



Bloomenergy®



July 1st 2021 Early Submittal

Chicago RFI AlwaysON Energy Equity Franchise



Request for Information

ElectricityFranchise@cityofchicago.org



Mayor Lori E. Lightfoot

City of Chicago Department of Assets, Information and Services
Commissioner David Reynolds

Submitted May 28, 2021



ADDENDUM NO. 1

City of Chicago Franchise for Electricity Delivery

Request for Information



Mayor Lori E. Lightfoot

ADDENDUM NO.1

FOR

CITY OF CHICAGO FRANCHISE FOR ELECTRICITY DELIVERY REQUEST FOR INFORMATION

The City has continued to review and understand how it can utilize this RFI process in order to best serve Chicago's residents and businesses. After further review, the City has determined it is appropriate to provide more time for interested respondents to prepare their responses.

The City is also currently evaluating additional RFI Clarifications that the City may issue publicly in early June. The City encourages any potentially interested party to continue to email ElectricityFranchise@cityofchicago.org with any questions or comments regarding this RFI.

Individuals seeking to provide input to the City may continue to submit comments to FranchiseFeedback@cityofchicago.org.

The following changes are hereby made to the City of Chicago Franchise for Electricity Delivery Request for Information:

1. Section 1.4.

The timeline is hereby replaced in its entirety with the following:

Submissions, Comments and Questions shall be delivered no later than 4:00 p.m. CST on Friday, July 30, 2021.

RFI Responses are Due No Later Than 4 p.m. CST on July 30, 2021.

All responses must be emailed to:

ElectricityFranchise@cityofchicago.org

ADDENDUM NO. 2

City of Chicago Franchise for Electricity Delivery

Request for Information



Mayor Lori E. Lightfoot

ADDENDUM NO.2

FOR

CITY OF CHICAGO FRANCHISE FOR ELECTRICITY DELIVERY REQUEST FOR INFORMATION

The City continues to review and understand how it can utilize this RFI process in order to best serve Chicago's residents and businesses. To that end, the City held an Energy Town Hall on July 19, 2021. Nearly 100 people participated in the forum and expressed their views/opinions on the importance of the Electricity Delivery Franchise to the City's overall energy policy. Given this interest, the City has determined that it is appropriate to provide more time for interested Respondents to submit responses to the City's RFI.

The City encourages any potentially interested party to continue to email ElectricityFranchise@cityofchicago.org with any questions or comments regarding this RFI.

Additionally, individuals seeking to provide input to the City may continue to submit comments to FranchiseFeedback@cityofchicago.org.

The following changes are hereby made to the City of Chicago Franchise for Electricity Delivery Request for Information:

1. Section 1.4.

The timeline is hereby replaced in its entirety with the following:

Submissions/Responses, Comments and Questions may be submitted up to but no later than 4:00 p.m. CST on Thursday, September 30, 2021. The City will not post any Submissions/Responses received prior to the deadline.

RFI Responses are Due No Later Than 4 p.m. CST on

September 30, 2021.

All responses must be emailed to:

ElectricityFranchise@cityofchicago.org

Energy and Equity Agreement Development

Governance and Transparency

1

- Ethics Reforms
- Inclusive Energy and Equity Agreement Governance Process
- Traditional Ratemaking



Energy and Electrification

2

- Climate and Energy Targets
- Energy Efficiency
- Solar/Distributed Generation Interconnection
- Electric Vehicles and Electrification
- Energy Data Transparency

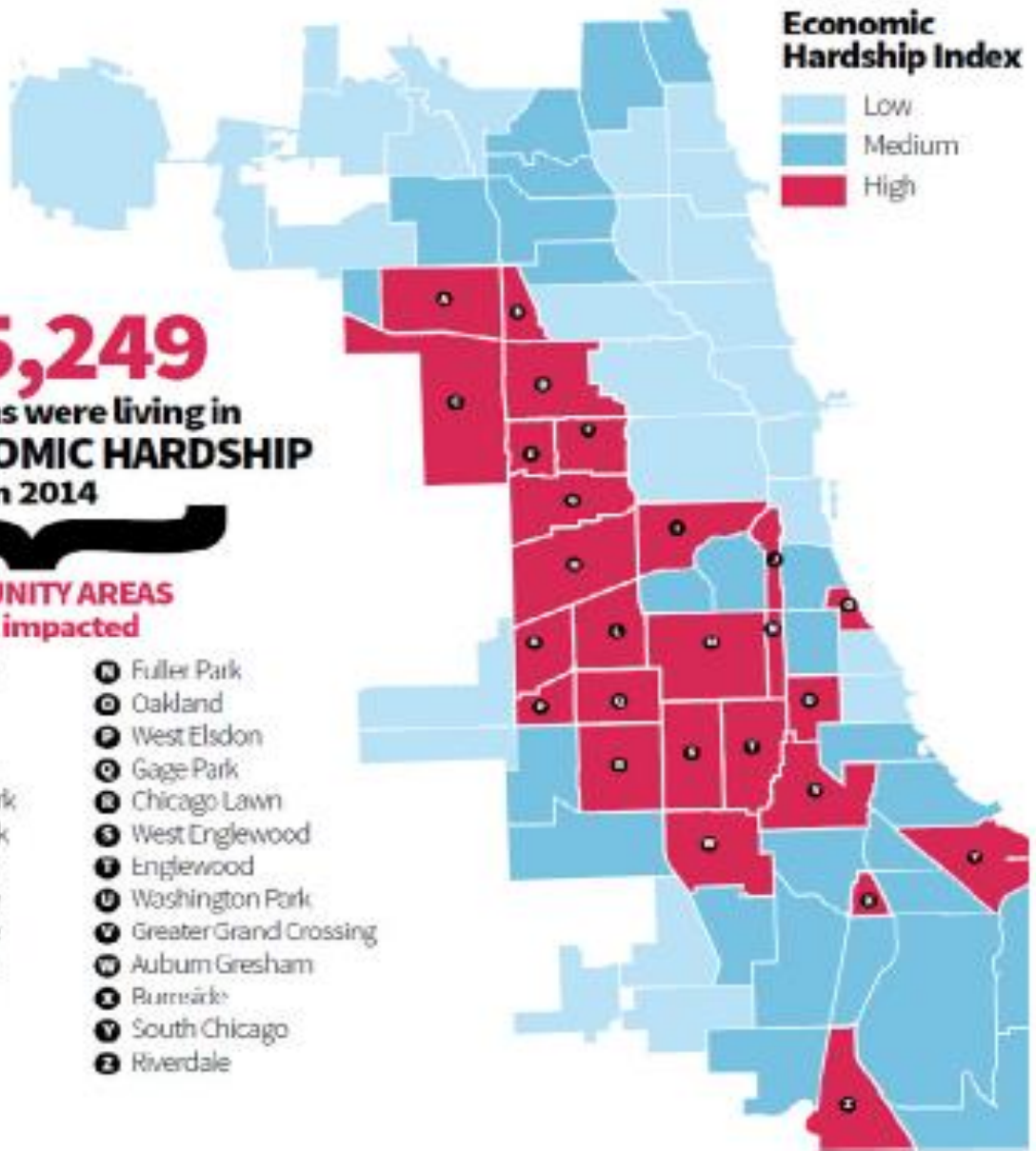


Equity and Neighborhood Development

3

- Eliminate Customer Deposits
- Eliminate Late Fees and Disconnections
- Align Credit and Collection Policies with Customer Ability to Pay
- Facilitate use of LIHEAP Funds
- Workforce Development Initiatives
- Broadband Access





Because microgrids can reduce or eliminate power disruptions, the proposed microgrid could position Chicago to capture growth among those industries that experience relatively greater losses when power outages occur. This includes momentary interruptions, which account for a “substantial portion” of such costs. The improved quality, reliability, resiliency, and security associated with a urban microgrid could offer a locational advantage in attracting companies for which a power interruption is particularly costly.

(a) location preferences including importance of energy factors; (b) power demand and energy consumption; (d) backup power systems; (c) costs associated with power interruption; (d) familiarity with—and opinion of—microgrids; and (e) the “all in” price they would be willing to pay to locate within a microgrid offering 99.999% uptime.

This indicative support letter is non-binding and is intended for discussion purposes only. It does not purport to summarize all the terms, conditions, representations, warranties and other provisions with respect to the transactions referred to herein, which transactions, if agreed, would be entered into on the basis of mutually satisfactory documentation after, among other things, satisfactory completion of due diligence (including without limitation business, accounting, legal, regulatory insurance, tax and IT due diligence) and receipt of necessary internal and external approvals. The below acknowledges that this Indication of Interest is not an expressed or an implied commitment by AlphaStruxure to provide any form of equity commitment in connection with the proposed transaction.

December 23, 2020

Dear Chicago Recovery Task Force Co-Chairs Mayor Lightfoot Hon. Sam Skinner,

In connection with Cypher Holdings, Inc. City of Chicago proposed development and management of the 20-year energy services contract that would provide voltage, frequency, and power quality infrastructure and related services to the new City of Chicago Urban Municipalization Microgrids, this letter is intended to confirm the interest of AlphaStruxure, a joint venture between The Carlyle Group and Schneider Electric, in providing financing to support the design, construction, operations, management and ownership.

Based on our discussions to date and subject to further due diligence and negotiation of definitive documents, AlphaStruxure is interested in providing Energy as a Service the financing to support the project.

We look forward to learning more about potential project and opportunity to provide energy via an “as a service” contract as the process develops.

Best,



Michal Oprzadek
Senior Vice President, Development
AlphaStruxure, LLC



Letter from Mayor Lori E. Lightfoot and Samuel K. Skinner

In April, we started a mission that began at the foot of Chicago's Water Tower, a landmark representing our city's boundless ingenuity, artistry, and resilience. We did so because, as one of the few structures that survived the Great Chicago Fire, it was the point from which previous Chicagoans embarked on a new beginning, and around which we as a city grew into the magnificent, global metropolis we have today.

One hundred and fifty years later, we are encountering a new crisis which is like nothing we have ever experienced, and shocking us in ways even the past recessions, depressions, and two world wars never did. While the strengths of our city have shown through in ways large and small, our vulnerabilities borne of generational inequality and systemic racism have also flashed like a neon sign—and flashed even brighter following the murder of George Floyd.

In response to this unprecedented crisis, we convened the COVID-19 Recovery Task Force to keep our city moving forward despite the far-ranging impacts of this disease. Our objective was as bold as it was simple: Nothing less than the most breathtaking recovery effort Chicago has ever seen. To succeed, we knew there could be no half measures and no cutting corners. It would require bold, visionary action that would build on the efforts already taken to expand equity and opportunity over the previous nine months. As Pastor Otis Moss of Chicago's Trinity United Church of Christ eloquently put: "Our fight isn't just against COVID-19, but COVID-1619."

The women and men we brought together for the Recovery Task Force were as diverse and dynamic as Chicago itself – drawn across industries, community organizations, and policy experts to give voice to all facets of our city, and provide the critical guidance needed to chart our path forward. We also created opportunities for public input, which we have seen time and again as not just valuable, but *vital* to the success of any action we have taken.

For all the challenges we face, this crisis also affords us a once-in-a-generation opportunity to make this city work even better by creating a new economic model based on inclusive growth that takes a holistic approach to development across both downtown and our neighborhoods.

There is no denying we will continue to navigate significant challenges related to COVID-19, but thanks to your work, we are already doubling-down on our mission of building a new Chicago that is inclusive and accessible, and serves as the standard of how cities can not only recover from this event, but use their recovery as a driver for growth that leverages power and potential for generations to come.

We want to thank you for your transformative contribution to this moment, and we look forward to continuing in this journey together in the months and years ahead.



Mayor Lori E. Lightfoot



Samuel K. Skinner

AlphaStruxure integrates industry-leading energy & financial capabilities



THE CARLYLE GROUP

= AlphaStruxure

Global leader in the digital transformation of energy management and automation.

