

**STATE OF NEW MEXICO
BEFORE THE SECRETARY OF THE ENVIRONMENT**

**IN THE MATTER OF:
THE APPLICATION
OF YUCCA GROWTH INFRASTRUCTURE, LLC
FOR AN AIR QUALITY PERMIT**

AQB 26-57

NO. 10883

**NEW ENERGY ECONOMY'S RESPONSE
TO YGI/BLOOM ENERGY'S REQUEST FOR DENIAL OF DISCOVERY**

INTRODUCTION

Applicants attempt to portray New Energy Economy's discovery requests as an improper inquiry into Bloom Energy's business operations rather than the subject matter of this proceeding. That characterization is incorrect.

This is not simply an application submitted by Yucca Growth Infrastructure, LLC. The Application itself was executed and certified by Marisa Blackshire, Vice President of Environmental and Regulatory Law for Bloom Energy,¹ on behalf of the proposed new source, Bloom Energy's solid oxide fuel cells. Bloom Energy is not a peripheral equipment supplier; it is the company whose technology forms the very foundation of this permit application and whose emissions data, engineering assumptions, manufacturing capabilities, fuel-cell performance, and technical representations are relied upon throughout the Application. The questions directed to Bloom Energy therefore go directly to the evidentiary basis upon which the Department is being asked to issue this permit.

¹ The Applicants' signatory in this case is [Marisa Blackshire](#), Vice President Environmental and Regulatory Law at Bloom Energy. YGI Application NSR permit application, April 2026, at 648 of 648.

Moreover, the factual landscape of this proceeding has changed dramatically since the Application was filed. On March 20, 2026, the New Mexico Commissioner of Public Lands denied Energy Transfer's applications for the rights-of-way and business lease necessary to construct the proposed Green Chili Lateral natural gas pipeline that would supply approximately 400 million cubic feet of natural gas per day to Project Jupiter. On July 14, 2026, following a request for reconsideration, the Commissioner again denied those applications, concluding that the pipeline was not in the best interests of the State Land Trust and advising that the only remaining avenue for relief is an administrative appeal. As matters presently stand, Applicants possess no legal authorization to construct the only identified fuel supply for the proposed source.

Those developments make New Energy Economy's discovery not merely relevant—they make it indispensable.

Nearly every interrogatory and request for production is directed to the requirements of 20.2.7.208(G) NMAC, which provides that the Department *shall deny* a permit if the proposed source cannot be produced in a timely fashion. The requested discovery seeks information concerning Bloom Energy's manufacturing capacity, engineering validation, emissions testing, project delivery schedule, supply-chain constraints, fuel-cell performance, Project Jupiter's construction schedule, contingency planning, and, critically, Applicants' ability to lawfully obtain and deliver the fuel necessary to operate the proposed source. These are not collateral or obscure issues; they are the very issues that determine whether Project Jupiter is capable of being constructed and operated as proposed.

Applicants' assertion that these subjects lie outside the scope of this proceeding turns the Department's regulation on its head. If Bloom Energy cannot manufacture the equipment at the

required scale, if the technology has never been demonstrated at anything approaching this size, if the only identified natural gas pipeline has been denied the approvals necessary for construction, *if Applicants have no legally obtainable alternative fuel supply, or if the project cannot be completed within the timeframe represented in the Application, then the Department cannot lawfully conclude that the requirements of 20.2.7.208(G) NMAC have been satisfied.*

The fact that these questions may be uncomfortable for Applicants to answer is not a basis for refusing discovery. The governing standard is relevance. Here, the requested discovery goes directly to the feasibility, reliability, timely construction, and lawful operation of the proposed new source. Those are not peripheral issues—they are among the most material and dispositive issues in this entire permitting proceeding.

I. YGI/BLOOM ENERGY MISCHARACTERIZES THE DISCOVERY REQUESTS

Applicants repeatedly characterize New Energy Economy’s discovery requests as seeking information concerning “water,” “waste,” “manufacturing” “project completion schedules,” and other supposedly collateral matters. That characterization ignores both the governing regulation and the central factual issue presented by this proceeding.

This is not an ordinary air permit application involving a mature, commercially proven technology.

Project Jupiter proposes the largest deployment of Bloom Energy Solid Oxide Fuel Cell technology ever attempted anywhere in the world—approximately 2,460 MW generated by approximately 2,275 Bloom Energy individual fuel cells. By Applicants’ own representations, no comparable facility exists. The largest existing Bloom installation appears to be approximately 40 MW in Korea, making *Project Jupiter roughly sixty times larger than Bloom’s largest demonstrated deployment.*

One of the central questions before the Department is therefore not merely whether emissions from a single Bloom Energy's fuel cell satisfy regulatory limits. Rather, the Department must determine whether this unprecedented new source can actually be constructed and operated as represented and whether the permit application rests upon substantial evidence rather than speculation.² *Lytle v. Jordan*, 2001-NMSC-016 ¶32; *See, Marjon v. Quintana*, 82 N.M. 496, 497, 484 P.2d 338, 339 (1971). (“[T]o be substantial, it must be such relative evidence as a reasonable mind is willing to accept as adequate support for a conclusion, and it must amount to more than mere speculation or conjecture.” (citations omitted)); *Baca v. Bueno Foods*, 108 N.M. 98, 102, 766 P.2d 1332, 1336 (Ct.App.1988). (“Evidence from which a proposition can be derived only by speculation among equally plausible alternatives is not substantial evidence of the proposition.”)

That question goes directly to 20.2.7.208(G) NMAC, which *requires denial* where “the source cannot be produced in a timely manner.” NEE’s discovery requests were expressly drafted to address that regulatory requirement.

Applicants repeatedly dismiss inquiries concerning manufacturing capacity, supply-chain limitations, construction schedules, fuel supply, contingency planning, engineering validation, and Project Jupiter’s ability to obtain approximately 400 million cubic feet of natural gas per day as somehow beyond the scope of this proceeding. They are not.

Those subjects determine whether the proposed source can actually exist.

² “Do Bloom’s Fuel Cells Work As claimed? Data Says No,” Hunterbrook, July 30, 2026, https://newsletter.hntrbrk.com/p/do-blooms-fuel-cells-work-as-claimed?publication_id=2442504&post_id=208995089&isFreemail=true&r=5wpwqb&triedRedirect=true&utm_source=substack&utm_medium=email. Incorporated and attached as Exhibit A.

If Bloom Energy cannot manufacture the equipment, if the required materials cannot be obtained, if the fuel supply cannot legally be delivered, if the project cannot be constructed within the proposed schedule, or if the emissions assumptions rest upon testing that has never been validated at comparable scale, then the application fails for reasons directly relevant to the Air Quality Act and the Department's own regulations.

These discovery requests are not spurious they are directly relevant to the Department's rules.

II. THIS IS A HIGHLY TECHNICAL CASE IN WHICH DISCOVERY IS PARTICULARLY NECESSARY

Applicants also argue that discovery is unnecessary because the administrative record, draft permit, and Statement of Basis will eventually be produced (at present thousands of pages produced four days before technical testimony is due).

Applicants' argument misunderstands the function of discovery.

Applicants' assertion that New Energy Economy can simply rely upon the administrative record ignores the practical realities of this proceeding and underscores why discovery is indispensable.

According to NMED, the administrative record will consist of thousands of pages and will not be produced until four days before technical testimony is due. That schedule is fundamentally prejudicial. It is simply unrealistic to expect a party, its counsel, and retained technical experts to download, review, analyze, organize, and understand a record of that magnitude in four days; identify omissions or inconsistencies; determine what additional discovery is required; consult with experts; prepare coherent testimony; and professionally respond to one of the most technically complex air permit applications ever filed in New Mexico.

Discovery exists precisely because parties are not required to accept whatever documents Applicants or NMED elects to include in the administrative record. The administrative record is necessarily retrospective and selective; it is not a substitute for sworn discovery directed to issues that remain disputed. Nor can discovery meaningfully follow production of the administrative record when the procedural schedule leaves no practical opportunity to review the record, propound additional discovery, receive responses, incorporate those responses into expert analyses, and prepare testimony.

