs	
Fuels	Natural Gas, Directed Biogas
Input fuel pressure	15 psig
Fuel required @ rated power	1.32 MMBtu/hr of natural gas
Outputs	
Nameplate power output (net AC)	210kW
Base load output (net AC)	200kW
Electrical efficiency (LHV net AC)	> 50%
Electrical connection	480V @ 60 Hz, 3 or 4-wire 3 phase
Physical	
Weight	19.4 tons
Size	26' 5" x 8' 7" x 6' 9"
Emissions	
NOx	< 0.0 t lbs/MW-hr
SOx	negligible
CO	< 0.10 lbs/MW-hr
VOCs	< 0.02 lbs/MW-hr
CO2 @ specified efficiency	773 lbs/MW-hr on natural gas, carbon neutral on Directed Biogas
Environment	
Standard temperature range	-20° to 45° C (extreme weather kit optional)
Humidity	0% - 100%
Seismic Vibration	IBC site class D
Location	Outdoor
Noise @ rated power	< 70 DB @ 6 feet
Codes and Standards	
Complies with Rule 21 interconnection standards	
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards	
Product Listed by Underwriters Laboratories Inc. (UL) to ANSI/CSA America FC 1	
Additional Notes	
Operates in a grid parallel configuration	
Includes a secure website for you to showcase performance & environmental benefits	
Remotely managed and monitored by Bloom Energy	
Capable of emergency stop based on input from your facility	

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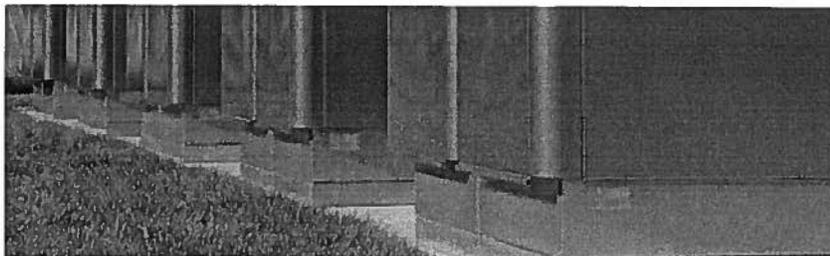
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ES-5400 Energy Server

 ES-5400 Energy Server Data Sheet

Technical Highlights	
Inputs	
Fuels	Natural Gas, Directed Biogas
Input fuel pressure	15 psig
Fuel required @ rated power	0.661 MMBtu/hr of natural gas
Outputs	
Nameplate power output (net AC)	105 kW
Base load output (net AC)	100 kW
Electrical efficiency (LHV net AC)	> 50%
Electrical connection	480V @ 60 Hz, 3 or 4-wire 3 phase
Physical	
Weight	11 tons
Size	15' 6" x 8' 6" x 6' 9"
Emissions	
NOx	< 0.01 lbs/MW-hr
SOx	negligible
CO	< 0.10 lbs/MW-hr
VOCs	< 0.02 lbs/MW-hr
CO2 @ specified efficiency	773 lbs/MW-hr on natural gas, carbon neutral on Directed Biogas
Environment	
Standard temperature range	-20° to 45° C (extreme weather kit optional)
Humidity	0% - 100%
Seismic Vibration	IBC site class D
Location	Outdoor
Noise @ rated power	< 70 DB @ 6 feet
Codes and Standards	
Complies with Rule 21 interconnection standards	
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards	
Product Listed by Underwriters Laboratories Inc. (UL) to ANSI/CSA America FC 1	
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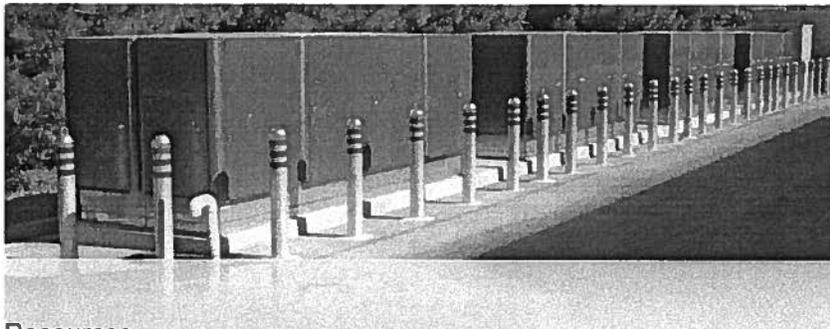
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- [Understanding CO2 Emissions Accounting \(PDF\)](#)
- [Sustainable Energy for the 21st Century: A Case for Action \(PDF\)](#)

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- SGIP Handbook & Forms for your utility:
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 - [SCE](#)
 - [SoCalGas](#)
 - [SDG&E](#)