- \$30 billion in 2019 revenue
- 135,000+ employees globally
- #1 Energy as a Service (EaaS) solutions provider
- #1 Microgrid Control Solutions and Low & Medium Voltage Distribution
- Over 300 microgrid projects successfully deployed
- Leading renewable PPA advisor

\$221 billion in assets spanning 389 investment vehicles and four core business segments:

CORPORATE PRIVATE EQUITY

- \$84b aum
- 170 active portfolio companies
- 288 investment professionals

GLOBAL CREDIT

- ~\$50b aum
- 180+ investment professionals
- 1000+ borrower relationships

REAL ASSETS

- \$40b aum
- 150+ investment professionals

INVESTMENT SOLUTIONS

- \$47b aum
- 92 investment professionals

Figures as of June 30, 2020

Uniting Schneider and Carlyle to provide an industry-leading Energy as a Service (EaaS) offering

- Combines Carlyle & Schneider capabilities
- Integrates financial & technology expertise
- Provides best-in-class project delivery
- Delivers digitally-enabled asset optimization
- Eliminates execution, financial and operational risk
- Guarantees specified outcomes for sustainability, cost optimization, resilience and reliability

"At Schneider, we believe access to energy and digital is a basic human right."

"Carlyle's purpose is to invest wisely and create value on behalf of its investors, portfolio companies and the communities in which we live and invest."

"AlphaStruxure is named for Generation Alpha – building advanced energy infrastructure for those born between the early 2010s and the mid-2020s."

Schneider Electric and The Carlyle Group formed the joint venture AlphaStruxure to create the next generation of decentralized, digitized and decarbonized energy systems.




AlphaStruxure

To: City of Chicago Department of Assets, Information and Services Commissioner Jennifer Muss. Attached is our REDACTED submitted by the 1st Minority Led CypherSelect MBE Protégé Team to respond with Majority MENTORs below for Energy as a Service to achieve the City's 100% clean (renewable energy goals) TBD. This Energy Equity Mentor Protégé Team is the 1st Minority electricity municipalization delivery franchises for the nation's third largest city and largest urban center between America's coasts to deploy innovative ways to reliably, equitably, affordably & sustainably strengthen, maintain & operate the electricity grid the City of Chicago. 100% financed on City public land.

City of Chicago Energy Team Org Chart

Energy Equity Mentor Protégé



MINORITY-OWNED ENTERPRISE
CYPHER P3



RFI Energy Equity Team Contact List

1.) John C. Morley Lendlease Construction Chicago

Principal-in-Charge, Senior Vice President

30 South Wacker Drive, 24th Floor

Chicago, IL 60606

T 312 245 1409 | F 312 245 1379 | M 312 656 7664

John.morley@lendlease.com | www.lendlease.com

2.) Allison Mick Nationwide Bloom & Ameresco Partner Engagement

City of Chicago Enterprise Account Manager for RFI

312.399.2118 | Allison.Mick@BloomEnergy.com

Bloom Energy

4353 North First Street, San Jose, CA 95134

www.bloomenergy.com

3.) Tony Burketh Principal Investigator for Bloom; Ameresco; AlphaStruxure;

LendLease

CypherSelect™ MBE Chicago Woodlawn HQ

T +1 872-201-0648 aburketh@gmail.com

Chicago Community 773-783-2850

4.) Jonathan A. Beckham

Shareholder Greenberg Traurig, LLP

1750 Tysons Boulevard, Suite 1000 | McLean, VA 22102

T +1 703.903.7534 C-703-861-1532

beckhamj@gtlaw.com | www.gtlaw.com | [View GT Biography](#)

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E: curtis@mbeconstructionsupply.com

W: www.mbeconstructionsupply.com

Brian M. Haug, P.E.

Continental Energy Solutions

815 Commerce Drive; Suite 280

Oak Brook, IL 60523

o. 630.637.2151

c. 847.875.5736

www.CESnrg.com

bhaug@CESnrg.com

RESILIENT CHICAGO



A Plan for Inclusive Growth and a Connected City

VISION

A RESILIENT CHICAGO IS A CITY WHERE RESIDENTS, NEIGHBORHOODS, INSTITUTIONS, AND GOVERNMENT AGENCIES ARE SUCCESSFULLY CONNECTED TO EACH OTHER IN THE PURSUIT OF ECONOMIC OPPORTUNITY, SAFETY, EQUITY, AND SUSTAINABILITY.

A MORE **CONNECTED CHICAGO** IS A CITY WITH:



Residents Connected to Opportunity



City Government Connected & Collaborating



Neighbors Connected to Each Other



Regional Governments Connected & Working Together



Communities Connected to Other Communities



Healthy Communities Connected to Nature

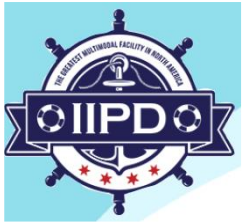


Government Connected to Residents



McCORMICK PLACE
CHICAGO
SMG





Traditional combustion technologies generate pollutants including:

SO₂

Sulfur Dioxide
acid rain, asthma

PM

Particulate Matter
lung and bloodstream penetration, haze

NO_x

Nitric Oxides
respiratory irritation, haze, acid rain

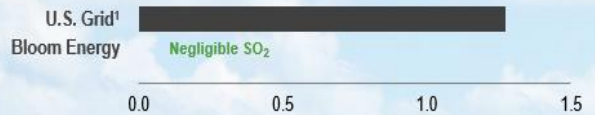
VOCs

Volatile Organic Compounds
headaches, organ damage

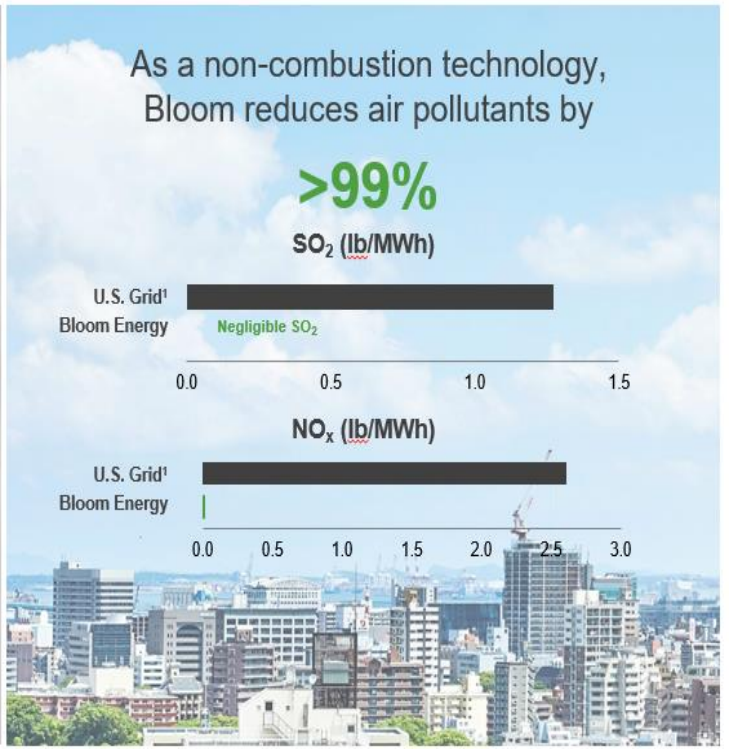
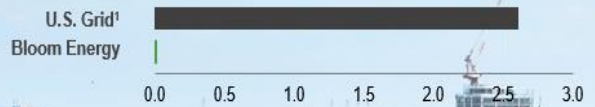
As a non-combustion technology, Bloom reduces air pollutants by

>99%

SO₂ (lb/MWh)



NO_x (lb/MWh)





Bloom Energy
4353 North First Street
San Jose, CA 95134

May 26, 2021

Bloom Energy is pleased to communicate our recent partnership agreement with Ameresco, Inc. The agreement enables the entities to offer multiple solutions / technologies for meeting customers' on-site power generation needs. Bloom's baseload Solid Oxide Fuel Cell (SOFC) technology can be more seamlessly coupled with intermittent resources (like solar and storage) into optimum microgrid configurations.

With this agreement, Ameresco commits its design, engineering, installation, and finance resources to Bloom Energy fuel cell opportunities. As an industry leading energy services company, Ameresco will integrate best-in-class behind-the-meter solutions with Bloom Energy fuel cells. Once the fuel cells are installed and commence operations, Bloom Energy will continue to monitor, maintain and service fuel cell installations for the lifetime of agreements. We look forward to serving your community.

Sincerely,

A handwritten signature in black ink that reads "Allison M. Mick".

Allison Mick
Strategic Account Manager
Bloom Energy



Cypher

Project objectives



SECURE



1 Reliable, Resilient Turn-key solution providing onsite fuel cell-based generation, UPS and emergency power

2 Speed of Deployment to facilitate project deployment while maintaining reliability and sustainability goals

3 Decarbonize electricity & steam to meet sustainability goals

Deploy fuel cell technology with combination of UPS, emergency power and associated DC infrastructure to support mission critical loads

Local Utility unable to meet project timelines or sustainability requirements

Maximize on-site renewable and/or zero carbon energy generation

Single point of contact and accountability for project design, engineering and execution

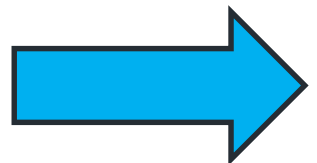
Leverage onsite generation to facilitate speed of deployment and facilitate future "On Demand" expansion

Potential conversion from NG to RNG over contract term

Long-term maintenance service with 24/7 monitoring/support via ASX Network Operating Center

Seamless transition in the event of a utility outage, digitized automation and control

Contracted risk-transfer throughout project lifecycle





Project Highlight

Chicago Public Schools, IL

<https://www.ameresco.com/portfolio-item/chicago-public-schools/>

AMERESCO 

Chicago Public Schools Gains Visibility into Energy & Sustainability of District Buildings and Utility Expenses

Technology Types:

AssetPlanner® Asset Management Software |
Energy Procurement | Energy Price Risk
Management | Energy Invoice Validation |
Value-Added Analysis & Reporting

Portfolio Size

64M square feet across
nearly 1,100 buildings

Monthly Invoices Validated

2,700 electricity & natural gas utility
accounts across four vendors

Overbilling Uncovered

\$150k identified & corrected
before payment

Reduction in Overall Energy Spend

\$4M FY19 to FY20



Summary

Chicago Public Schools (CPS), the third largest school system in the US, and Ameresco have been working together to ensure CPS has visibility on the energy and sustainability of its school building portfolio and financial oversight of its utility purchases and expenses.

This visibility occurs through the provision of a holistic energy management framework provided by Ameresco that includes procurement of utilities, validation of utility vendor billing, visualization of utility data and ongoing analysis of utilities including Portfolio Manager/Energy Star ratings.

This initiative is led by the Director of Energy and Sustainability for Chicago Public Schools. The Ameresco teams delivering on this solution include Supply Management and Asset Sustainability Group.

Chicago – The Vision to a “Clean City”

THE FUTURE OF ENERGY

Be

Solar and Wind

Clean Power Generation
Inherently Intermittent

Hydrogen Fuel Cells and Electrolyzers

Electricity Generation and
Storing Energy at Scale



Be

Zero / Negative
Carbon Over Time

Be

AlwaysON
Power

PATHWAY TO A ZERO CARBON FUTURE

Be

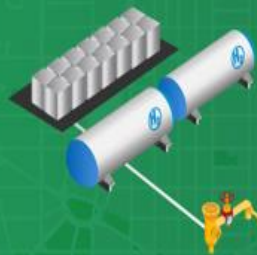
EV Charging



H2 Charging Fleets



H2 Going to Pipeline



Resilient Community Microgrid



Bloom Energy Corporation is a Silicon Valley based technology provider and energy project developer. We trace our roots to work performed for NASA by our CEO and Founder, Dr. KR Sridhar, to create technology capable of converting atmospheric gases on Mars to oxygen and fuel, for use by astronauts. Dr. Sridhar and his team built a fuel cell capable of producing air and fuel from electricity generated by a solar panel that would have been placed on Mars. They soon realized their technology could have an even greater impact here on Earth. Bloom Energy’s investors include Kleiner, Perkins Caufield & Byers, New Enterprise Associates, and Morgan Stanley. In addition to Dr. Sridhar, the company’s leadership team includes venture capitalist, John Doerr, who helped fund Google and Amazon, former Secretary of State, General Colin Powell, former CEO of Cisco Systems, John Chambers and former CEO of General Electric, Jeff Immelt.