This is not a routine permitting matter. Project Jupiter proposes what Applicants describe as approximately 2,275 Bloom Energy Solid Oxide Fuel Cells producing approximately 2.46 gigawatts of electricity—an unprecedented industrial project raising highly technical issues concerning engineering design, emissions performance, manufacturing capability, fuel supply, construction feasibility, and compliance with 20.2.7.208(G) NMAC. Effective participation in such a proceeding requires adequate time to analyze the evidentiary record and conduct meaningful discovery.

Fundamental fairness and due process require a meaningful opportunity to prepare one's case—not merely the theoretical opportunity to receive thousands of pages of documents days before expert testimony is due. A schedule that effectively prevents parties and their experts from reviewing the record, identifying deficiencies, conducting follow-up discovery, and presenting informed testimony does not promote efficient adjudication; it deprives intervenors of a meaningful opportunity to test Applicants' evidence. The Hearing Officer should reject Applicants' suggestion that production of a massive administrative record on the eve of technical testimony can substitute for timely discovery on the central issues presented in this proceeding. The Hearing Officer should also reconsider the extraordinarily compressed procedural schedule,

which serves no discernible purpose other than to prejudice meaningful participation in this proceeding. Even under the previously proposed October schedule, intervenors faced significant challenges in retaining experts, reviewing technical materials, conducting discovery, and preparing competent testimony. The accelerated September schedule effectively cuts off those efforts before they can reasonably be completed. This is not a routine permitting matter; it is one of the most technically complex air permit proceedings ever brought before the Department, involving unprecedented engineering, emissions modeling, fuel supply, manufacturing capability, and operational performance issues. Compressing discovery and expert preparation into an unreasonably short timeframe does not promote efficiency—it undermines the development of a complete and reliable evidentiary record. It prejudices opponents.

Discovery exists precisely because parties are entitled to obtain information not contained in the administrative record or in the YGI/Bloom Energy Application when such information bears directly upon disputed factual issues.

Here, Applicants propose a project unlike anything previously constructed. There is no operating facility against which the Department can compare Applicants' assumptions. Instead, Applicants ask the Department to extrapolate emissions, construction feasibility, manufacturing capability, fuel availability, and operational performance from technologies and deployments that are orders of magnitude smaller than Project Jupiter.

Under those circumstances, internal engineering analyses, manufacturing schedules, contingency plans, risk assessments, validation studies, supply-chain analyses, and project completion schedules become uniquely relevant because they reveal what Applicants know regarding the feasibility of constructing and operating the proposed source.³

³ *Id.*

Those documents are unavailable from any public source.

IV. THE REQUESTS ARE NARROWLY TAILORED TO MATERIAL ISSUES

Applicants repeatedly label NEE's requests "harassing" while never explaining why answering straightforward factual questions would impose an unreasonable burden.

For example, NEE seeks:

- the engineering basis demonstrating that Bloom Energy's technology can reliably operate at approximately 2,460 MW;
- the emissions testing supporting extrapolation from a single tested module to approximately 2,275 operating fuel cells;
- Bloom's manufacturing capacity and delivery schedule;
- Project Jupiter's construction schedule;
- internal risk assessments concerning completion of the project;
- contingency planning regarding the denied Green Chili Lateral pipeline; and
- analyses concerning whether Project Jupiter can satisfy 20.2.7.208(G).

These are not obscure subjects. They are fundamental facts that any developer proposing one of the largest industrial facilities ever constructed should already possess. Indeed, if Applicants lack these analyses, that absence itself is highly relevant.

IV. YGI'S ARGUMENT CONFIRMS WHY DISCOVERY IS NECESSARY

Perhaps most tellingly, Applicants repeatedly argue that NEE is not entitled to information concerning manufacturing capacity, project schedules, internal risk assessments, pipeline feasibility, or contingency planning because those subjects supposedly lie outside the scope of this proceeding.

That assertion effectively asks the Hearing Officer to accept Applicants' representations at face value while denying parties any meaningful opportunity to test whether those representations are supported by competent evidence.

Due process requires more. *Public Serv. Co. of N.M. v. N.M. Pub. Regul. Comm'n*, 2019-NMSC-012, ¶ 102, 444 P.3d 460 (quoting *Albuquerque Bernalillo County Water Utility*

Authority v. NMPRC, 2010-NMSC-013, ¶ 21, and *Jones v. N.M. State Racing Comm’n*, 1983-NMSC-089, ¶ 6). (“The fundamental requirements of due process in an administrative context are reasonable notice and opportunity to be heard and present any claim or defense.”)

Where an applicant proposes an unprecedented industrial source dependent upon unproven engineering assumptions, unprecedented manufacturing commitments, unbuilt fuel infrastructure, and emissions extrapolated from testing representing only a minute fraction of the proposed facility, opposing parties must be afforded a meaningful opportunity to examine the factual basis underlying those claims.

Without discovery, the proceeding devolves into little more than Applicants’ unsupported assurances. The purpose of an adjudicatory hearing is to test evidence—not simply accept it. “Due process is provided when a defendant has timely notice ...; a reasonable opportunity to be heard; a reasonable opportunity to confront and cross-examine adverse witnesses and present evidence ...” *Atherton v. Gopin*, 2015-NMCA-087, ¶ 30, 355 P.3d 804; *In the Matter of Pamela AG*, 2006-NMSC-019, ¶15. (“The purpose is to ensure the integrity of the fact-finding process by subjecting it to rigorous testing in the context of an adversary proceeding before the trier of fact.” (internal quotations omitted)). Here, the requested discovery goes to the heart of whether Project Jupiter can be built, whether it can operate as represented, and whether the Department can lawfully conclude that the statutory and regulatory prerequisites for permit issuance have been satisfied.

CONCLUSION

Due process requires a meaningful opportunity to be heard, not merely the theoretical opportunity to participate. A schedule that deprives parties of sufficient time to review the administrative record, conduct discovery, consult with experts, and prepare technically

competent testimony risks transforming this proceeding into one where only the Applicants have a realistic opportunity to present its case. The October hearing date is already a hyper-narrowed timeline. The September hearing date is prejudicial because it means that we are tasked with providing technical testimony from expert witnesses who will not have had the benefit of answers to discovery or the thousands of pages in the administrative record; Such a schedule and process is both extraordinary and prejudicial. It effectively requires intervenors to submit expert testimony blind—without the benefit of highly relevant discovery responses or review of the thousands of pages comprising the administrative record—thereby depriving the parties of a meaningful opportunity to prepare and present competent technical evidence. The Applicants’ and Department’s interest in administrative efficiency cannot come at the expense of a full, fair, and informed adjudication of an application of this magnitude.

Respectfully submitted this 3rd day of August, 2026,

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CERTIFICATE OF SERVICE

I hereby certify that on the 3rd day of August 2026, a copy of the foregoing was sent to the following parties or counsel of record via electronic mail:

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Do Bloom's Fuel Cells Work as Claimed? Data Says No

After Hunterbrook exposed Bloom Energy's story, government data from four regions indicate the fuel cells underperform on efficiency, output, and lifespan.