Learn More

- Learn more about losses & inefficiencies from the transmission & distribution of electricity from the grid.
- Learn more about solid oxide fuel cells.
- [Solid oxide fuel cells \(SOFC\) with hydrocarbon and hydrocarbon-derived fuels. \(PDF\)](#)

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Industry
Technology

Established
1982

Headquarters
San Jose, California

Web site
www.adobe.com

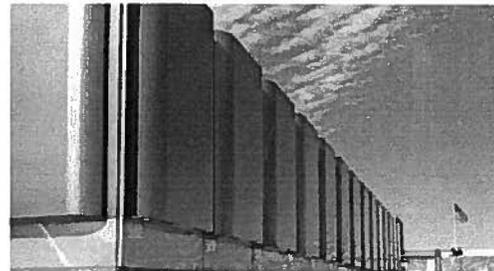
Bloom Installation
San Francisco, California
January 2012
400 kW

San Jose, California
September 2010
1.2 MW

Objective
Adobe expects to **reduce its carbon footprint** by approximately 121.5 million pounds over 10 years

"Adobe has been an early adopter of numerous sustainable energy technologies. Installing Bloom Energy fuel cells at our Bay Area operations has enabled us to produce approximately 30% of Adobe's energy needs and further shrink our environmental footprint."

— *Michael Bangs P.E., Director of Global Facilities Operations*



Adobe Installs 1.6 Megawatts of Clean Power at San Jose Headquarters and Downtown San Francisco Offices

In October 2011, Adobe added a second Bloom Energy site with a 400 kW fuel cell installation at its downtown San Francisco offices. Along with 1.2 MW at its San Jose headquarters, Adobe produces over 14,000 MWh of clean electricity annually running on renewable biogas.

Adobe is a recognized leader for its green building efforts, having earned distinction as the world's first corporation to achieve four Platinum certifications under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) program. The Bloom fuel cell installations build on Adobe's prior renewable energy initiatives including 20 Windspire® wind turbines installed in 2009. Now, as a Bloom Energy customer, Adobe can efficiently generate 30% of its own electricity on site, further reducing the company's carbon footprint, lowering energy costs and mitigating power outage risks.

Adobe expects to reduce its carbon footprint by approximately 121.5 million pounds over 10 years, which is the equivalent to taking 1,810 compact cars off the road annually.

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AT&T

Industry
Telecommunications

Established
1984

Headquarters
Dallas, TX

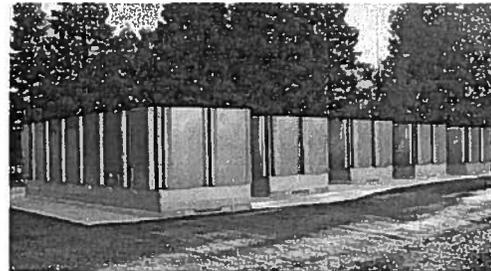
Web site
www.att.com

Bloom Installation
7.5 MW
Multiple Locations

Objective
Bloom Boxes are expected to produce over 62 million kilowatt-hours (kWh) of energy annually for AT&T, and will be deployed at 11 sites throughout California.

"AT&T is committed to finding more sustainable ways to power our business operations as part of our efforts to incorporate alternative and renewable energy sources into our energy portfolio. Bloom Energy provided us with a solution that was not only cost comparable but also allows us to minimize environmental impact."

— John Schinter, Director of Energy



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Financial services

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1784

Headquarters
Charlotte, NC

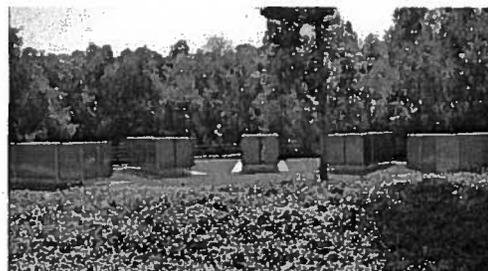
Web site
www.bankofamerica.com

Bloom Installation
Southern CA
Summer 2010
500 kW

Objective
Bank of America chose Bloom Energy to provide reliable, clean, cost-saving energy for its Southern California call center as part of its commitment to address global climate change.

"Installing low-carbon technologies, like Bloom's Energy Servers, at our facilities is not only the right thing to do for our planet, but it's also a smart business decision. Bank of America is proud to be at the forefront as one of Bloom's foundation customers."

— Mark Nicholls, Senior Vice President, Corporate Workplace executive, Bank of America



Bank of America Powering its Call Center with Bloom's Energy Servers

Bank of America is installing Bloom Energy Servers at one of its largest call centers in Southern California. Part of the ten-year, \$20 billion business initiative to address global climate change, this partnership is a win-win for Bank of America, powering its facility with low-carbon energy at a lower, more stable cost.