Bloom Energy has delivered approximately 450MW of Solid Oxide Fuel Cells across 700 sites to enterprise customers in approximately 10 years. Today, Bloom Energy has installations in the United States, India, Japan, and Korea. Most recently, **Bloom Energy** has shipped the first hydrogen fuel cell to Korea to test an actively engaged hydrogen SOFC conversations to deliver US cities commercial and industry customers. Since Bloom’s inception, they have been working to enable the hydrogen economy by scaling the manufacturing and production of our solid oxide technology to reduce costs, improve reliability through increased stack life, and improve our materials performance to advance our technology. In addition, to advancements in hydrogen, Bloom focuses on provide microgrids to keep business and cities running when the grid is not present. A few examples:

1. During the worst of the 2019 and 2020 California wildfires, Bloom Energy had multiple microgrids deployed that helped keep retail stores, such as Home Depot, and grocery stores open for struggling communities with widespread power outages.
2. **Bloom Energy** also recently deployed a microgrid at the Marcus Garvey Apartments, a low-income housing development in Brooklyn, N.Y., which involved a combination of fuel cells and energy storage on-site. Instead of building a new substation, the customer received a rebate from the utility — a unique approach.
3. In **Hartford, Connecticut**, **Bloom Energy** deployed a microgrid for a local library, gas station and school, which, most of the time, just works to serve those entities. But, during an emergency, the microgrid can island, stay on and make sure that the gas station is powered and the emergency shelters at the library and school are powered for the community as well.

Efficiency

Scale & experience

Faster cost downs

Unique Flexibility

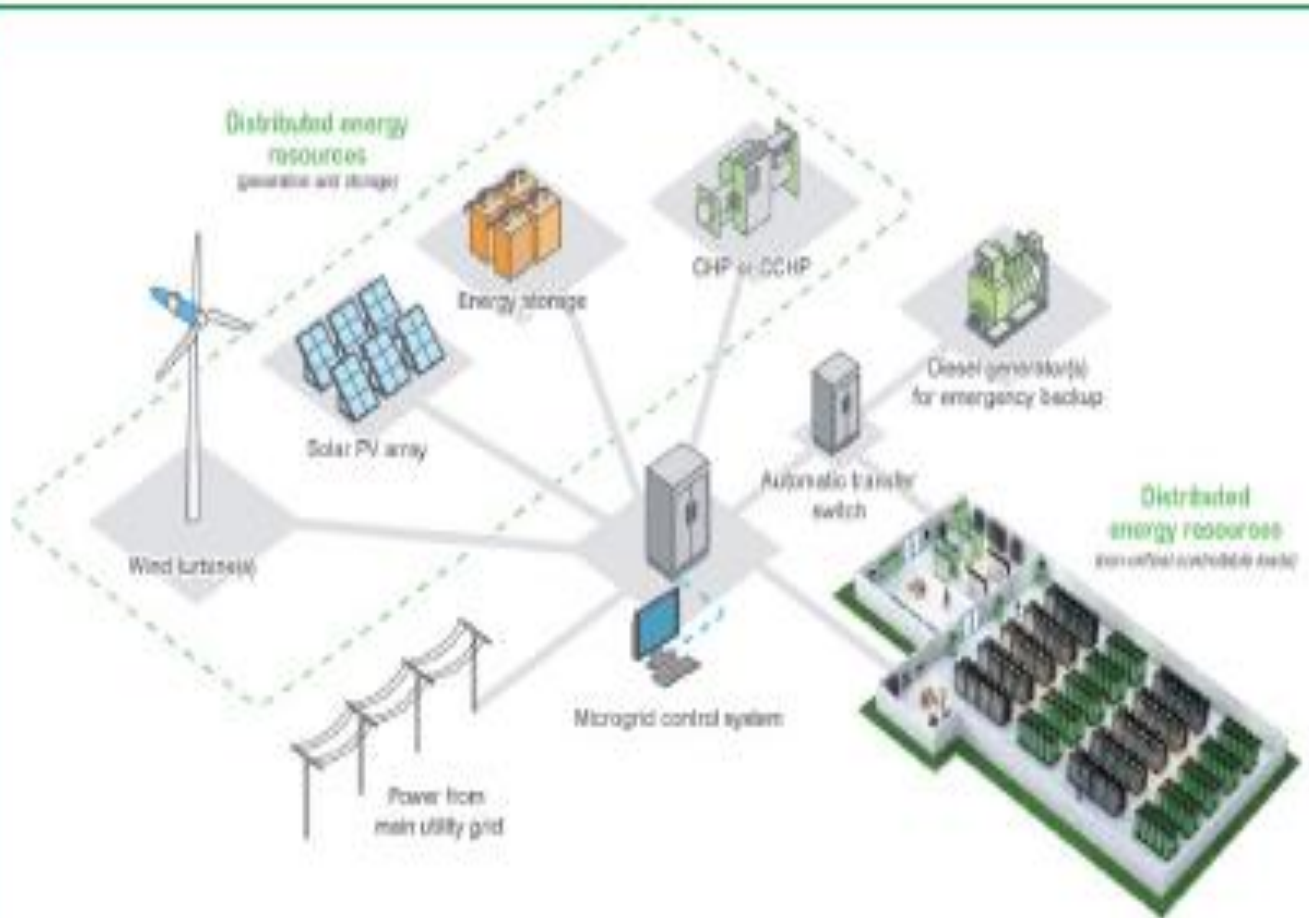
Bloom has deployed over **100** Microgrids Since 2011

Power Outage Experience

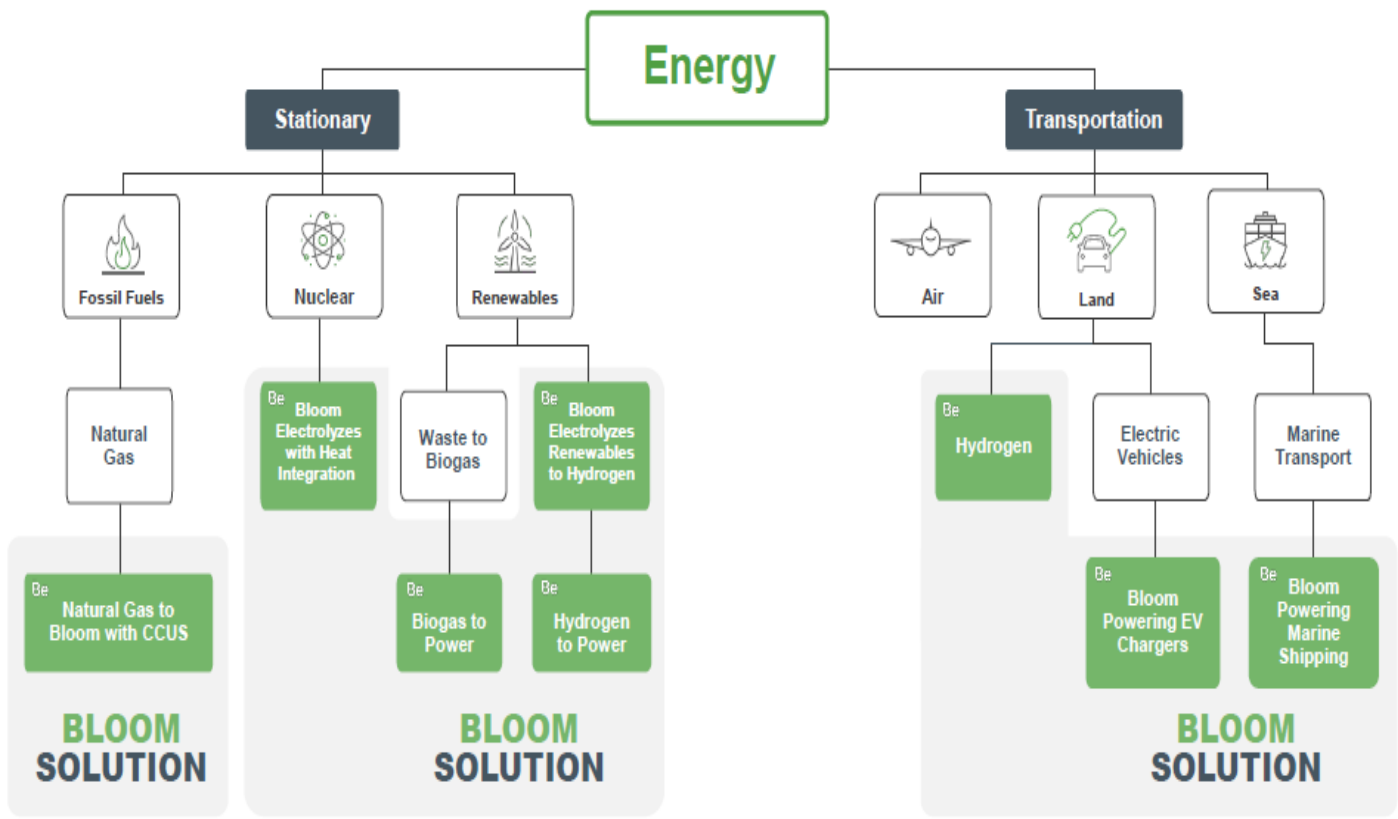
During CA wildfire season last year, Bloom powered a manufacturing facility through a

5.5 Day Outage

Bloom protected customers from over **1,500** Grid Events since 2018 Alone



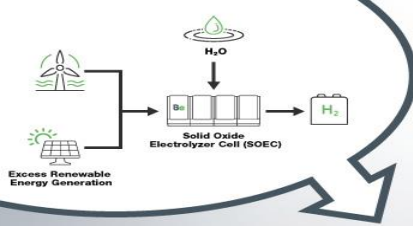
BROAD SET OF APPLICATIONS ACROSS THE ENERGY LANDSCAPE



HOW
BLOOM ENERGY
CREATES

H₂

Bloomenergy



**A CLOSER
VIEW**

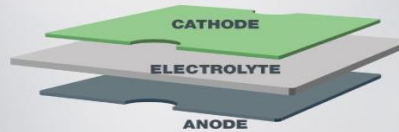
Electricity



Steam



Splits
Hydrogen and Oxygen



H₂
O₂

Air



HYDROGEN AT BLOOM ENERGY: In July 2020, Bloom announced a new solid oxide electrolyzer product for renewable hydrogen production (the “SOEC”). The SOEC is built on the same solid oxide platform used by the Bloom Energy Server fuel cell product. It therefore benefits from the scale, project development, cost reductions, and technology optimization gained over the past decade, during which products have produced significant results in terms of:

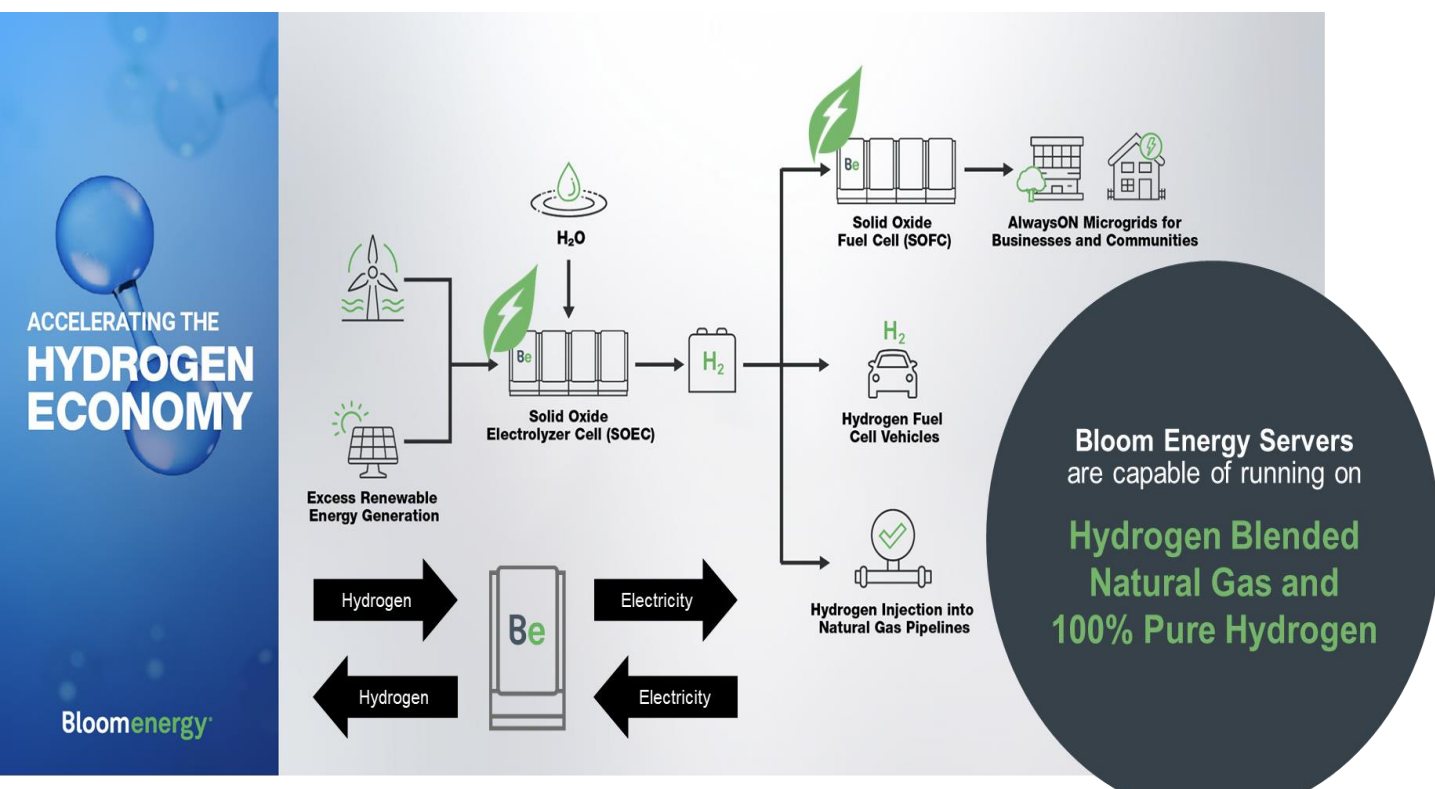
- **Cost.** Significant reductions in capital costs, service cost and fuel costs (by way of improvements in electrical efficiency); making Bloom the lowest-cost solution at scale
- **Power density.** Bloom’s Energy Server today makes 5x more power in the same service footprint as our first generation system due to material science and technology architecture optimization; Bloom’s high efficiency will requiring 13-31% less electricity to produce a kg of hydrogen by 2030.
- **Financing ecosystem.** A key challenge with ramping small, pilot scale technology into large, commercial and “bankable” applications are the challenges of inducing investors to deploy billions of dollars for relatively new project types. Bloom has overcome these challenges and has demonstrated a track record of success with a large set of established strategic investors whom we believe will be very interested in the Project;
- **Scale and operating efficiency.** Bloom has built a global supply chain, shown that they can scale operations to meet growing customer demand, and successfully delivered several material improvements to our core technology platform. This kind of experience is only gained by deploying reliably at scale – which is a far different level of performance required by project investors and customers than those interested in small-scale demonstrations.

BLOOM ENERGY leadership in commercial solid oxide technology provides many advantages over other technology to generate green hydrogen. They believe that the SOEC holds the greatest potential to generate low-cost green hydrogen because of its superior efficiency, rapidly declining costs, and scalability. Scalability of the supply chain required to deliver the high volumes of hardware need to scale up hydrogen production will be critical to achieve low cost H₂. Bloom is uniquely positioned to deliver this capability given their existing manufacturing capabilities, and their extensive experience with building a robust, diversified, and resilient supply chain over the past decade of scaling up production of a new energy technology. As a result, they have multiple sources for key parts and materials, a best-in-class quality system, have purposely selected capital equipment providers who are also capable of short lead times, and the strong balance sheet necessary to fund manufacturing expansions. The Bloom manufacturing team has experience with leading companies in the automotive and semiconductor manufacturing industries, which are known for high-volume production, rapid cost reduction, and the highest quality output. Bloom has been able to achieve significant scale-up by developing, closing financing for, constructing, and operating more solid oxide fuel cell based projects than anyone else in the world.

Power Utilities are seizing the lack of electricity is now a reality. 25 States are suffering 50 degree freezing never seen before. Chicago Woodlawn Development will lead the USA & Midwest market sort of market there might be for resilient power, and what impact it might have on the local economy and tax generation. Microgrids are commonly recognized by their incorporation of electrical storage devices into a distributed energy resource system. Hydrogen storage and innovation is what Bloom Energy's research team delivers.

Bloom Energy (NYSE:BE) market position has changed in the last 10 months, due to the fast-moving US economy demand for Clean Energy "Microgrids". The Chicago Recovery Task Force & Civic private stakeholders now demand revenue outcomes' disruptive proven CAPEX & OPEX solution plus immediate recovery via New Clean Energy on demand 24x7x365 Microgrid power. What is a microgrid & how do they work? A microgrid is a self-sufficient energy system that serves a discrete geographic footprint, such as a hospital complex, campus or community. During a power outage, the microgrid islands from the utility grid, and the microgrid's on-site resources provide power to its host buildings. An advanced microgrid also optimizes multiple energy resources and load to achieve the hosts' goals for price, sustainability or efficiency.

Bloom Energy & Cypher is a developer of cost-effective, reliable, clean energy projects using the breakthrough all-electric solid oxide fuel cell technology. The fuel cells produce reliable base load power using a highly resilient and environmentally superior non-combustion process. The result is a new option for energy infrastructure that combines increased electrical reliability with fast, targeted, and unobtrusive deployments, and significantly lower environmental impacts. The Bloom Energy Server™ enables customers to deploy a form of power generation that is clean, reliable, predictable, and avoids the operational problems, complexity, efficiency issues, thermal limitations, siting challenges, and environmental shortfalls that have hindered power generation equipment that requires waste heat utilization, as well as systems that simply store grid energy that had been previously generated via combustion. Bloom's technology gives its users the flexibility and reliability to respond effectively in times of crisis. Bloom's clean, non-combustion technology generates electricity without harmful combustion, allowing you to produce power **without any of the PM 2.5, NO_x, or SO₂ emissions associated with purchased grid power.** A recent Harvard study linked fine particulate matter (PM 2.5) exposure to higher mortality rates in COVID-19 patients. Click on the Link to evaluate for the benefit of all USA underserved sites. <https://projects.iq.harvard.edu/covid-pm>



Bloom Energy Servers are capable of running on **Hydrogen Blended Natural Gas and 100% Pure Hydrogen**

CYPHER – A GLOBAL PLATFORM LEADER IN ENABLING DIGITAL BUSINESS SUCCESS



INDUSTRIAL ERA

Changed every aspect of life

Products

Value Chains (linear)

Power of controlling supply chain

Supply-side economies of scale

Physical assets & capital depreciation

Diminishing returns

Market valuations driven by ROA

Growth organic or via M&A

GDP as economic measurement

AlphaStruxure



PREDICTABLE DISRUPTION

Every business now understands the transformational power of digital. What few, though, have grasped is quite how dramatic and continuous the changes arising from new platform-based ecosystems will be.



Bloomenergy



DIGITAL ECONOMY ERA

Transforming every dimension of life

Platforms

Eco-systems (non-linear)

Power of optimizing ecosystems

Demand-side economies of scale

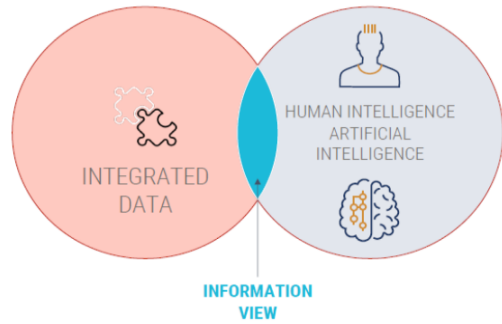
Digital assets & innovation capital

Distribution power law & network effects

Market valuations are driven by ecosystems

Growth driven by asymmetric & network effects

New measures, digital density & "free goods"



Resilient internet overcomes power outages and terrestrial damage:

resilient internet access



- Technology Innovation Center (Data Center, IT, green technology)
- R&D Competency Center for GNOC; LAB; Meeting Rooms; Internet Training
- Target 100+ companies for technology US Global Exchange attached
- University support/involvement done with UIC, U of C Schools of Engineering
- MPEA is #1 in North American Convention and Meeting Authority
- Chicago is 4th largest Global Data Center surrounding community
- Complexity of land acquisition mitigated by Public Private Partnership
- The Global Convergence  | THE UNIVERSITY OF CHICAGO
- Chicago is a strong partner as 3rd largest US City in United States

With \$847 million raised, mid-fall groundbreaking set for Obama Center 4 blocks from our Woodlawn Campus.



Woodlawn Campus in Chicago



Cypher-Brazier Foundation-SAFE™ \$250,000,000 + Qualified CAPex OPex Site for Equity investment in Chicago Woodlawn supported by Chicago Recovery Task Force Land Secured by social impact mandatory compliance below: Our Land is secured and vetted for Investment for compliance with all City of Chicago Compliance for 2021. Guaranteed by Tier-1 Public Traded Firms.

- 1. Located in a qualified Opportunity Zone by DCEO (done)**
- 2. Public welfare investment eligible (Compliant)**
- 3. Project will be developed by experienced, credit-worthy**
- 4. Sponsor via community need under the CRA (done)**
- 5. Our mission critical DD is complete for CPD (done)**
- 6. Actionable before end of 2021 (done)**
- 7. Generate a positive economic return (20-30yr IRR 16%)**
- 8. Duplicated Model for Chicago & Cook County (done)**





May 10, 2018

Dr. Byron T. Brazier
Pastor
Apostolic Church of God
6320 South Dorchester Avenue
Chicago, IL 60637

Dear Dr. Brazier,

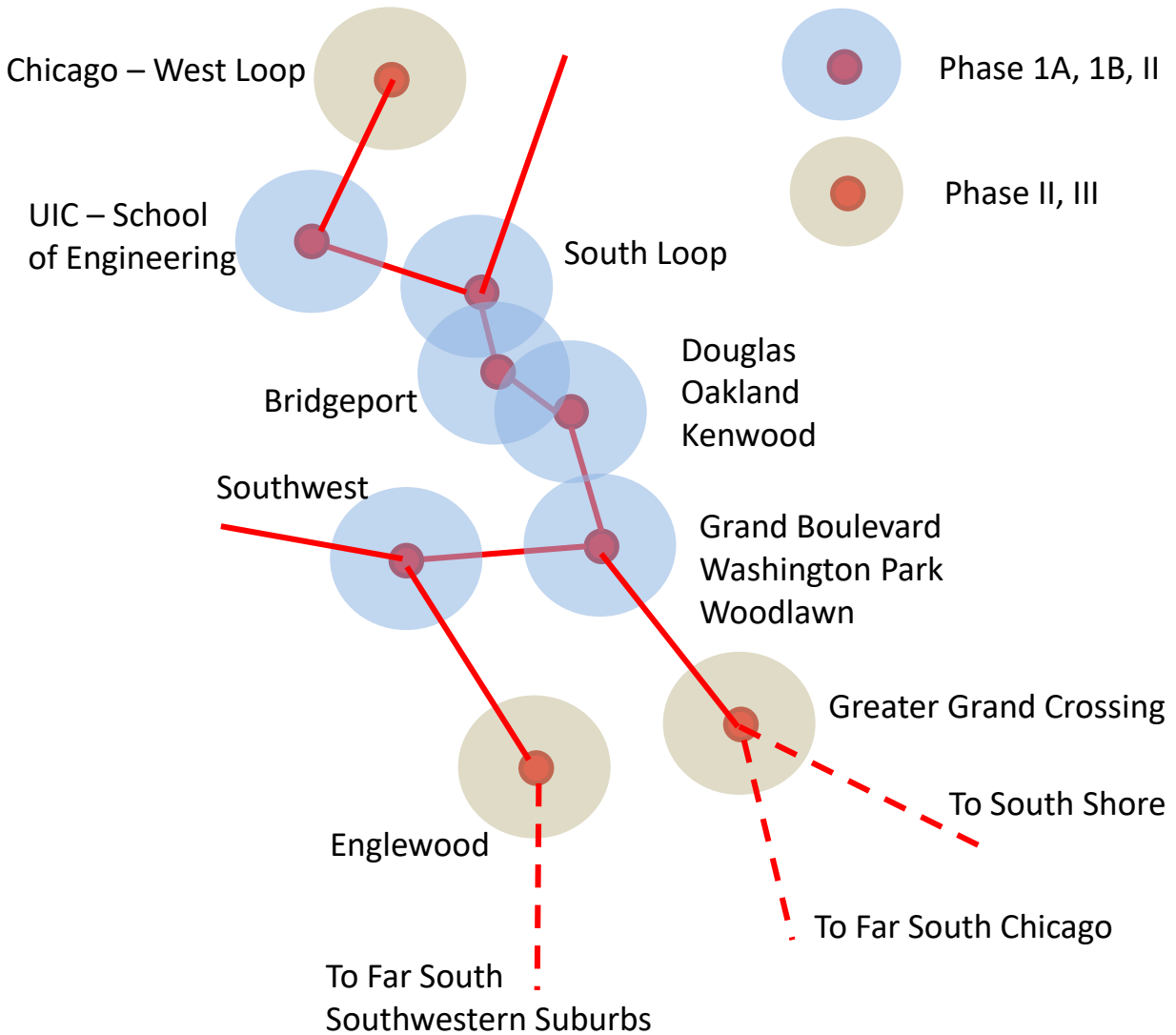
On behalf of the University of Chicago, it is with deep appreciation that I send this letter in honor of your 10 Year Pastoral Anniversary. The Apostolic Church of God and your ministry over the past ten years have had a positive impact on the Woodlawn community and the University of Chicago.