HUNTERBROOK

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Graphic by Daniel DeLorenzo

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- Hunterbrook compiled a record of Bloom's fuel cell performance from public data spanning 15 years: government datasets across the U.S. (New York, Delaware, California) and South Korea, as well as self-reported federal filings covering 126 plants in nine U.S. states.
- Across the datasets, the fuel cells' measured efficiency appears to fall below Bloom's disclosed benchmarks before the five-year replacement interval the company claims. In New York, Hunterbrook calculated that all 37 systems fell below Bloom's efficiency benchmark at a median of 20 months, with only one declining slowly enough to be on pace to stay above it for five years. In California, 105 of the 231 projects with usable fuel data recorded at least one month below the level at which a 2025 contract requires Bloom to repair or replace the system. And even on cumulative lifetime efficiency, the measure Bloom most typically uses, 44 of the 126 plants in the federal record fall below the guarantee line.
- Bloom's 95% output benchmark — a measure of how much electricity the cells actually produce against their rated capacity — was missed almost everywhere, almost always: 152 of 156 months in Delaware, 97.4% of months in California, and

- 22 of the last 24 months at one of Bloom's largest continuously metered Korean plants.
- The public data is reported daily or monthly, so Hunterbrook uses those intervals to track the timing and persistence of underperformance — not to determine any potential contractual breach, which may be assessed monthly, annually, or cumulatively depending on the contract.
 - A part-owner of a Bloom project in New York told Hunterbrook the company paid their group a multimillion-dollar contractual penalty after failing to meet one of its guarantees.
 - Some customers report adequate performance: One said Bloom “remains in compliance with our contract,” and a California operator called their project “fairly reliable,” but won’t buy more, citing price. Other customers said they no longer work with Bloom.
 - Hunterbrook’s findings directly implicate Bloom’s data center ambitions. Based on these numbers, fuel cells may be a less attractive alternative to grid power and gas turbines than they appear on paper: Given the consistently low efficiency and output numbers across Bloom’s projects, data center operators would likely have to use more gas and install more fuel cells (and replace them more frequently) than typically modeled to reach the desired capacity. It’s, perhaps, one explanation for why Bloom has only named several partners.

- Bloom did not reply to Hunterbrook's repeated requests for comment for this article. After Hunterbrook published its prior investigation, Bloom [filed](#) an 8-K form with the SEC as a rebuttal, claiming it "categorically rejects the Report's claims regarding the Company's financial results and accounting."

It's always been a good story: a box that turns gas into electricity through a chemical reaction, with no combustion required.

Since the early 2000s, that has been Bloom Energy's (\$BE) promise — and it's one fit for the AI era as data center developers scramble to improve what they call "time to power."

Earlier this year, Bloom briefly reached a market cap of about \$100 billion, with the stock up roughly 1,000% over the preceding 12 months. This came as Bloom announced splashy deals with partners like Oracle, which agreed to purchase up to 2.45 gigawatts of fuel cells for its flagship site in New Mexico.

This month, Hunterbrook [reported cracks in Bloom's story](#), including the company's sourcing of a key rare earth ingredient, scandium, from China, a practice the company has repeatedly and publicly denied. Hunterbrook also detailed delays across Bloom's biggest planned projects, at least one of which has [wobbled](#) further in recent weeks.

But beyond those headwinds lies a more elemental question, which Hunterbrook has investigated through state regulatory filings, foreign generation data, and interviews with Bloom customers and former employees.

Do the fuel cells actually work as advertised?

The answer appears to be no — at least according to the data.

That could present a big problem for Bloom's data center ambitions.

None of the Bloom deployments in the public record approaches gigawatt data center scale; the largest sites Bloom has disclosed anywhere are a pair of 40-megawatt plants in South Korea.

The AI commitments are of a different order: Oracle's Project Jupiter arrangement alone is 10 times the size of Bloom's entire metered U.S. fleet.

On Tuesday's earnings call, CEO KR Sridhar listed "reliability without overbuild" among the capabilities that other commercial vendors cannot provide. The public record Hunterbrook analyzed points the other way: Across the metered fleet, Bloom's fuel cells have typically delivered 80 to 90% of rated output, below the 95% number Bloom has cited in the past as its typical benchmark. This means a data center operator would need to install more units and replace their stacks more often than Bloom's previous disclosures might suggest.

If the company's existing deployments have had problems, what does that mean for data centers requiring an order of magnitude more power, at facilities where a missed output guarantee doesn't mean a contractual penalty but, absent costly backup, downtime for the most expensive computers on earth?

It's a question that comes at an interesting time for Bloom. One of its largest known shareholders earlier this year was the hedge fund Situational Awareness, led by Leopold Aschenbrenner. Today, the Financial Times [reported](#) that the fund has been sold to Citadel amid a rout in its AI positions.

The Promise

On the earnings call, Sridhar said the company “kept the promise that we make to our customers. Bloom will not be your bottleneck. We will deliver power at AI speed and enable our customers to grow.” The metered record suggests that the risk isn't whether Bloom can ship its boxes to customers quickly, but rather how those boxes perform once they are running.

While each Bloom contract is individually negotiated, the company has periodically provided windows into the typical levels of efficiency, output, and durability it promises its customers. The benchmarks we use for our analysis are derived from those disclosures, found in a [2018 filing](#), a [2019 technical note](#), a [2021 SEC filing](#), and a [2025](#) purchase order from Fresno County, CA. The key metrics:

1. **Efficiency guarantee: 46.9%.** Efficiency measures the percentage of the energy in the gas fed to the box that comes out as electricity, and directly feeds into a customer's fuel bill per kilowatt-hour. The most recent publicly available Bloom purchase order Hunterbrook identified, signed with Fresno County, CA, in 2025, guarantees that number will be at least the equivalent of 48.8%.¹ According to that contract, if, at the end of each calendar year, the system's cumulative efficiency is below that number, Bloom must pay liquidated damages. Earlier filings disclosed that its contracts typically set the efficiency benchmark at the equivalent of 46.9%, and to be conservative our analysis tests the fleet against that older, lower number. We call this benchmark the "guarantee line" throughout this article.
2. **Replacement floor: 45.2%.** The Fresno agreement separately requires that if cumulative efficiency, measured at the end of each calendar year, drops below this benchmark, Bloom must repair or replace the system within 90 days. We call this the "replacement floor."
3. **Output guarantee: 95%.** Each installed Bloom system has a rated maximum output, known as its "nameplate capacity." The company [has disclosed](#) that it typically guarantees the system will deliver 95% of that rating, measured annually.
4. **Time between fuel cell component replacement: ~5 years.** Bloom's 2018 [IPO prospectus](#) told investors that in the early years, the period between stack replacements "was typically 12 to 18 months," but that "from 2017 onwards we expect to average over five years between replacements." When Hindenburg Research challenged that math in [September 2019](#), Bloom [responded](#) that its

latest-generation fuel cells shipped from 2016 to 2018 “have an average life of 4.8 to 5.2 years,” and published a [technical note](#) claiming median time to replacement had improved from 1.9 years for its 2011 vintage to 4.7 years for its 2015 vintage.

Since 2021, Bloom’s regular SEC filings have stopped reporting the specific output and efficiency levels its contracts guarantee, so these sources represent the best publicly available record of what Bloom is promising its customers.² Notably, between its 2024 and 2025 Impact Reports, Bloom made its language regarding the life of its fuel cells more conservative. In 2024, the company said: “We predict 2024 fleet medium time to refurbishment as 5 years.” In 2025, the company deleted that language, saying only: “As our fuel cells age, efficiency decreases, and replacements are made.”

Product Efficiency

Our product efficiency is tracked closely through our Remote Monitoring and Control Centers (RMCC) in San Jose, California, and Mumbai, India. The RMCC tracks and monitors various operating parameters down to the individual fuel cell stack level. Based on data provided by the RMCC, we repair Energy Server systems not performing in accordance with customer warranties and standards.

As our fuel cells age, efficiency decreases, and replacements are made to keep our Energy Server systems operating in accordance with our service obligations.

We continuously monitor the performance and health of our fleet. We have ongoing continuous reliability improvement projects in place that implement countermeasures to improve reliability and the life of our fleet.

Product Efficiency

Our product efficiency is tracked closely through our Remote Monitoring and Control Centers (RMCC) in San Jose, California, and Mumbai, India. The RMCC tracks and monitors various operating parameters down to the individual fuel cell stack level. Based on data provided by the RMCC, we repair Energy Server systems not performing in accordance with customer warranties and standards.

As our fuel cells age, efficiency decreases, and replacements are made to keep the Energy Server operating appropriately. We understand that product efficiency directly affects GHG emissions. Therefore, we report on average efficiency and stack life of our installed base to highlight our focus on the issue.