As a global financial services institution with comprehensive business capabilities, Bank of America sees the tremendous business opportunities in growing the low-carbon economy and is well-positioned to play a key leadership role.

Why Bloom?

Bloom Energy offers a solution that can cut Bank of America's electricity costs and protect its facility from price volatility, all the while increasing power quality and reliability for the call center. Bank of America is proud to partner with Bloom Energy, both as its financial services provider and now as a fuel cell customer.

Implementation

After rigorous financial and technical due diligence, Bank of America purchased five Bloom Energy Servers to power one of its largest call centers. This not only publicly demonstrates Bank of America's commitment to addressing global climate change, but it also serves as a high-profile validation of its belief in Bloom Energy's reliability.

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- eBay**
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- [Washington Gas](#)



Industry
Internet retail

Fortune 500 Rank (2012)
228

Established
1995

Headquarters
San Jose, CA

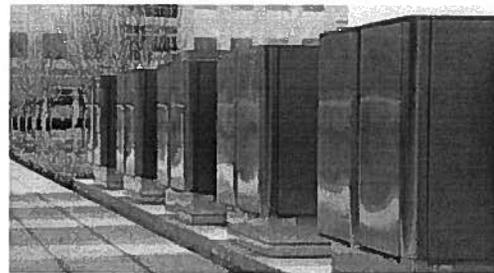
Web site
www.ebay.com

Bloom Installation
500kW
June 2009
San Jose, CA

6MW
2013
South Jordan, UT

Objective
eBay Inc sought a cost effective, 24/7 solution that delivered 100% renewable energy, allowing them to meet both financial and environmental goals.

"eBay believes in the power of our business model to make a real difference in the world, and that includes how we embrace innovation to reduce our carbon footprint. When Bloom came to us, it was an easy decision to become an early-adopter of their cutting-edge new technology. As a result, we're meeting financial and environmental goals with the project while fueling a more energy efficient global marketplace. That's good for us, our customers and the planet."
— John Donahoe, CEO



eBay Installs 24/7 Clean Power Solution to Contribute to Ambitious CO2 Reduction Targets

With more than 90 million active users globally, eBay is the world's largest online marketplace, where practically anyone can buy and sell practically anything. CEO John Donahoe is a strong believer that a long-term commitment to sustainability and renewable energy use is both great for business – and critical for the environment. In 2009, eBay committed to reduce its corporate greenhouse gas emissions by 15% by 2012, over a 2008 baseline, an ambitious target for a rapidly growing company.

Why Bloom?

The majority of eBay's environmental impact arises from the energy consumed by its data centers, operations that run 24/7/365 in order to support the more than \$2,000 worth of goods that are transacted every second. Following the installation of a 650 kW solar array at their headquarters in San Jose, eBay was convinced that clean energy was a viable solution, but was looking for one that could provide always-on, 100% renewable power for this constant load. The best and most cost-effective solution they found was Bloom's systems running on biogas.

Implementation

The initial 500kW eBay installation is a high-profile, showcase project for the company, and was Bloom's first 100% renewable biogas project. Beautifully situated outside the company's LEED gold certified "Mint" building, the Bloom Energy Servers delivered 2.2 million kWh of power and mitigated more than 650,000 pounds of CO2 in just their first 6 months; with biogas turned on, the amount of carbon mitigated more than triples.

In June of 2012, eBay announced plans to build the next phase of its flagship data center with renewable energy as its primary power source. Partnering with Bloom Energy, eBay is incorporating 30 Bloom Energy servers into the new data center's energy architecture. The electric utility grid will be used only as backup. The new six megawatt (MW) Bloom installation is being designed and engineered into eBay's expanded data center facility in Utah, and will be fully functional by mid-2013. By utilizing Bloom Energy Servers—which generate on-site power 24 hours a day, 365 days a year—eBay will be able to replace large and expensive backup generators and UPS components that are historically utilized less than one percent of the year.

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[Walmart](#)

[Washington Gas](#)



Industry
Logistics and transportation

Established
1971

Headquarters
Memphis, Tennessee

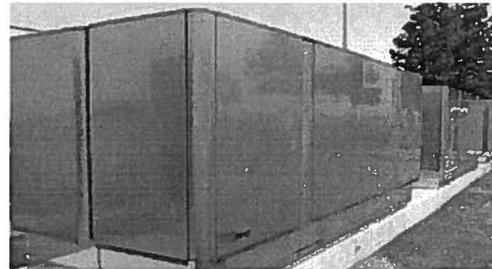
Web site
www.fedex.com

Bloom Installation
500kW
February 2010
Oakland, CA

Results
The project is expected to achieve a return on investment in five years and reduce carbon dioxide emissions about 30 percent

"FedEx understands the importance of leading in areas of innovation such as energy. Bloom Energy is a pioneer in distributed energy, the concept behind the next paradigm shift in how industry could be powered."