I am happy to note some of the many accomplishments that have advanced in partnership between the Apostolic Church of God and the University. For one, the Woodlawn Children's Promise Community has evolved over the years but began with the support of UChicago faculty, and has continued with the support of our Office of Civic Engagement staff serving on its board and helping coordinate resource investment with Woodlawn public school leadership. The University has been able to extend its impact into Woodlawn with the University's Woodlawn Charter High School where your leadership was essential for this historic project, which was the first University development south of 61st Street.

The growth and advancement of your ministry in Woodlawn and the broader mid-South Side community reflect your commitment to addressing the challenges and opportunities that face our community and our city. As Woodlawn has changed, so has your approach to engagement and community development, as evidenced by the growth of the One Woodlawn Plan and your four-community leadership quadrants. Your leadership in establishing the Brazier Foundation to support the community development efforts tied to the Network of Woodlawn and new ventures such as BSD Industries reflects your entrepreneurial approach to building self-sufficiency as the church advances economic development.

With the arrival of the Obama Presidential Center, we have another opportunity to effect positive change in the community. Your leadership on the University's OPC community advisory board and support of the bid to bring the Center home to the South Side were very valuable. Critically, as the leader of Apostolic Church of God and the Network of Woodlawn, you continue to lay a strong foundation for shared prosperity in the community.

Chicago Invest South Prototype Pilots



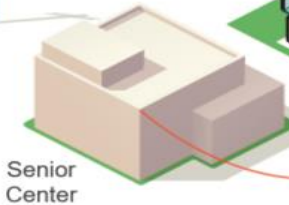
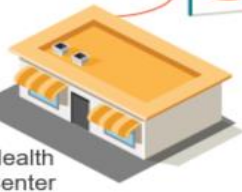
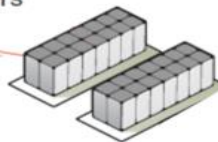
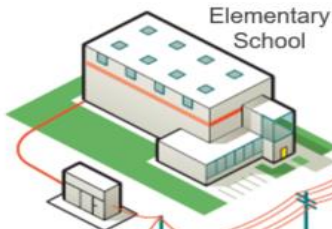
Woodlawn 2025

ARTHUR M. BRAZIER
FOUNDATION
Inspired Leadership Built on a Legacy of Trust

Bloomenergy
Energy Servers

800 kW Microgrid

100% of power needs for Elementary School, Library, Senior Center & Health Center
During outage, also provides power to a local gas station and grocery store
4 utility outages avoided since 2017



BOBBY L. RUSH

1ST DISTRICT, ILLINOIS

COMMITTEE ON ENERGY AND COMMERCE

SUBCOMMITTEES:

RANKING MEMBER, ENERGY
COMMUNICATIONS AND TECHNOLOGY

ASSISTANT WHIP



CONGRESS OF THE UNITED STATES

HOUSE OF REPRESENTATIVES

WASHINGTON, D.C. 20515

WASHINGTON

2188 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-1301

CHICAGO

11750 SOUTH WESTERN AVENUE
CHICAGO, IL 60643-4732

[HTTP://RUSH.HOUSE.GOV](http://rush.house.gov)

[FACEBOOK.COM/CONGRESSMANBOBBYRUSH](https://www.facebook.com/congressmanbobbyrush)

[TWITTER: @RepBobbyRush](https://twitter.com/RepBobbyRush)

May 7, 2018

Dr. Bryon T. Brazier

Pastor

Apostolic Church of God

6320 S. Dorchester Avenue

Chicago, IL 60637

Dear Dr. Brazier:

It is with great pleasure that I offer my heartfelt congratulations on the 10th anniversary of your pastoral ministry at the Apostolic Church of God. Your leadership in ministry, civic engagement, and economic development has improved the lives of thousands of people and provided a tremendous example for those who lead throughout the United States.

During your decade as pastor, under the guidance of the Holy Spirit, you have done just as the Bible instructs. Your teaching and preaching the Word of God has opened the spiritual eyes and hearts of men, women, and children to the Good News of Jesus Christ. The fruit of your obedience has resulted in many lives being redirected and aligned with positivity and opportunity to be a blessing in the world.

The impact of your work reaches beyond the doors of the church and into the community. By establishing the *Bishop Arthur M. Brazier Foundation*, you have provided support for the development of the Woodlawn community in education, public safety and economic development. Your manufacturing company, *BSD Industries*, expands the economic underpinnings of the community by providing workforce training for residents and revenue reinvestment opportunities for Woodlawn. In addition, your collaborative venture, the *Network of Woodlawn*, has positioned residents to shape and impact the future of their community.

I also extend congratulations to Evangelist Mary, your wife and partner in ministry. She is a Bible scholar and servant who provides a tremendous example of Christian leadership for your church membership and the community.

Dr. Brazier, your 10-year *journey of grace* is a significant milestone and a testament to your vision and unwavering commitment. God has truly blessed your ministry giving it remarkable sustaining power! So, on behalf of the residents of the First Congressional District of Illinois, I congratulate you, and thank you for your decade of meaningful leadership.

Sincerely,

A handwritten signature in cursive script that reads "Bobby L. Rush".

Bobby L. Rush

Member of Congress



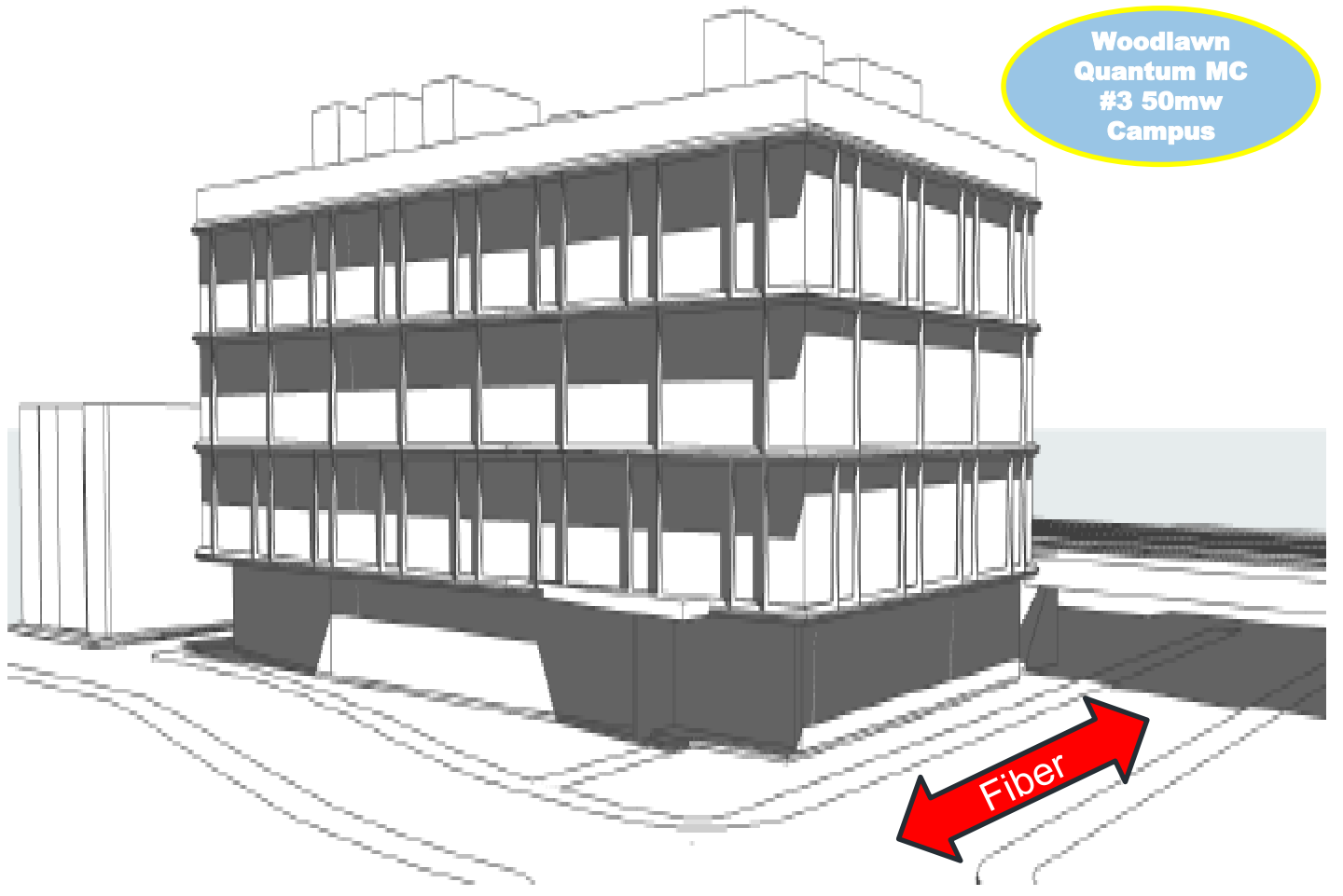
Woodlawn 2025

Site #4a

The Woodlawn Project "Top Secret" Microgrid Site



Woodlawn Quantum MC #3 50mw Campus



• Equity can help the city's transportation network, affordable housing resources and economic development efforts to more evenly address their allocation among neighborhoods.

• Diversity goals can help acknowledge and value stakeholder differences, experiences and strengths to help people and nature to coexist with mutual benefits.

• Resiliency efforts can help individuals, neighborhoods and industries to prepare and rebound from economic events that may be personal or community or global.