Initial lifetime statistics are subject to minor variations as we gather additional data from fuel cells still operating until the entire product vintage is operated beyond the median life. We continuously monitor the performance and health of our fleet. We have ongoing continuous reliability improvement projects in place that implement countermeasures to improve reliability and the life of our fleet. Based on the current performance trajectory, we predict 2024 fleet medium time to refurbishment as 5 years.

2024 Impact Report

2025 Impact Report



And Bloom’s real-world performance can be tracked and compared to these benchmarks via the fleet the company has already deployed: at Home Depots and hospitals, malls and utility substations, in New York, Delaware, California, and South Korea, and as supplemental power for a handful of Equinix’s legacy data centers.

Much of that fleet happens to be metered by governments and state-owned utilities, so the numbers are public.

Hunterbrook compiled five of those public datasets:

- **South Korea:** Hourly output from Korea South-East Power's 8.35-megawatt Bundang Phase 6 plant, commissioned in April 2019, covering January 2022 through June 2026; plus monthly output and efficiency data from Korea Southern Power's Yeongwol plant and Korea East-West Power's Honam and Bukpyeong plants. Hunterbrook calculated Yeongwol's efficiency from reported generation and gas consumption; Honam and Bukpyeong's efficiency figures were calculated and published by the utilities. A separate daily Korea East-West Power file extends the Bukpyeong record through mid-2025.
- **New York:** Daily NYSERDA meter readings from September 2014 through December 2025, covering efficiency and output for 37 Bloom systems. [3](#)
- **Delaware:** Monthly filings with the Delaware Public Service Commission from June 2012 through May 2025 — 156 consecutive months — including efficiency and output data for the roughly 30-megawatt Bloom fleet serving Delmarva Power. This fleet was updated with newer models in 2019.
- **California:** Monthly Self-Generation Incentive Program reports from December 2012 through October 2023 (a handful of later biogas projects extend into 2025), containing efficiency and output data for 234 Bloom projects and roughly 14,100 project-months.
- **United States, National:** Monthly net-generation and gas consumption data reported to the U.S. Energy Information Administration from 2011 through

December 2025, covering 126 installations Hunterbrook verified as Bloom installations.

To be clear: as we said above, a meter reading below one of Bloom's guarantee lines on a given day or month does not necessarily imply a contractual breach. We do not know the specifics of the guarantees in each Bloom contract. And the company has disclosed warranties measured monthly or quarterly, as well as performance guaranties measured annually or cumulatively. Hunterbrook uses the daily and monthly readings to track when performance declines and how long it remains below Bloom's disclosed levels — not to determine whether every individual reading breached a particular contract. [4](#)

Measured on the cumulative efficiency metric Bloom typically uses, most systems remain above the guarantee line, though 44 of the 126 Bloom systems in the federal record fall below the guarantee level even on that measure.

But cumulative efficiency can hide the repairs and replacements required to keep that average afloat. A fresh stack would lift current performance while the system's stronger early years stay baked into the lifetime calculation. So a passing average can conceal hardware wearing out far faster than Bloom says it should.

Taken together, the monthly meters show what the cumulative numbers obscure: Efficiency falls to Bloom's guarantee line within roughly two years, then flattens or rebounds in patterns consistent with repair or replacement. The lifetime average may

still pass, but the hardware appears to be wearing out years before Bloom's claimed five-year replacement interval, which could pose a serious risk to the unit economics of the company's servicing business.

South Korea

South Korea is Bloom's largest market outside the United States, using about 682 megawatts installed, or roughly 45% of the company's ~1.5-gigawatt global fleet. Nearly all of it is installed at sites through Bloom's partnership with SK ecoplant. Four of those installations are metered by Korean state power companies, and the readings are public.

One is the 8.35-megawatt Phase 6 expansion at the Bundang plant, operated by Korea South-East Power and commissioned in April 2019. The public hourly data Hunterbrook analyzed, the earliest available, begins in January 2022 and runs through June 2026. [5](#)

Bundang averaged about 95% of rated output in 2023 and has slipped every year since — to about 92% in 2025, the most recent full year, and roughly 90% in the first half of 2026. Its output shows no sustained recovery, running below Bloom's typical 95% output benchmark in 22 of its last 24 months.

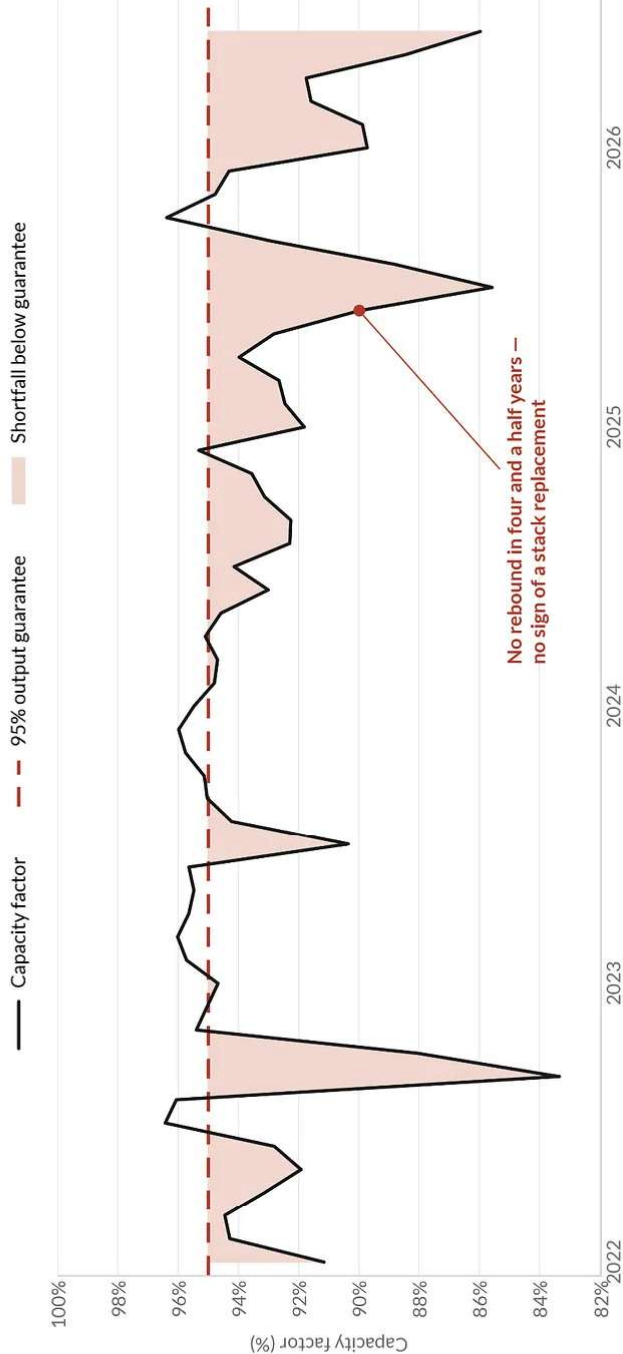
Three more plants, run by Korea Southern Power and Korea East-West Power, publish enough data to track efficiency. Yeongwol reports gas consumption, allowing

Hunterbrook to calculate its efficiency directly; for Honam and Bukpyeong, Hunterbrook relied on efficiency figures calculated and published by the utilities.

- **Yeongwol (15 MW, online 2021):** efficiency fell from about 51% to 46% in three years; output from about 95% of nameplate capacity to 77%.
- **Honam (15 MW, online 2021):** efficiency fell from about 51% to 46% by late 2024; output from near 100% to 78%.
- **Bukpyeong (4.2 MW, online 2022):** efficiency fell from about 58% to 52%, while output slipped from above nameplate to ~93% in 2024, down to ~80% by mid-2025.

Korea: Bundang has spent 22 of its last 24 months below the 95% line

Bundang 8.35 MW installation, monthly capacity factor, 2022–2026.



Source: Hunterbrook analysis of Korea South-East Power (KOEN) hourly generation data, Jan 2022 – Jun 2026.