— Rob Carter, Chief Information Officer



FedEx Collaborates With Bloom Energy to Enable Cleaner, More Reliable, More Affordable Power at Key Hub

FedEx invented an industry. With outside-the-box thinking, Chairman Frederick W. Smith's bold vision of shipping changed the world and still drives the company's commitment to embracing and implementing strategic innovation. From the company's early adoption of the web to its significant commitment to alternative energy, FedEx maintains its vision of creating and ensuring the future by embracing new technology today.

Why Bloom?

Distributed energy means technology designed to generate electricity closer to where it is used, saving money, increasing dependability and protecting the environment. Bloom Energy's solid oxide fuel cell is on the cutting edge of this new frontier in energy. What the technology means for FedEx is the opportunity to couple the solar power already driving its Oakland Hub with fuel cells, to meet energy demands more dependably, affordably, and sustainably, 24/7.

Implementation

FedEx chose its Oakland Hub for an initial 500kW installation. The project is expected to achieve a return on investment in five years and reduce carbon dioxide emissions about 30 percent.

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Industry Insurance

Established 1863

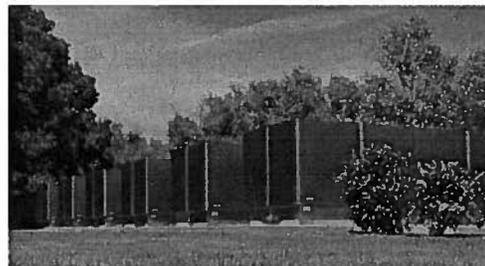
Headquarters Novato, CA

Web site www.firemansfund.com

Bloom Installation 600 kW April 2011 Novato, CA

Objective The company installed six Energy Servers allowing Fireman's Fund to self-produce 60 percent of the energy the company uses onsite on its Novato campus.

"Bloom Energy fuel cells allow Fireman's Fund to use a clean and reliable onsite energy source that reduces its energy costs and carbon footprint, is good for the environment and further demonstrates the company's commitment to sustainability." - Michael LaRocco, President and CEO



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[Sharks Ice](#)

[Staples](#)

[Sutter Home Winery](#)

[Walmart](#)

[Washington Gas](#)



Industry
Internet

Fortune 500 Rank (2009)
117

Established
1998

Headquarters
Mountain View, CA

Web site
www.google.com

Bloom Installation
400kW
July 2008
Mountain View, CA

Results

Over the first 18 months the project has had 98% availability and delivered 3.8 million kWh of electricity.

"As we strive to continually implement innovative and responsible practices across our company, we are proud to be one of the early customers of Bloom Energy."

— Rick Needham, Manager Green Business Operations



Onsite Clean Energy at Google Headquarters

Google is committed to being a responsible global citizen and takes its energy use very seriously. To reduce the environmental impact of Google's operations, it generates onsite energy with lower carbon intensities and lower cost than the traditional grid. **Onsite renewable energy** reduces Google carbon emissions and makes good business sense too.

Why Bloom?

Bloom's technology delivers clean, reliable and affordable energy to help power Google's headquarters. And Bloom's Energy Servers have the potential to operate on a wide range of renewable fuels that enable 24/7, carbon neutral energy production. This potential, combined with easy deployment and reasonable payback periods, attracted Google to Bloom.

Implementation

Bloom has worked to help Google achieve both its economic and environmental goals, assuring that the 400kW installation on Google's main campus delivers clean and affordable power. Over the first 18 months the project has had 98% availability and delivered 3.8 million kWh of electricity.

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Industry
Commercial Real Estate

Established
1968

Headquarters
Chicago, IL

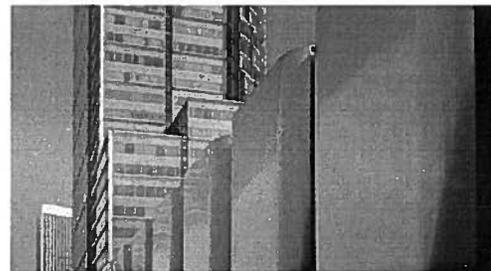
Web site
www.constellation-place.com

Bloom Installation
400KW
December 2011
Constellation Place
Century City, CA

Objective
Bloom Energy Servers power one-third of JMB Realty's Constellation Place, a Class A office tower set in the heart of downtown Century City. Combined with the use of solar photovoltaics, JMB offers its tenants a LEED Gold office environment while generating significant savings.

"JMB is excited to be Bloom's first high-rise, Class A office installation in Los Angeles. Bloom's compact footprint produces 400kW of power in less than 900 square feet, helping us provide our tenants high quality, premium space with minimal environmental impact."