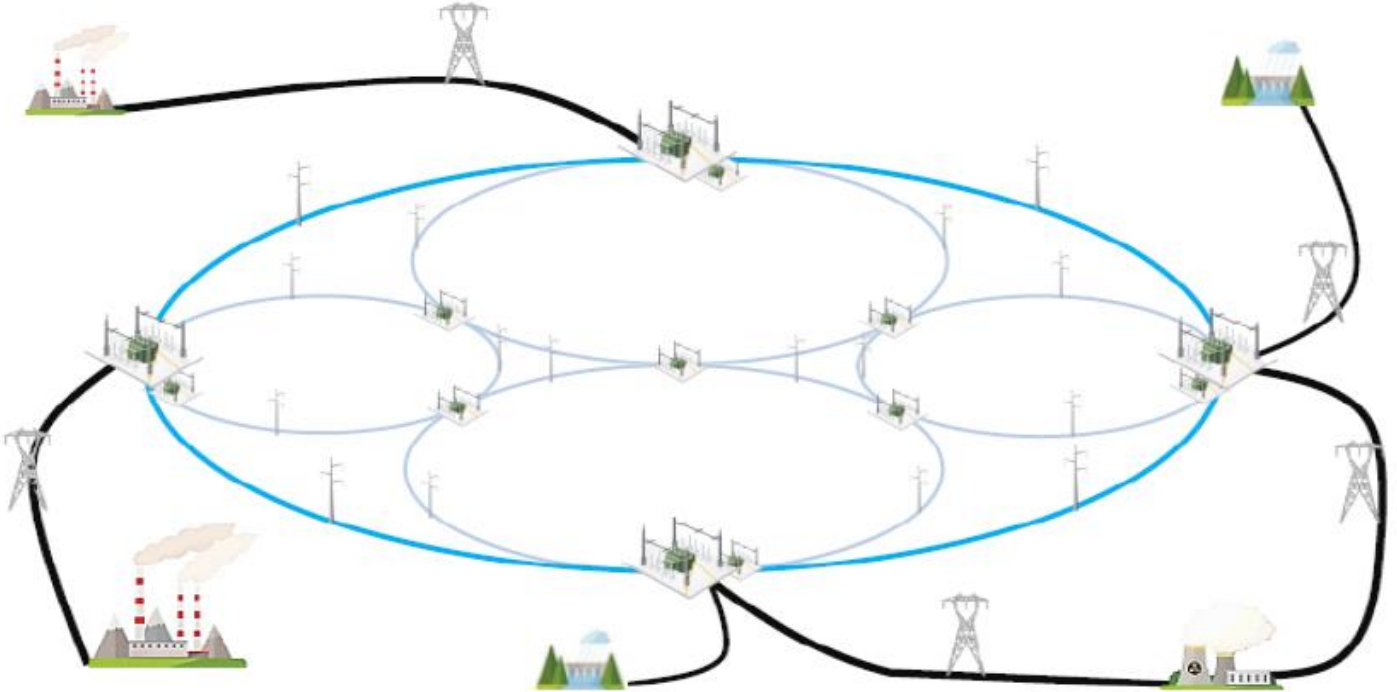
Woodlawn
Quantum MC
100mw
Campus

Sites B-2100 Yards of Opportunity

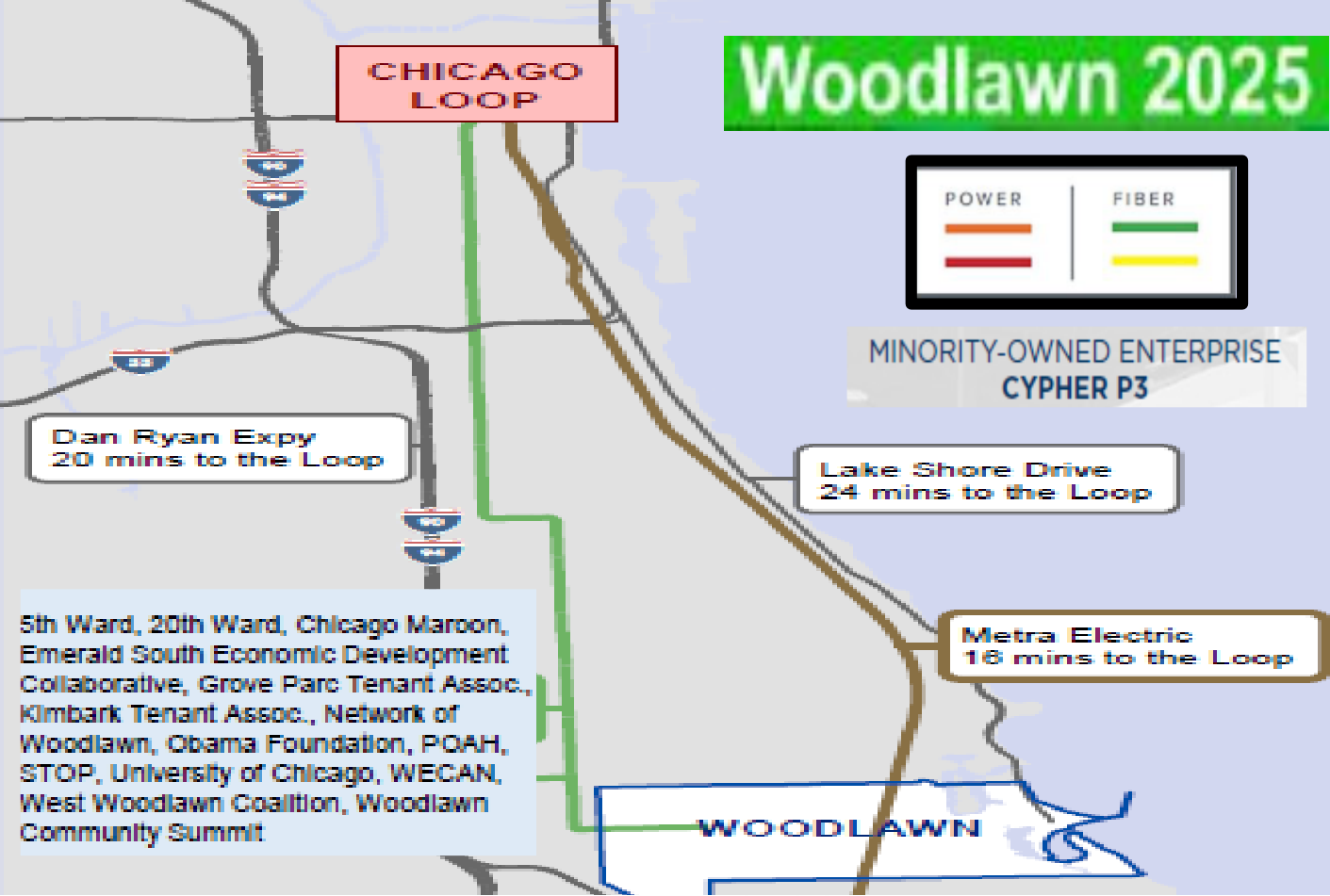
Woodlawn
Quantum MC
100mw
Campus



Dr. Byron Brazier, CEO for the Brazier Foundation Woodlawn Development stated, **“There is nothing more important for our neighborhood’s growth and vitality than the ability to compete and thrive in today’s global economy right here in Woodlawn. Our neighborhood business owners and entrepreneurs – as well as students and their families – are looking for chances to grow and expand their businesses and educational opportunities. This Chicago compliant recovery re-development for new direct jobs economic engine, training & innovation to make Woodlawn a global beacon for Energy & Sustainability & Innovation recovery for the next 50 years.”**



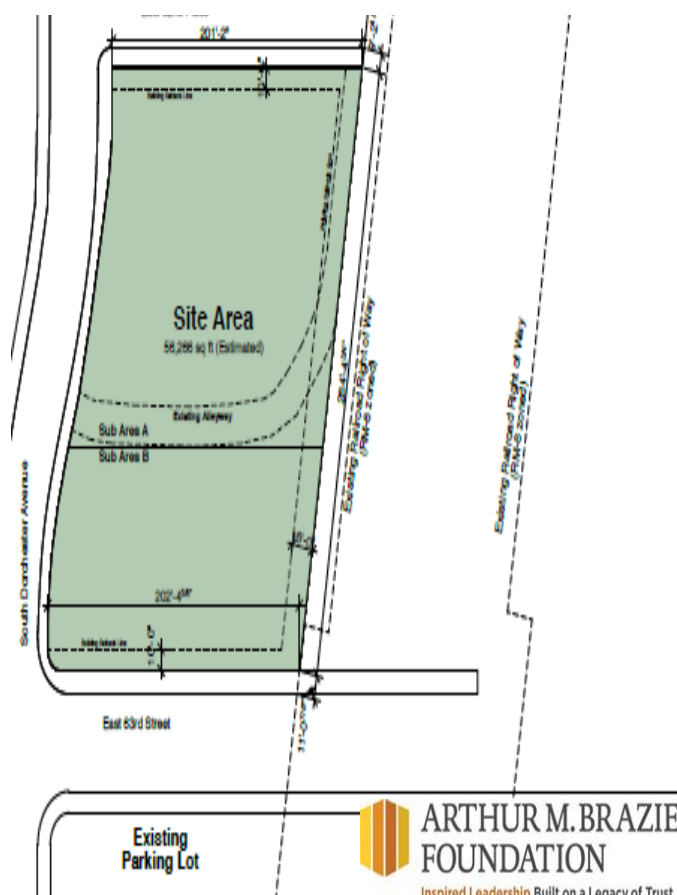
Woodlawn 2025



NOTE: ALL PLANS ARE PRELIMINARY, SUBJECT TO REVIEW AND APPROVAL BY CITY AND RELEVANT AGENCIES.



62nd Dorchester West of the Illinois Central Railroad (ICRR) tracks



Estimated Vacant Land by Community Area

Community Area	Average Home Price	Total Vacant Land (Acres)	Vacant as % of Total (Acres)
Rogers Park	\$375,566	16	1.0%
Edgewater	\$583,711	24	1.5%
Uptown	\$545,711	34	2.1%
Lake View	\$970,458	29	1.8%
Lincoln Park	\$1,453,666	50	3.0%
Near North Side	\$948,546	107	6.5%
Loop	\$818,773	39	2.4%
Near South Side	\$745,058	69	4.2%
Douglas	\$348,676	221	13.4%
Oakland	\$401,833	50	3.0%
Kenwood	\$533,463	29	1.8%
Grand Boulevard	\$350,079	251	15.2%
Hyde Park	\$614,580	8	0.5%
Woodlawn	\$198,565	144	8.7%
South Shore	\$189,295	78	4.7%
South Chicago	\$120,382	143	8.7%
Avalon Park	\$139,757	6	0.4%
Washington Park	\$187,750	174	10.6%
Greater Grand Crossing	\$124,230	143	8.7%
East Side	\$111,404	35	2.1%
Total / Average Lakefront	\$489,574	1650	5.6%

Source: AECOM Analysis

ASX 33MW fuel cells, UPS, emergency & associated infrastructure

EaaS proposition

Key Assumptions

Size	33MW
Solution	FC, UPS & EP
ESA	
Proposed ESA start	3/1/2023
ESA Term	20 years
ESA Escalation %	2.0%
ASX service fee	
Price per kWh @ ~ 0.115	~\$26.3M
Capacity \$210 kw/year	~7.1M
Project cost	
CapEx	\$244M
OpEx	\$8.8M

33MW fuel cells, UPS, emergency

~\$33.4M

33MW MW fuel cell generation
Switch Gear
Transformers
Energy Control Center
Power Management Modules
30MW of emergency power
15MW of UPS (7min)
~\$210 kW/year
~11.5¢ kWh

Energy infrastructure

Volumetric (per kWh) payment to ASX to own, operate & maintain assets

Delivery partners

- Fuel cell... **Bloom**
- Emergency power... **CAT**
- Switch gear... **SE**
- Energy Control Center... **SE**
- UPS... **SE**
- Power Management Modules... **SE**
- Engineering... **TBD**
- Construction... **TBD**

ESA term coincides with conservative life of assets
Ability to refine timeline depending on site needs