Another question mark hangs over Korea. SK ecoplant, a longtime strategic partner of Bloom, with a [500 MW purchase commitment](#) Bloom valued at \$4.5 billion in product and service revenue, was [determined by Korean regulators](#) to have overstated the 2022–2023 revenues of its [U.S. fuel cell subsidiary](#), the unit that handles its Bloom business, allegedly to inflate its valuation ahead of a planned IPO.

Regulators initially deemed the violation intentional and recommended criminal prosecution before [downgrading it to “gross negligence.”](#) The IPO never happened:

This spring, SK Group [bought out its pre-IPO investors for roughly 1.05 trillion won](#) (about \$770 million) rather than take the company public by its July 2026 deadline.

As Hunterbrook reported in its first [investigation](#) into Bloom, months after Bloom's relationship with SK ecoplant ended, Bloom began a new related-party partnership with Brookfield Asset Management (\$BAM).

New York

New York's data covers 37 Bloom installations. Among them: Home Depot stores, Queens Center Mall, Morgan Stanley's Purchase campus, Fordham University, an IKEA in Red Hook, an Equinix data center, and a roughly 7.9-megawatt community fuel cell portfolio on Staten Island. The state meters the installations daily and posts the readings.

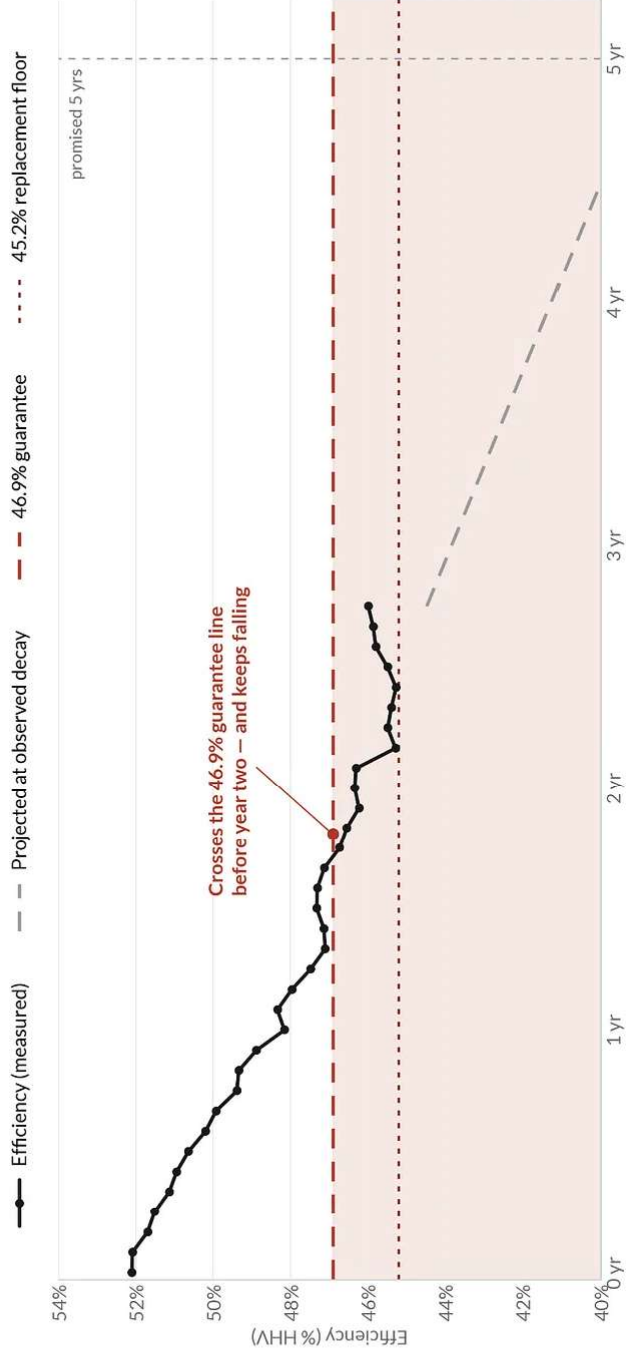
Straight out of the box, the 37 installations averaged 52.0% [efficiency](#), about five points clear of the guarantee line. They did not stay there long. Losing an average of 2.4 percentage points a year [Z](#), every one of the 37 fell below the guarantee line at a median of 20 months, inside its second year of service. And 32 were still below it when their state-reported data ended.

Twenty-eight of the 37 decayed all the way to the replacement floor (the level at which Bloom's contract with Fresno obliges it to repair or replace the hardware), and 13 finished below even that. Based on each installation's measured rate of decline, the

median projected time to reach that floor was under three years. Only one of the 37 was on pace to last the “over five years” that Bloom tells investors its stacks now run between replacements.

New York: efficiency reaches the guarantee line inside year two

Fleet-average efficiency of 37 metered Bloom units, by years in service.



Source: Hunterbrook analysis of NYISERDA distributed-generation metering, 2014–2025. Efficiency as reported by NYISERDA; age from each unit's first metered month.

Output is no better. Only seven of the 37 units cleared 95% of rated output even in their first year; every one fell short on a cumulative average. Across the fleet, output slid from roughly 90% of nameplate in year one to about 80% by the final year of data.

One caveat: the metered New York fleet skews toward Bloom's older ES-5-generation hardware. Twenty-six of the 37 units were installed in 2017-2018, and NYSERDA meters each unit for only about three years — so most of these records both begin and end in the ES-5 era, roughly 2017 to 2021. A newer batch installed in 2020 (Fordham, Equinix, the Red Hook IKEA, and the Annadale portfolio) runs through 2023, and one 2023 installation (Cablevision) runs through December 2025.

Bloom has a common response to numbers like these. After Hindenburg's [report](#) drew on the same NYSERDA portal, the company [filed a technical note](#) arguing the state's data was misleading: metering can begin 15 to 538 days after a unit switches on, missing the high-efficiency first weeks; a handful of sites carry gas boosters or backup batteries that shave a point or two; and the right yardstick, Bloom said, is cumulative efficiency, not a unit's efficiency on any given day.

Grant the company all of it. Add back a half-percentage point for metering losses, three percentage points for ancillary equipment at the five community and resiliency sites that might have it, and even the full 538-day head start to every unit's clock, and 30 of the 37 still fall below the guarantee line within about four years. That's inside the five-year life Bloom promises between replacements. [8](#)