– Sarah Shaw, Vice President Development and Operations



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NTT Communications

Owens Corning

The Ratkovich Company

Sharks Ice

Staples

Sutter Home Winery

Walmart

Washington Gas



Industry
Manufacturing

Established
1938

Headquarters
Toledo, OH

Web site
www.owenscorning.com

Bloom Installation
400 kW
Compton, CA
December 2011

Objective
Achieve 20% reduction in GHG emissions by 2020 while also solving grid outage problems at its Compton, California plant.

"Our roofing and asphalt plant now operates with energy that is more sustainable, cheaper, as well as more reliable with the deployment of Bloom Energy Servers. The 24/7 uninterruptible, high quality power from the Bloom Energy servers has greatly improved the reliability of critical manufacturing processes at the facility."

– Frank O'Brien-Bernini, Vice President, Chief Sustainability Officer



Owens Corning Roofing and Asphalt Plant Powered by Bloom Energy Servers

Owens Corning has been well on its way to achieving a company-wide goal of reducing greenhouse gas emissions 20 percent by 2020. But, at its roofing and asphalt plant in Compton, California, it also was facing an average of one or two power outages events per week due to an overloaded local infrastructure.

As a leading global producer of building materials, glass-fiber reinforcements and engineered materials for composite systems, this energy issue was a challenging part of doing business.

Why Bloom?

As a result of these business disruptions and costs associated with them, plant officials in Compton, championed by E&S Leader Nico Armstrong, chose to implement the Bloom Energy Business Continuity solution to enhance the reliability of the plant's critical manufacturing processes by providing 24/7 high quality, uninterruptible power.

Bloom provides unique fuel cell technology to produce onsite electricity without any combustion, thus eliminating harmful smog-forming particulates and reducing carbon dioxide emissions by about 30 percent compared to the electric grid.

Implementation

Owens Corning partnered with Bloom to install two 200-kilowatt Bloom Energy Servers sized to provide approximately 65 percent of the plant's power over the course of a year.

These improvements are part of OC Compton's plan to achieve its 2020 environmental footprint goal of reducing greenhouse gas emissions by 20 percent.

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Life Technologies

NTT Communications

Owens Corning

The Ratkovich Company

Sharks Ice

Staples

Sutter Home Winery

Walmart

Washington Gas



Industry
Retail

Fortune 500 Rank (2009)
2

Established
1962

Headquarters
Bentonville, AR

Web site
www.walmart.com
www.walmartstores.com

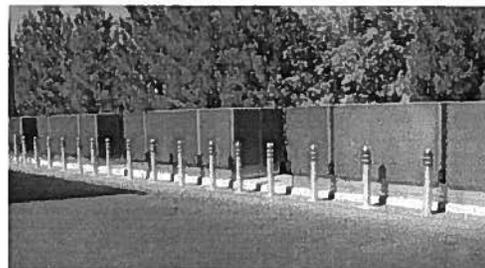
Bloom Installation
Lancaster, CA
December 2009
400kW

Hemet, CA
January 2010
400kW

Objective
Walmart was seeking an energy solution that could make a major contribution to their GHG targets while contributing to lower costs, and providing the potential to supply continuous power to stores even during critical grid outages.

"At Walmart, our goal is to be supplied by 100 percent renewable energy. To do this, we are considering a number of emerging technologies, including Bloom Energy, to ensure they work for our business, help lower costs for our customers, and reduce our impact on the environment. We hope to use our scale to help bring these technologies to market in a fast and cost effective way."

– Bill Simon, Chief Operating Officer, Walmart U.S.



Walmart Seeks to Meet Renewable Energy Goals with Bloom Energy Server

Walmart views sustainability as an important opportunity for both the future of their business and our world. Accordingly, they have set a vision of supplying their operations with 100 percent renewable energy.

Why Bloom?

Walmart evaluates their energy vendors with the same rigor applied to all of their suppliers. Consequently, they were seeking a renewable energy solution that could not only make a major contribution to their sustainability targets and contribute to lower energy costs, but also have the long term potential to supply continuous power to stores, even during critical grid outages. A Bloom system powered by biogas could meet those requirements.

Implementation

Walmart has completed installation at two stores in southern California, each at 400kW, generating approximately 3.4 million kWh annually. Each of these sites has the potential to eliminate 1 million pounds of CO2 annually when powered by biogas.

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ATTACHMENT B

Honolulu Authority for Rapid Transportation

FY 2014 Capital Budget Section 106 Programmatic Agreement (PA)

Section 106 PA

- Executed in January 2011 by FTA, SHPO, U.S. Navy, ACHP and DTS
- Documents stipulations that shall be implemented in order to take into account the adverse effect of the project on historic properties

FY 2014 CIP – Planning Phase

\$300,000

- \$200,000 for Kako‘o (Independent PA Manager)
- \$100,000 for Historic Preservation Committee

FY 2014 CIP – Construction Phase \$1,650,000

- \$900,000 for Historic Preservation Committee
- \$750,000 for Park Improvements

Mahalo!