271M kWh of production

\$244M CapEx

Fuel, carbon offset, DLC excluded

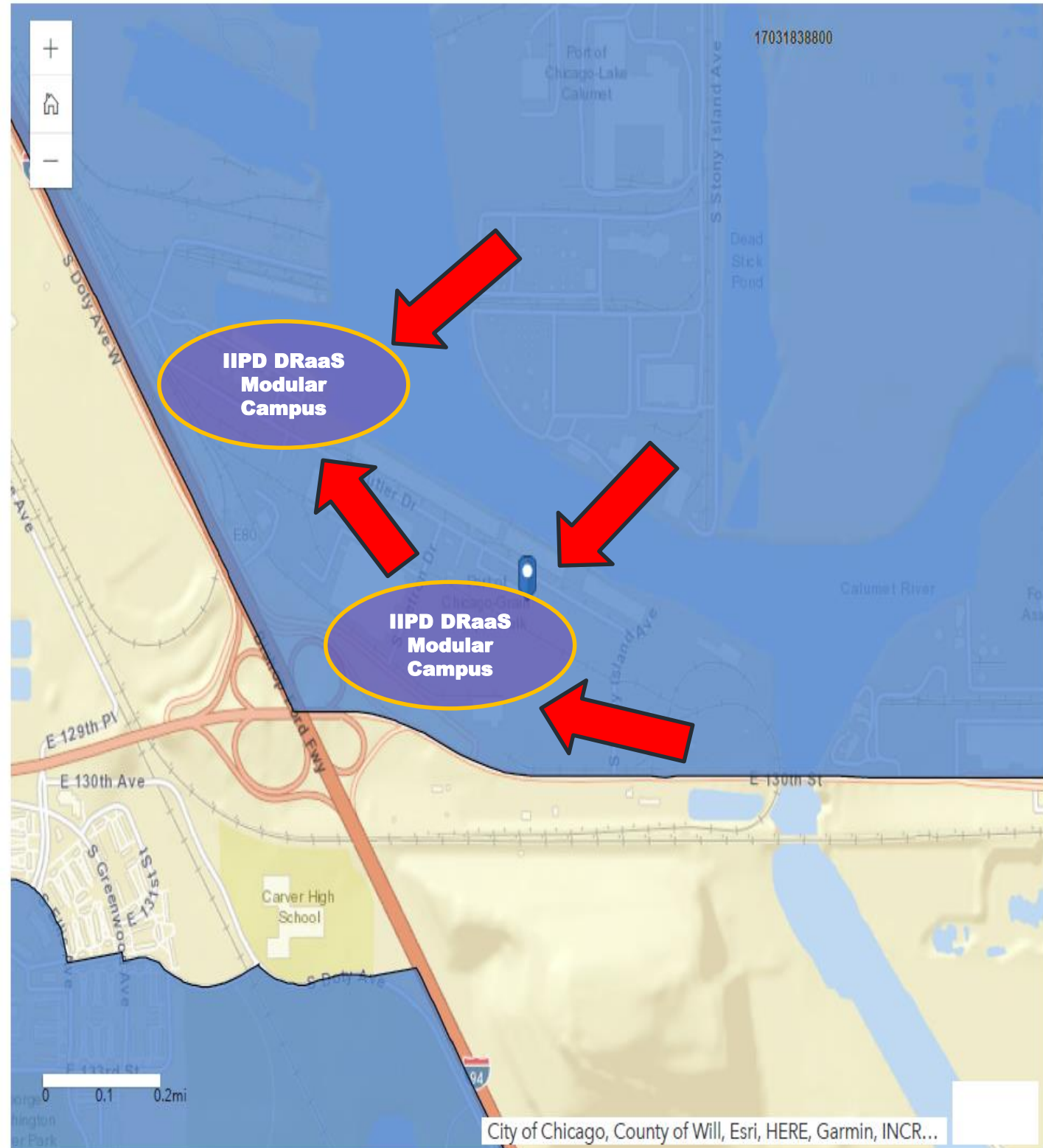
FTZ #22 Site - IL International Port District

Opportunity Zone Census Tract Number [17031838800](#)

Chicago, IL

Date updated

May 11, 2020 (10 months ago)



Aerial Map





IIPD 127th Doty Rd "30Mw" Chicago Port District



Tax Revenue Types

Projected Revenue

GPLET Excise Tax Revenue

\$32,967,000

Electricity Sales Tax Revenue

\$97,174,242

Construction Sales Tax Revenue

\$15,356,517

Personal Property Tax Revenue

\$11,069,748

Total Tax Revenue

\$156,567,507

18th to 20th LSD 6.6 Acre McCormick Place Microgrid “Owned by MPEA-Legislature of Illinois & City of Chicago”

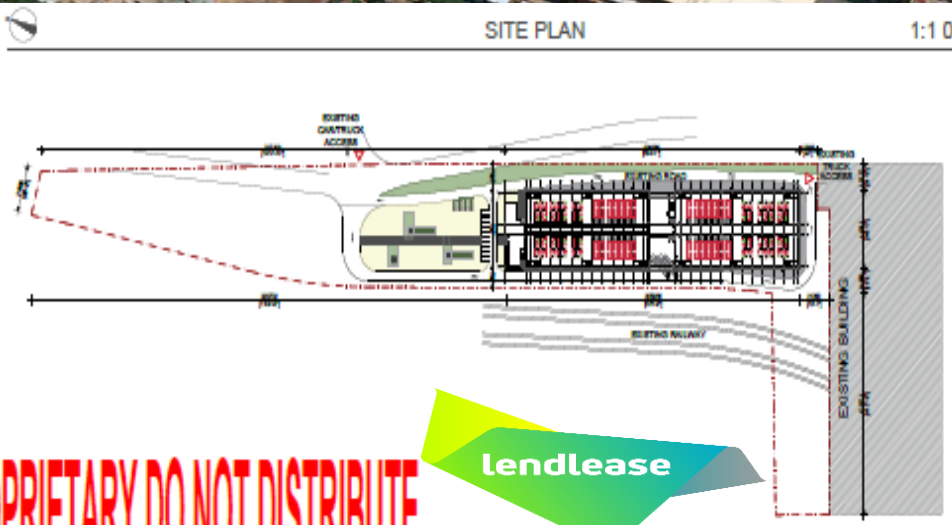


- (Site #1) MPEA 6.6 acre 20th – 18th Lake Shore Drive Vacant Land with 2-A Mixed Use Towers via RFP #2018-32-M via LendLease Construction for Hyperscale Data Center Powered by CleanTech Microgrid Innovation.....



NET AREA TABLE SITE PLAN 1:1 000

NO.	DESCRIPTION	AREA (SQ FT)	AREA (ACRES)
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PROPRIETARY DO NOT DISTRIBUTE



MINORITY-OWNED ENTERPRISE
 CYPHER P3

OVERALL

OVERALL SYSTEM CAPACITY			
ANOS	Dimensions	power per rack	number of racks
REDUNDANT	800x1300x43U	5KW	400
REDUNDANT	UPS	cooling	8x1
IT/TELE			8x1
			2x1 MW



**MPEA #1
Hyperscale
54mw
Campus Hub**

Urban Mixed-Use Designed for the 21st Century

DENSITY & PROGRAM

Our Team is Best Use Development
MPEA RFP Mixed Use #2018-32-M



LAKE SHORE DRIVE

MILHOUSE



EXECUTIVE ORDER

CERTIFIED FIRM UTILIZATION GOALS AND REPORTS BUSINESS DIVERSITY PROGRAM INFORMATION

The City of Chicago seeks to provide a level playing field and equal access for all contractors and subcontractors, including certified firms, to participate in city contracting. As well, the City wants to understand how diverse firms are being utilized on both City contracts and non-City contracts and make the private sector an equal and accountable partner in building a more diverse Chicago.

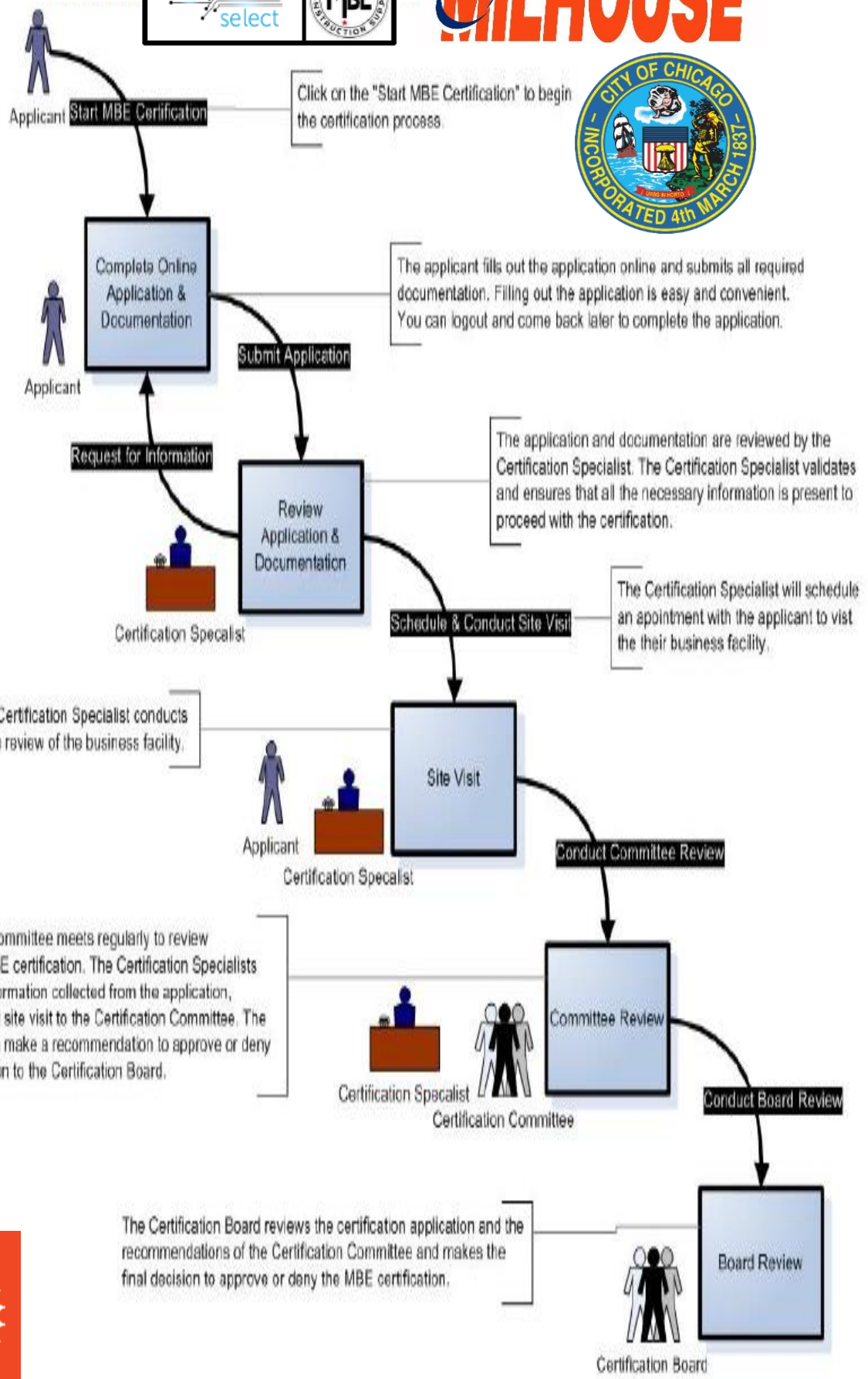
The first major component of the Executive Order is to require contractors to submit projections as to when and to what extent in the schedule of contract performance the certified firms are expected to be used on contracts that contain certified firm participation goals.

- Relatedly, contractors will also be required to submit quarterly reports on the usage of certified firms throughout the duration of the contract, comparing actual usage with projected usage, and including an explanation and recovery plan if participation is materially below the projected usage.

For the second major component of the Executive Order, contractors that have agreements with the City (including redevelopment agreements) will be required to submit annual reports that contain a description of the Contractor's Business Diversity Program, or report the lack thereof, and include any available information as to its expenditure on goods and services from minority-owned firms and women-owned firms during the prior calendar year.

- Contractors shall submit their reports to the City office designated by the Mayor from time to time by July 1st of each year.
- Additionally, for reports due this year, information shall be provided regarding expenditures in calendar years 2019 as well as 2020.
- The Chief Procurement Officer (CPO) shall cooperate with Assist Agencies to promote those agencies' and the City's efforts to encourage and enhance business diversity on an ongoing basis.
- After sufficient information has been gathered, the CPO, Deputy Mayor for Neighborhood and Economic Development, and Chief Equity Officer shall make recommendations to the Mayor regarding future programs related to diverse participation on City Contractors' non-City business and similar initiatives.