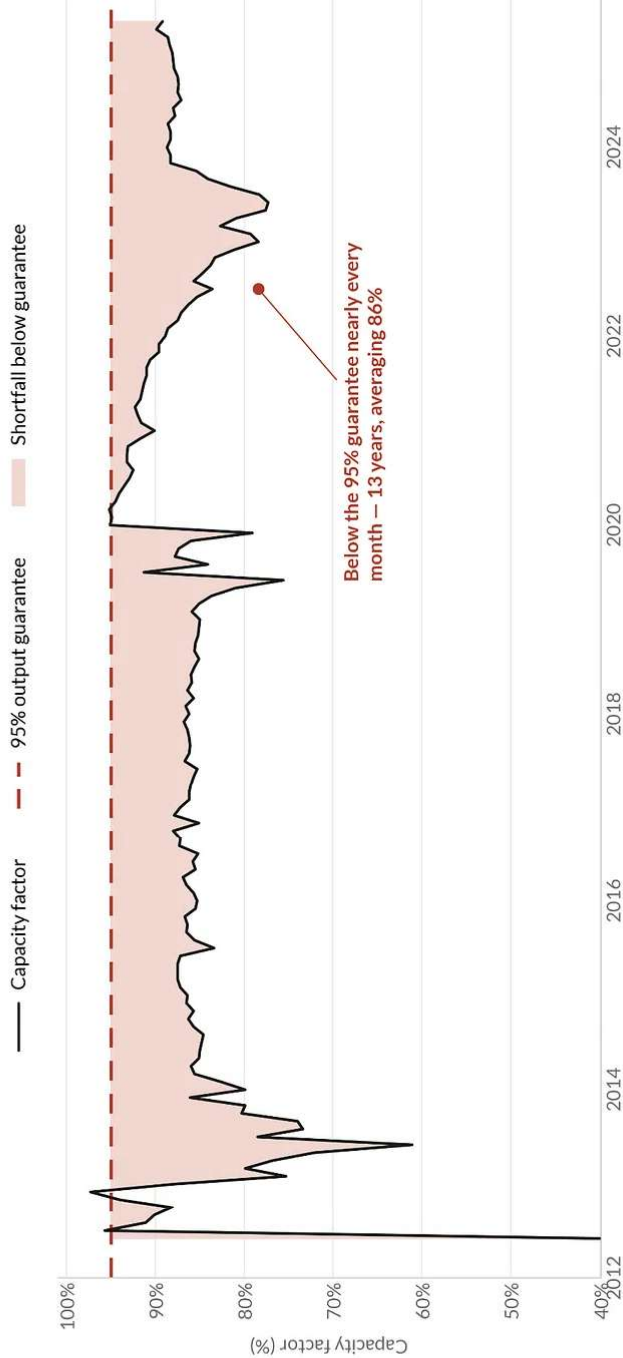
Delaware

Delaware is one of Bloom's manufacturing homes and the site of its highest-profile early deployment: a roughly 30-megawatt fleet serving Delmarva Power under a state tariff. The project's performance has been reported monthly to regulators since 2012. Importantly, Bloom replaced older-generation fuel cells with newer ones at this site in 2019, so any improvements in the technology available at that time would presumably be present in this data.

Hunterbrook compiled all 156 monthly observations. The initial 3-megawatt phase opened at roughly 52% efficiency in the summer of 2012. After the project reached its full 30-megawatt capacity in November 2013, efficiency fell below the guarantee line by August 2014 and through the replacement floor by November 2014, within a year of full buildout. From June 2015 through May 2019, annual weighted efficiency remained around 44%.

Delaware: below the 95% output guarantee in 152 of 156 months

~30 MW Delmarva fleet, monthly capacity factor filed with state regulators, 2012–2025.



Source: Hunterbrook analysis of Delaware PSC fuel-cell reports, Jun 2012 – May 2025.

In 2019, Bloom [repowered the project](#), doing away with the original 30 megawatts of Energy Servers and installing 27.5 megawatts of [newer-generation equipment](#). Efficiency jumped straight back to about 52%. But the replacement stacks did exactly what the originals had done: declined, on a similar path, sliding back to about 47%, approximately the guarantee line, by 2023, before a partial rebound to roughly 49% by May 2025. That rebound could, of course, reflect maintenance or component replacements. Across the full record, the fleet’s monthly efficiency was below the guarantee line in 67 of its 156 months, and below the replacement floor in 52.

Output tells the same story. Measured against the fleet's nameplate capacity in force each month (30 MW through early 2019, then 27.5 MW after the 2019 replacement), the fleet fell below Bloom's typical 95% output guarantee in 152 of 156 months, averaging about 86%, and never once clearing 95% on a full-year average either. The 2019 replacement made no lasting difference: once the full fleet was online, it cleared the 95% guarantee just twice, both immediately after the 2019 repower, and never once in the time it was running at the full 30 MW nameplate capacity. (The only other two months above 95% came in 2012, when just 3-6 MW of the eventual fleet was installed.)

California

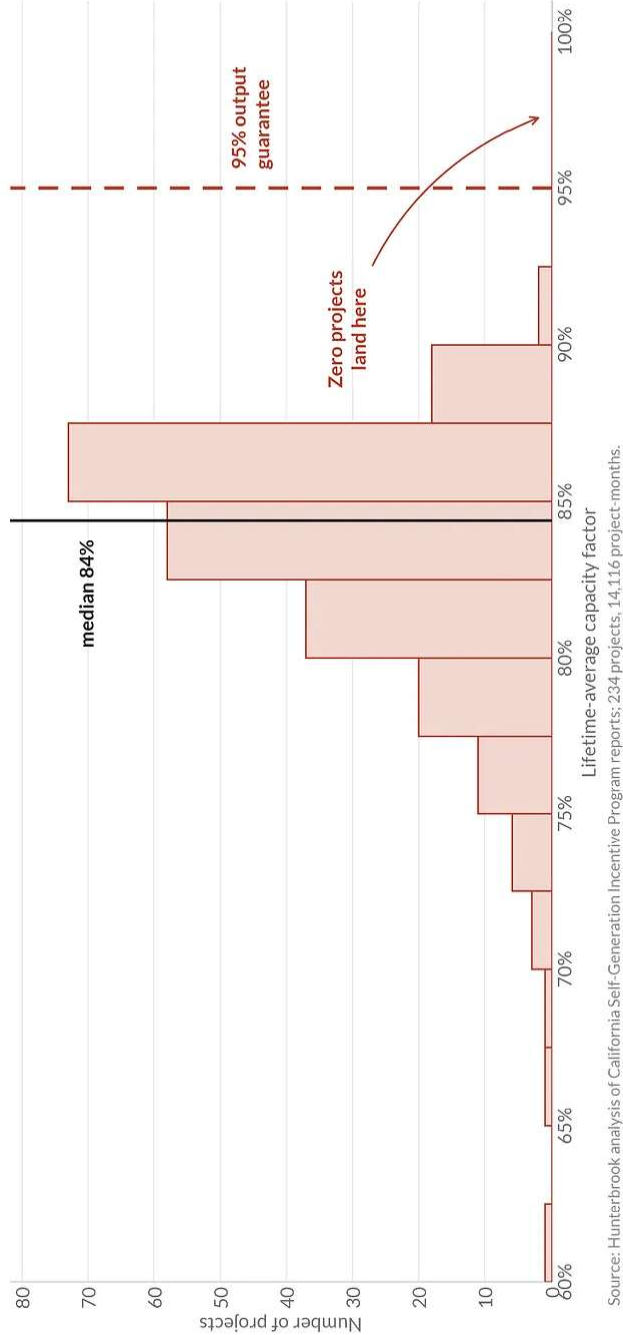
California is where Bloom was born, where Hindenburg found much of its 2019 evidence, and where the largest public sample of Bloom fuel cells lives. The state's Self-Generation Incentive Program, which provided hundreds of millions of dollars in incentives to Bloom projects, requires five years of metered monthly reporting from every project it pays.

Hunterbrook analyzed 234 Bloom fuel-cell projects totaling about 92 megawatts: 14,116 project-months of data from December 2012 through October 2023 (a handful of later biogas projects extend into 2025), with the median project metered for five years — exactly the period needed to test Bloom's five-year lifespan claim.

Almost none of that record meets the typical benchmarks. Bloom's California project-months came in below the 95% output guarantee 97.4% of the time and below 90% in three months out of four. After excluding 20 physically impossible monthly readings above 110% capacity factor², not one of the 234 projects averaged 95% of nameplate over its monitored life; only two cleared even 90%. The median project delivered about 84%.

California: not one of 234 projects averaged 95% of nameplate

Lifetime-average capacity factor of every metered Bloom project, 2012–2025.



The efficiency record in California largely tracks what we saw in New York.

Bloom's projects began at a median 55.6% efficiency across their first three reported months. Median efficiency fell to 50.3% in year two, then to 49.2%, 48.5%, and 47.9% in years three through five. Of the 231 projects with usable fuel-consumption data, 105 recorded at least one month below Bloom's 45.2% repair-or-replace threshold.

After the first year drop, the decline slows. That flattening is consistent with Bloom periodically repairing or replacing lower-performing power modules as they approach contractual thresholds, preventing the fleet average from falling much further, though the SGIP data do not identify individual replacement events.

This is the same dataset Hindenburg used in 2019, when it calculated that Bloom's post-2016 California units were on pace to need stack replacement in under three years. That was a projection: those units had a median of 32 months on the meter at the time. The record has since added 3,450 project-months, and the answer has not changed.