ATTACHMENT C

Scope of Permitted Interaction Group on Fare Policy

This Permitted Interaction Group (“PIG”) is being formed to recommend a fare policy to the full Board. In coming up with a recommendation, the PIG should investigate fare policies of other transit authorities, bus and rail farebox recovery ratios (anticipated farebox revenues as compared to anticipated operating expenses), possible alternative revenue sources, and fare collection and associated technologies.

ATTACHMENT D

Honolulu Authority for Rapid Transportation

RESOLUTION 2013-4

AUTHORIZING THE ACQUISITION OF THE REAL PROPERTY IDENTIFIED AS TAX MAP KEY 1-9-6-004:006 BY EMINENT DOMAIN

WHEREAS, the Honolulu Authority for Rapid Transportation (HART) has been established pursuant to Article XVII of the Revised Charter of the City and County of Honolulu 1973, as amended (Charter); and

WHEREAS, Section 17-103.2(b) of the Charter empowers HART "to acquire by eminent domain . . . all real property or any interest therein necessary for the construction, maintenance, repair, extension or operation of the fixed guideway system;" and

WHEREAS, the City Council approved or did not object to the acquisition of the real property identified as Tax Map Key (TMK) 1-9-6-004:006 by eminent domain in fee simple after written notification by HART; and

WHEREAS, the acquisition by eminent domain in fee simple of the above identified real property, which is more particularly described in the attached legal description marked as Exhibit A, is necessary for the Honolulu Rail Transit Project fixed guideway system, a valid public use and purpose;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of HART as follows:

1. That acquisition by eminent domain in fee simple of the real property identified as TMK 1-9-6-004:006 is hereby authorized and the Corporation Counsel of the City and County of Honolulu is empowered to institute eminent domain proceedings as provided by law for the acquisition thereof; and
2. That the acquisition of the above-identified property by eminent domain is determined and declared to be for a valid public use and purpose as aforesaid; and
3. That the acquisition of the above-identified property by eminent domain is determined and declared to be necessary for the aforesaid public use and purpose; and
4. That in the process of said proceedings in eminent domain, the Corporation Counsel is authorized and empowered to negotiate terms of settlement, subject to the approval of HART and/or the Court before which such proceedings are commenced; and

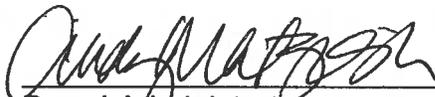
5. That the Board Administrator be directed to transmit copies of this resolution to HART and the Department of the Corporation Counsel.

ADOPTED by the Board of the Honolulu Authority for Rapid Transportation on
MAR 21 2013.



Board Chair

ATTEST:



Board Administrator

HONOLULU RAIL TRANSIT PROJECT

GUIDEWAY SYSTEM

PARCEL 15
(Fee Simple)

All of that certain Parcel 15 of land (being a portion of Royal Patent 4475, Land Commission Award 7713, Apana 46 to V. Kamamalu) situated at Waiawa, District of Ewa, City and County of Honolulu, State of Hawaii identified as Tax Map Key: 9-6-004:006 containing an area of 9.69 acres, more or less, of the Waiawa Subdivision as shown on the sketch attached hereto and made a part hereof:

Beginning at the South corner of Parcel 15, the East corner of Civil No. 23,805 and on the North side of Kamehameha Highway, the coordinates of said point of beginning referred to Government Survey Triangulation Station "Ewa Church" being 158.40 feet North and 1123.18 feet West and running thence by azimuths measured clockwise from true South:

1.	126°	25'	1084.70	feet along Civil No.23,805;
2.	247°	3'	48.97	feet along the Southernly side of Waiawa cutt off;
3.	266°	20'	272.76	feet along same;
4.	266°	39' 55"	16.13	feet along the same;
5.	46°	6'	98.70	feet along L.C. Aw. 4213, Ap.2. to Kauhi and L.C. Aw. 4529 & 2685, Ap. 3 to Ohia;
6.	310°	21'	254.20	feet along L.C. Aw. 4213, Ap.2 to Kauhi and L.C. Aw. 4529 & 2685, Ap. 3 to Ohia;
7.	240°	53'	250.0	feet along L.C. Aw. 4529 & 2685, Ap. 3 to Ohia;