America: The National Data

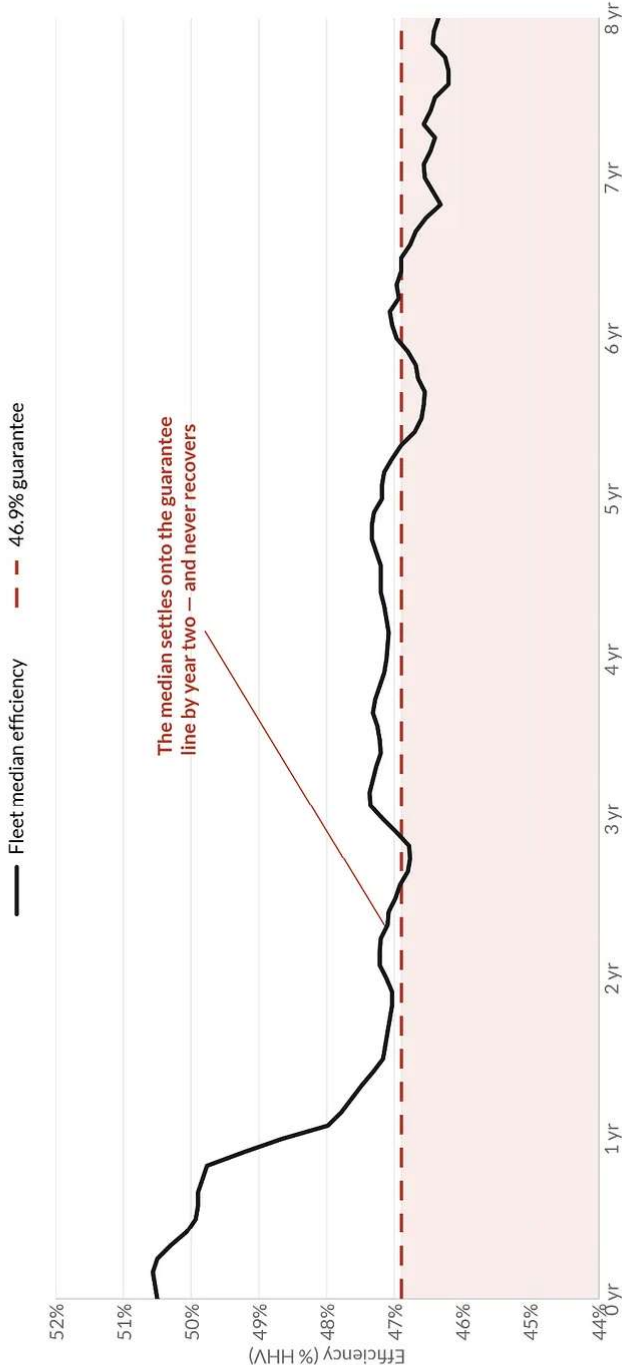
The U.S. Energy Information Administration collects generator characteristics annually through [Form EIA-860](#) and publishes monthly or annual plant-level generation and fuel-consumption data through [Form EIA-923](#), federal filings used to track power plants across the country.

The EIA does not identify the manufacturer of fuel cells in its published generator inventory. Hunterbrook identified 167 fuel-cell plants with at least one megawatt of combined fuel cell nameplate capacity and positive generation in the EIA record, cross-referencing the Department of Energy's stationary fuel-cell inventory, EIA operator records, and court, regulatory, and SEC filings.

Using this methodology, we were able to identify 126 as Bloom Energy (as well as 37 as FuelCell Energy, and four as part of the UTC Power and Doosan PureCell lineage). Those 126 Bloom plants total about 245 megawatts across nine states, operating from 2011 through 2025, and include installations in New Jersey, Connecticut, Massachusetts, Maryland, North Carolina, and Utah that the other datasets do not capture. [10](#)

Across the federal record, Bloom's plants settle onto the guarantee line by year two

Median efficiency of 126 EIA-metered Bloom plants, by years in service.



Source: Hunterbrook analysis of U.S. EIA Form-923 generation and fuel data; 126 plants Hunterbrook identified as Bloom, 2011-2025.

The national record tells the regional story again. When new, the fleet ran at about 51% efficiency. Within two years it fell to roughly 47%, barely over the guarantee line. As in California and Delaware, the way that steep first-year drop collapses into a slow crawl appears to be consistent with stacks being swapped as they hit the floor (though it's hard to know for certain). Measured the way Bloom measures it (using a system's cumulative, whole-life average), 44 of the 126 plants run below the guarantee line, and roughly 60% of the 126 never rise more than a point above it. And 110 of 111 reliably metered [11](#) plants average below the 95% output Bloom typically guarantees.

Bloom's showcase customers fare no better. Apple, whose Maiden, North Carolina, data center Bloom spent years promoting as a clean-energy landmark, performed worst on output: its three reliably metered sites ended at a median 42.9% efficiency and delivered a median 69% of rated output — before its flagship Maiden, North Carolina plant dropped off the federal record in 2021.

Equinix, Bloom's marquee data-center customer before the AI era with 15 sites across the fleet, delivered a median 85% of nameplate across its nine reliably metered sites, while their median efficiency ended around Bloom's guarantee line. AT&T, Kaiser, and Intel also fell below 95% on a customer-level median.

"Multimillion-Dollar Payment"

Hunterbrook also spoke to some of the customers who lived through the decay curve.

A part-owner of one of the larger Bloom installations in New York told Hunterbrook that their group signed a service contract after being shown an independent engineering report during the sales process. The source shared this report with Hunterbrook.

POWER CURVES PROGRESSION

Example: 2018 vs. 2025 Power Curves

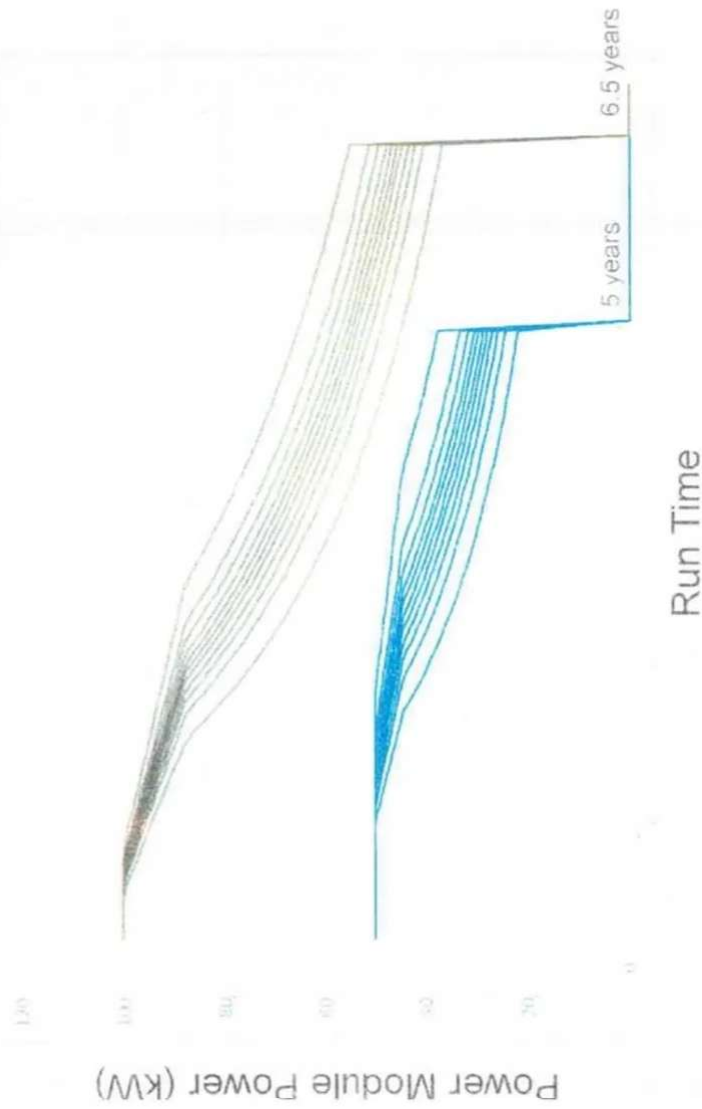


Image from sales packet Bloom sent to someone who identified themselves to Hunterbrook as a part-owner of a customer — advertising five-year run time.

The source said Bloom's sales team also promised that the fuel cells would perform at 95% output, with a life expectancy beyond five years.

That turned out to be wildly optimistic, according to the source. “They have never been able to get beyond that time frame ... they have failures a lot quicker than that.”

“Based on the contract, Bloom paid a multimillion-dollar payment to us,” the source said, because the fuel cells allegedly operated “below 95%.” The source did not provide evidence of this payment.

“The 95% is gone,” the source said. “Long gone.”

LSB Industries and NineDot Energy separately told Hunterbrook that they no longer work with Bloom.

What Bloom Gets Right — And What It Doesn't

Bloom has repeatedly pointed to returning customers as evidence that its fuel cells work. In February, CEO KR Sridhar said more than two-thirds of the company's business came from repeat customers. In April, he put the figure at 70% to 80% of its business. During the company's earnings call on Tuesday, he described the measure more specifically, saying roughly 80% of orders came from repeat customers.

“That speaks more loudly than anything else about how happy our customers are,” he said, days after Hunterbrook had reached out to the company for comment.

“We do not obsess on the competition,” he said. “We obsess on the customer.”

But Bloom has not identified many of the customers behind those figures. And on Tuesday's call, CFO Simon Edwards acknowledged the ambiguity, stating, "When you see the word customer in our filings, it can mean either party, the financier that buys from us and appears in our revenue and concentration disclosures or the end customer whose demand created the deal." Its SEC filings disclose the concentration of revenue among its largest customers without naming most of them.

To the company's credit, the public record is not all bleak — and the data shows the potential for real generational improvement. In the New York data, 2014-2018 systems averaged roughly 83% of rated output over their lives and the newest monitored project — a 2023 Cablevision installation — has run about 94% over its life, still hitting 97% to 99% at the end of its data.

One Bloom customer told Hunterbrook that Bloom "remains in compliance with our contract" and that it continues to save money. A California dairy-digester operator said their three Bloom projects have been "fairly reliable," running "right around the contracted minimum" — though their company will not buy more, citing price, and now prefers competitor Mainspring's linear generators.

But improvement is not the same as delivering the expected number. Even the improved units often miss the typical 95% guarantee on lifetime average; the two largest 2020-vintage projects in the New York data ran near 80%. And Delaware — the

one dataset long enough to watch Bloom's replacement hardware age — shows the newer stacks decaying on the same slope as the old.

That distinction has potential financial consequences. Every fuel cell Bloom ships is also a service liability. On Tuesday's earnings call, Edwards attributed the company's 22% service margin to "fleet performance, longer stack life and scale." He added, "We believe we will sustain them there over the long term." How Bloom accounts for these things makes the claim testable. Edwards explained on the call that service revenue "is recognized ratably net of guarantees while the service costs are booked as incurred...." Edwards also stated that "stack replacement in particular moves the margin quarter to quarter."

In other words, every stack that wears out early lands directly on the margin line Edwards discussed.

Meanwhile, Bloom's current accrued warranty liability rose from \$20.0 million at Dec. 31, 2025, to \$77.8 million at June 30, 2026, according to the company's most recent quarterly filing, which attributed higher performance-guarantee costs to "the effects of fleet degradation."

If stacks last more than five years, Bloom's 10-, 15-, and 20-year service contracts can be profitable. If stacks last roughly two years in the field — as, for example, the New York median implies — then every gigawatt of AI bookings is also a gigawatt of stack replacements arriving twice as often as its stated five-year stack life implies.

That also magnifies Bloom's scandium problem. Scandium is embedded in the fuel-cell stacks, so the faster those stacks wear out, the more scandium Bloom must source over the life of each installation.

Asked on Tuesday's earnings call how much scandium Bloom uses and how much supply it has available, Sridhar insisted that the company could support 25 gigawatts of deployments and was not dependent on China, without addressing Hunterbrook's reporting that Bloom has sourced the material from China despite repeatedly denying it.

Then he shut down the exchange: "Everything else is proprietary to the company. Next question."

Our next question: Whether the product at the center of Bloom's \$50 billion valuation can actually deliver as promised.

This piece represents Hunterbrook Media's best estimate. As always, we have laid out both what we know and how we know it. That doesn't mean we didn't miss something. We welcome other analyses and estimates, including from Bloom. Write to us with any math of your own at ideas@hntbrbk.com.

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- 1 Bloom states its efficiency guarantees against the “lower heating value” of the gas — a measure that leaves out the energy lost as water vapor, which makes any efficiency percentage look a few points higher. The government performance data in this article all use the “higher heating value,” which counts the gas’s full energy content. To compare Bloom’s promise against the metered data, we restate its guarantees (54%, 52%, and 50%) on the meter’s higher-heating-value basis, and about 10% lower for gas, giving us 48.8%, 46.9%, and 45.2%. Each efficiency figure in this article is on that meter basis.
- 2 Bloom continues to disclose what it pays when systems underperform, including \$18 million in 2025 and \$8.4 million in the first quarter of 2026.
- 3 NYSERDA’s roster lists two more, both 5 MW at Apple’s Staten Island site, but their fuel data is unreliable: Nearly every gas reading is logged as a round multiple of 1,000, and the efficiency it implies swings erratically between about 45% and 65% month to month — at times above what even Bloom’s newest cells can reach. We therefore use the independent federal records for these two instead.
- 4 Bloom has disclosed several measurement periods, sometimes within the same program or contract. In a [2018 quarterly filing](#), the company said its traditional lease program typically measured both its Output Warranty and Efficiency Warranty monthly, while separately

measuring its 95% Output Guarantee annually and its 52% Efficiency Guarantee cumulatively. [A purchase, use, and maintenance agreement dated in 2016 and amended in 2017](#) likewise required Bloom to assess each facility against a 45% minimum efficiency level after every full calendar month.

- 5 KOEN's public hourly feed only reaches back to January 2022, so the record begins in the plant's third year, meaning the ~95% seen in 2022-23 is already a partly degraded figure, not new-stack performance
- 6 Efficiency here is NYSERDA's published Electric Efficiency (% HHV), which divides electricity generated ($\times 3,412$ Btu/kWh) by fuel input valued at NYSERDA's stated higher heating value of 1,032 Btu/cf for gas (per the DER portal glossary). Recomputing with a generic 1,000 Btu/cf assumption inflates efficiency by ~3% (≈ 1.5 points) — e.g., ~53.5% rather than 52.0% when new. All efficiency figures use NYSERDA's 1,032 Btu/cf HHV basis, consistent with the portal's own reporting.
- 7 We exclude four physically impossible monthly readings — one unit's first month, metered before its gas meter was live (implying ~239% efficiency), and three months at another where an apparent faulty fuel meter implied 64% to 90%.
- 8 Bloom writes that gas-pressure booster blowers reduce efficiency “by approximately 2%” and resiliency batteries “by about 1%,” and that such equipment is “present in less than 5% of Bloom Energy Servers.” We cannot identify from the NYSERDA data which units carry it, so we apply the full 3-point deduction to the five installations most likely to — the four Annadale community fuel cells and Cablevision — and leave it off the rest.

- 9 Even with all 20 left in, the median project's lifetime output barely moves (84.4% to 84.5%), and the only change to the headline is that one project would appear to average 95% or better — solely because a single one of its months reads an absurd 6,432% of capacity. We do not exclude unusually low readings, which likely reflect real downtime rather than bad data: 30 months record no output at all and 44 fall below 10% of nameplate, three-tenths of a percent of the record. Excluding those would nudge the median project up to 84.6% (from 84.4%) and change nothing else.
- 10 Because these are federal filings — a separate source from the state programs above — they independently corroborate the state-level findings on the plants they share and extend the picture to dozens more the state programs never metered.
- 11 “Reliably metered” means a plant's EIA nameplate and generation are internally consistent: its capacity factor comes out physically possible, at or below nameplate. We set aside roughly 15 of the 126 Bloom plants whose recorded nameplate is understated: they show impossible capacity factors of 129% to 259%, above what any generator can produce. Legitimate plants top out at 98% of nameplate.



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