8.	118°	29'	45"		feet along L.C. Aw. 4529 & 2685, Ap.3 to Ohia & L.C. Aw. 4213, Ap. 2 to Kauhi; Thence along Waiawa cut-off on a curve to the right with a radius of 1392.40 feet, the chord azimuth and distance being;
9.	279°	59'		360.28	feet;
10.	287°	25'		262.53	feet along the Southerly side of Waiawa cut-off;
11.	34°	26'		269.26	feet along L.C. Aw. 5591 & 9357 to Kekua;
12.	327°	27'		120.20	feet along same;
13.	220°	00'		86.00	feet along same;
14.	289°	16'		191.00	feet along Lot "C";
15.	36°	00'		42.50	feet along remainder of R.P. 4475, L.C. Aw. 7713, Ap. 46 to V. Kamamalu; Thence along same, the direct Azimuth and distance being;
16.	277°	38'		776.30	feet;
17.	86°	29'		127.38	feet along the North side of Kamehameha Highway;
18.	92°	12'		201.00	feet along same;
19.	86°	29'		100.00	feet along same;
20.	356°	29'		35.00	feet along same;
21.	86°	29'		669.66	feet along same to the point of beginning.

Honolulu Authority for Rapid Transportation

STAFF SUMMARY

TITLE: AUTHORIZING THE ACQUISITION OF THE REAL PROPERTY IDENTIFIED AS TAX MAP KEY 1-9-6-004:006 BY EMINENT DOMAIN	STAFF CONTACT: Jerry Iwata/Laura Ray	DATE: March 21, 2013
---	--	--------------------------------

Type:	Goal	Focus	Area	Reference Notes
<input checked="" type="checkbox"/> Action/Approval	<input type="checkbox"/> Project Delivery	<input type="checkbox"/> Livability/Land Use		
<input type="checkbox"/> Information	<input type="checkbox"/> Service Delivery	<input type="checkbox"/> Partnerships		
<input type="checkbox"/> Follow-up	<input type="checkbox"/> Resource Stewardship	<input type="checkbox"/> Agency Admin.		

1. Purpose:
Final action of the Board in authorizing the condemnation of the parcel identified as Parcel I5, and bearing TMK 1-9-6-004:006, and situated at 96-136 Farrington Highway, Pearl City, HI, which is required for the West Oahu Farrington Highway guideway section and for the Pearl Highland Station Complex.

2. Background/Justification
Notification of the intent to exercise eminent domain had previously been sent to the Honolulu City Council along with HART Resolution 2013-2 on January 28, 2013. More than 45 days has elapsed since the notice. The City Council neither approved or adopted a resolution in objection of the action. Accordingly, under the Charter of the City and County of Honolulu section 17-103.2(b), HART may now properly proceed with the condemnation proceedings for this parcel.

3. Procurement Background
N/A

4. Financial/Budget Impact
The project budget includes an estimated cost for legal action associated with the condemnation of the property.

5. Policy Impact
There is no policy impact since this action conforms to the requirement of the Uniform Relocation Assistance and Real Property Acquisition Policies Act, FTA 1050.10 and Article XVII of the Charter of the City and County of Honolulu.

6. Public Involvement
N/A

7. Alternatives
There is no alternative given the proposed project schedule and the need to acquire the property as soon as possible in order to not delay the WOFH contractor in constructing the guideway.

8. Exhibits

Certified and Recommended by:

 _____ 3/19/13
Executive Director and CEO

ATTACHMENT E

Honolulu Authority for Rapid Transportation

RESOLUTION 2013-5

**AUTHORIZING THE ACQUISITION OF THE REAL PROPERTY IDENTIFIED
AS
TAX MAP KEY 1-9-7-023:008 BY EMINENT DOMAIN**

WHEREAS, the Honolulu Authority for Rapid Transportation (HART) has been established pursuant to Article XVII of the Revised Charter of the City and County of Honolulu 1973, as amended (Charter); and

WHEREAS, Section 17-103.2(b) of the Charter empowers HART “to acquire by eminent domain . . . all real property or any interest therein necessary for the construction, maintenance, repair, extension or operation of the fixed guideway system;” and

WHEREAS, the City Council approved or did not object to the acquisition of the real property identified as Tax Map Key (TMK) 1-9-7-023:008 by eminent domain in fee simple after written notification by HART; and

WHEREAS, the acquisition by eminent domain in fee simple of the above identified real property, which is more particularly described in the attached legal description marked as Exhibit A, is necessary for the Honolulu Rail Transit Project fixed guideway system, a valid public use and purpose;

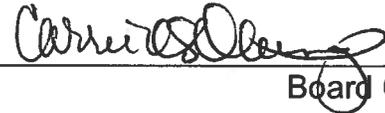
NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of HART as follows:

1. That acquisition by eminent domain in fee simple of the real property identified as TMK 1-9-7-023:008 is hereby authorized and the Corporation Counsel of the City and County of Honolulu is empowered to institute eminent domain proceedings as provided by law for the acquisition thereof; and
2. That the acquisition of the above-identified property by eminent domain is determined and declared to be for a valid public use and purpose as aforesaid; and
3. That the acquisition of the above-identified property by eminent domain is determined and declared to be necessary for the aforesaid public use and purpose; and
4. That in the process of said proceedings in eminent domain, the Corporation Counsel is authorized and empowered to negotiate terms of

settlement, subject to the approval of HART and/or the Court before which such proceedings are commenced; and

5. That the Board Administrator be directed to transmit copies of this resolution to HART and the Department of the Corporation Counsel.

ADOPTED by the Board of the Honolulu Authority for Rapid Transportation on
MAR 21 2013.



Board Chair

ATTEST:



Board Administrator

PARCEL 28

Honolulu Rail Transit Project

Being a Portion of Lot 1

Same Being a Portion of Grant 3725 to Oahu Railroad and Land Company
and Land Patent 8168, Part 12, Land Commission Award 8305 to P. Kanoa

Situate at Manana-Iki and Manana, Ewa, Island of Oahu, Hawaii

Beginning at the North corner of this parcel of land, being the East corner of Lot 2, being a portion of R.P. 4475, L.C. Aw. 7713, Ap. 48 to V. Kamamalu and on the Southwest side of Kamehameha Highway, the coordinates of said point of beginning referred to Government Survey Triangulation Station "EWA CHURCH" being 845.87 feet North and 2,845.73 feet East, thence running by azimuths measured clockwise from true South:

1. 290° 19' 30" 141.01 feet along the Southwest side of Kamehameha Highway;
2. 29° 36' 15.62 feet along Lot 2 (Map 1) of Land Court Application 1695;
3. 110° 19' 30" 146.12 feet along the remainder of Parcel 28, being a portion of Grant 3725 to Oahu Railroad and Land Company and L.P. 8168, Part 12, L.C. Aw. 8305 to P. Kanoa;
4. 226° 36' 17.20 feet along Lot 2, being a portion of R.P. 4475, L.C. Aw. 7713, Ap. 48 to V. Kamamalu, to the point of beginning and containing an area of 2,211 Square Feet, more or less.

R. M. TOWILL CORPORATION

Description prepared by:



Ryan M. Suzuki
 Ryan M. Suzuki Exp: 4/30/14
 Licensed Professional Land Surveyor
 Certificate Number 10059

2024 North King Street, Suite 200
 Honolulu, Hawaii 96819
 December 19, 2012

This description is for exhibit purposes and does not purport a legally subdivided lot.



Honolulu Authority for Rapid Transportation

STAFF SUMMARY

TITLE: AUTHORIZING THE ACQUISITION OF THE REAL PROPERTY IDENTIFIED AS TAX MAP KEY 1-9-7-023:008 BY EMINENT DOMAIN	STAFF CONTACT: Jerry Iwata/Laura Ray	DATE: March 21, 2013
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Type:	Goal	Focus	Area	Reference Notes
<input checked="" type="checkbox"/> Action/Approval	<input type="checkbox"/> Project Delivery	<input type="checkbox"/> Livability/Land Use		
<input type="checkbox"/> Information	<input type="checkbox"/> Service Delivery	<input type="checkbox"/> Partnerships		
<input type="checkbox"/> Follow-up	<input type="checkbox"/> Resource Stewardship	<input type="checkbox"/> Agency Admin.		

1. Purpose:
Final action of the Board in authorizing the condemnation of the parcel identified as Parcel 28, bearing Tax Map Key No. 1-9-7-023:008, and located at 945 Kamehameha Highway, Pearl City, Hawaii, which is on the critical path for successful completion of the Kamehameha Section (KHG).

2. Background/Justification
Notification of the intent to exercise eminent domain had previously been sent to the Honolulu City Council along with HART Resolution 2013-3 on January 28, 2013. More than 45 days has elapsed since the notice. The City Council neither approved or adopted a resolution in objection of the action. Accordingly, under the Charter of the City and County of Honolulu section 17-103.2(b), HART may now properly proceed with the condemnation proceedings for this parcel.

3. Procurement Background
N/A

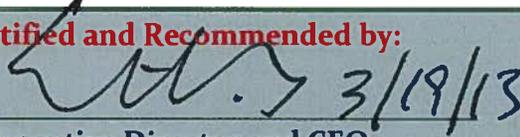
4. Financial/Budget Impact
The project budget includes an estimated cost for legal action associated with the condemnation of the property.

5. Policy Impact
There is no policy impact since this action conforms to the requirement of the Uniform Relocation Assistance and Real Property Acquisition Policies Act, FTA 1050.10 and Article XVII of the Charter of the City and County of Honolulu.

6. Public Involvement
N/A

7. Alternatives
There is no alternative given the proposed project schedule and the need to acquire the property as soon as possible in order to not delay the KHG contractor in constructing the guideway.

8. Exhibits

Certified and Recommended by:

 Executive Director and CEO