MILHOUSE

By the Numbers

1 Largest African-American Owned Engineering Firm in the Country!

20 Years of Operation

7 Industries

310 Team Members

3rd Largest Engineering Firm Headquartered in Illi-

\$40M Annual Revenue

- » Aviation
- » Facilities
- » Gas
- » Heavy Industry
- » Power
- » Transportation
- » Water Resources

AWARD HIGHLIGHTS



CIVIL/TRANSPORTATION ENGINEERING



Light Rail



Structural Engineering



Roadway Design



Environmental



Grading and Drainage



Program Management



Construction Management

UTILITIES AND MEP ENGINEERING



Utilities



Telecom



Mechanical



Electrical



Plumbing



Fire Alarm



Fire Protection

Power

Design and Management Services



Clients

- » Ameren
- » Atlantic City Electric
- » AT&T
- » ComEd
- » Nicor
- » NIPSCO
- » PEPCO
- » PSEG Long Island

Expertise

- » Protection and Control Design
- » Site Development
- » Fiber Optic Routing
- » Communications Design
- » Utility Coordination
- » Modification Design
- » Environmental Protection
- » Subsurface Engineering



Program Management

Design and Management Services



Clients

- » Chicago Dept. of Transportation
- » DC Water and Sewer Authority
- » Illinois Dept. of Transportation
- » PBC of Chicago

Expertise

- » Program Planning
- » Master Scheduling
- » Risk Management
- » Project Management
- » Cost Estimating
- » Change Management
- » Project Closeout



1 AN ACT concerning finance.

2 **Be it enacted by the People of the State of Illinois,**
3 **represented in the General Assembly:**



4 Section 5. The Business Enterprise for Minorities, Women,
5 and Persons with Disabilities Act is amended by adding Section
6 81 as follows:

7 (30 ILCS 575/81 new)

8 Sec. 81. Certification recognition. Notwithstanding any
9 rule or provision of law to the contrary, the Business
10 Enterprise Program shall recognize and accept the
11 certifications of businesses that have been certified as
12 minority-owned businesses or women-owned businesses by the
13 City of Chicago, Cook County, or other entities approved by
14 the Business Enterprise Council for purposes of participating
15 in the Business Enterprise Program, provided that the City of
16 Chicago, Cook County, or other entities approved by the
17 Business Enterprise Council have certification requirements
18 more restrictive than that required by the Business Enterprise
19 Program under this Act, including, but not limited to, an
20 income level requirement.



CITY OF CHICAGO



DEPARTMENT OF PROCUREMENT SERVICES

FEB 22 2021

Jermaine Wesley
DB3 Consulting Services LLC
2942 W. Washington Blvd
Chicago, IL 60612

Dear Mr. Wesley:

The City of Chicago, your host agency, is pleased to notify you that your firm, **DB3 Consulting Services LLC**, has met the requirements for **Disadvantaged Business Enterprise ("DBE")** program certification in accordance with the governing federal regulations, 49 CFR part 26.

This certification allows your firm to participate as a DBE in the Illinois Unified Certification Program (IL UCP). The participating agencies include the City of Chicago, Illinois Department of Transportation, the Chicago Transit Authority, Metra, and Pace.

To remain certified with the IL UCP you must submit a *No Change Affidavit* each year. **Your anniversary date is January 15th**. Notification will be sent to you sixty (60) days prior to the anniversary date of your certification. It is your responsibility to ensure that your certification is kept current by submitting the required information in a timely manner. Failure to provide this information is a ground for removal of certification based on failure to cooperate pursuant to 49 CFR 26.109(c).

If there is any change in circumstances that affect your ability to meet size, disadvantaged status, ownership, or control requirements or any material change in the information provided in your application, you must provide written notification to this agency within thirty (30) days of the occurrence of the change. Failure to provide this information is a ground for removal of certification pursuant to 49 CFR 26.83(i).

Your firm's name will appear in the IL UCP DBE Directory in the following area(s) of specialty:

NAICS Code(s):

541611 - Administrative and General Management
541512 - Computer Systems Design Services
541690 - Security Consulting Services

This Directory is used by prime contractors/ consultants, as well as other agencies, to solicit participation of DBE firms. The Directory can be accessed on the Internet at <https://webapps.dot.illinois.gov/UCP/ExternalSearch>.

Your participation on contracts will only be credited toward DBE contract goals when you perform in your firm's approved area(s) of specialty. Credit for participation in an area outside your specialty requires prior approval (verification of resources, expertise, and corresponding support documentation, etc.).

DW

Please note:

- This certification does not attest to your firm's abilities to perform in the approved work category (ies).
- Your certification may be revoked if your firm is found to be involved in bidding or contractual irregularities or has violated DBE program regulations pursuant to 49 CFR Part 26.107.
- For work to count toward a DBE contract goal, the DBE firm must perform a "commercially useful function" pursuant to 49 CFR Part 26.55. A DBE is considered to perform a commercially useful function when it is responsible for execution of a distinct element of the work of a contract and carrying out its responsibilities by actually performing, managing, and supervising the work involved.

For All Non Trucking Firms:

- Firms seeking work with IDOT as a prime or subconsultant in specialized engineering categories must be prequalified by IDOT's Bureau of Design and Environment.
- Firms seeking work with IDOT, as a prime construction contractor must be prequalified by IDOT's Bureau of Construction.

For All Trucking Firms:

- All DBE trucking firms must own at least one truck. The truck must be operable and capable of hauling materials specific to the contract. The owned truck(s) must be used prior to utilizing leased truck(s).
- The DBE trucking firm receives goal credit for the total value of the transportation service it provides on the contract using trucks it owns, insures and operates and using drivers it employs.
- The DBE trucking firm, which leases trucks from another DBE trucking firm, receives goal credit for the total value of the transportation services the lessee DBE provides on the contract.
- When a DBE trucking firm leases from a non-DBE trucking firm, the goal credit is limited to the fee or commission the DBE receives as a result of the lease arrangement. The fee or commission shall be reasonable and shall be indicated on the lease.
- For any credit to be allowed for leased trucks, the leases must be properly filed with the Illinois Commerce Commission (ILCC) and indicate that the DBE has exclusive use and control over the truck(s). Leased trucks must visibly display the name and ILCC number of the DBE trucking firm.

Please direct all inquiries and any questions to the City of Chicago Disadvantaged Business Enterprise Program at 312-744-4900.

Sincerely,



Shannon E. Andrews
Chief Procurement Officer

SEA/rn



OFFICE OF CONTRACT COMPLIANCE

EDWARD H. OLIVIERI

DIRECTOR

118 N. Clark, County Building, Room 1020 • Chicago, Illinois 60602 • (312) 603-5502

TONI PRECKWINKLE

PRESIDENT

Cook County Board
of Commissioners

BRANDON JOHNSON

1st District

DENNIS DEER

2nd District

BILL LOWRY

3rd District

STANLEY MOORE

4th District

DEBORAH SIMS

5th District

DONNA MILLER

6th District

ALMA E. ANAYA

7th District

LUIS ARROYO, JR.

8th District

PETER N. SILVESTRI

9th District

BRIDGET GAINER

10th District

JOHN P. DALEY

11th District

BRIDGET DEGNEN

12th District

LARRY SUFFREDIN

13th District

SCOTT R. BRITTON

14th District

KEVIN B. MORRISON

15th District

FRANK AGUILAR

16th District

SEAN M. MORRISON

17th District

August 19, 2020

Mr. Curtis Florence, President
MBE Construction Supply, Inc.
6135 North Elston Avenue
Chicago, IL 60646

Re: Annual Certification Expires: August 20, 2021

Dear Mr. Florence:

Congratulations on your continued eligibility for Certification as a **Minority-owned Business Enterprise (MBE)** by Cook County Government. This certification is valid until **August 20, 2023**; however, you must re-validate your firms' certification annually.

As a condition of continued Certification, you must file a **"No Change Affidavit"** within **sixty (60) business days prior to the date of Annual Certification Expiration**. Failure to file this Affidavit shall result in the termination of your Certification. You must notify Cook County Government's Office of Contract Compliance of any change in ownership or control or any other matters or facts affecting your firm's eligibility for Certification within **fifteen (15) business days** of such change.

Cook County Government may commence action to remove your firm as an **MBE** vendor if you fail to notify us of any changes of facts affecting your firm's Certification, or if your firm otherwise fails to cooperate with the County in any inquiry or investigation. Removal of status may also be commenced if your firm is found to be involved in bidding or contractual irregularities.

Your firm's name will be listed in Cook County's Directory of certified firms in the following area(s) of specialty:

Construction: Material Supplies including Glass and other Building Material; Consulting Services

Your firm's participation on Cook County contracts will be credited toward **MBE** goals in your area(s) of specialty. While your participation on Cook County contracts is not limited to your specialty, credit toward **MBE** goals will be given only for work performed in the specialty category.

Thank you for your continued interest in Cook County Government's Minority, Women, Veteran, Service-Disabled Veteran, and Persons with Disabilities Business Enterprise Programs.

Sincerely,

Edward H. Olivieri
Contract Compliance Director

EHO/lar





July 1, 2020

Certification Term Expires: July 1, 2021

Curtis Florence
MBE Construction Supply, Inc.
6135 North Elston Avenue
Chicago, IL 60646

Re: Minority Business Enterprise (MBE)
Dear Curtis Florence:

Congratulations! After reviewing the information that you supplied, we are pleased to inform you that your firm has been granted certification as a Minority Business Enterprise (MBE) under the Business Enterprise Program (BEP) for Minorities, Females, and Persons with Disabilities.

This certification is in effect with the State of Illinois until the date specified above. Please note that you have been granted certification under the Recognition Application because you are certified with one of our partner organizations and, as such, must recertify each year.

At least 15 days prior to the anniversary date of your certification, you will be notified by BEP through email to update your certification as a condition of continued certification. It is your responsibility to ensure that the contact email address listed in the system is accurate and up to date and that the email account is checked regularly so that you do not miss any important notifications. In addition, should any changes occur in ownership and/or control of the business, in the business' certification status with the partner organization, or other changes affecting the firm's operations, you are required to notify BEP within two weeks. Failure to notify our office of changes will result in decertification of your firm.

Your firm's name will appear in the State's Directory as a certified vendor with the Business Enterprise Program in the specialty area(s) of:

NIGP 01000: ACOUSTICAL TILE, INSULATING MATERIALS, AND SUPPLIES
NIGP 15000: BUILDER'S SUPPLIES
NIGP 28500: ELECTRICAL EQUIPMENT AND SUPPLIES, EXCEPT CABLE AND WIRE
NIGP 44004: GLASS, BLOCKS
NIGP 54000: LUMBER, SIDING, AND RELATED PRODUCTS
NIGP 67000: PLUMBING EQUIPMENT, FIXTURES, AND SUPPLIES
NIGP 90923: BUILDING CONSTRUCTION, RESIDENTIAL, APARTMENTS, ETC.
NIGP 90924: BUILDING CONSTRUCTION, COMMERCIAL AND INSTITUTIONAL

Your firm will only show up in the database of BEP-certified vendors the NIGP codes listed above, so PLEASE REVIEW THE LIST CAREFULLY TO ENSURE THAT ALL RELEVANT NIGP CODES ARE INCLUDED.

Also, please be advised that this certification does not guarantee that you will receive a State contract. Please visit the Vendor Registration page on www.opportunities.illinois.gov and be sure to register with each of the Procurement Bulletins listed so that you are notified of upcoming solicitations in your NIGP codes. Certification with the Business Enterprise Program does not ensure you receive notifications; you must also register with the Procurement Bulletins.

Thank you for your participation in the Business Enterprise Program. We welcome your participation and wish you continued success.

Sincerely,

Carlos Gutiérrez
Certification Manager
Business Enterprise Program





YEARLY

Annual Preventative Maintenance

Perform a scheduled, preventative inspection and maintenance on PV system(s), including advanced diagnostics and testing.

Deliver a detailed report of the findings, including recommendations for repair, upkeep and recommended improvements.

Module Soling Analysis & Cleaning Services

Perform soling analysis testing on a selection of solar modules in order to determine the energy and monetary value of whole-site cleaning services.

Vegetation Management Services

Clearing/maintaining of vegetation that causes potential shading and equipment damage to ensure PV system's long-term energy production and financial goals.

ONGOING

Active Monitoring with Proactive Response

Tracking system alerts and performance with a technical evaluation to ascertain proper response.

Maintain critical system uptime with dispatch targeted to the specific need allows efficient and cost saving visits.

Warranty Coordination & Fulfillment

Processing, tracking, and delivery of warranty-related needs by working directly with the equipment manufacturers.

AS NEEDED

Condition-Based Maintenance

Servicing of all system components throughout the lifecycle of a system with our team of NABCEP-certified electricians.

System Performance Evaluation

Analyzing system performance through a suite of tools to ascertain what, if any, corrections should be made to keep the system generating at its potential.

Independent System Commissioning

Performing all industry best-practice and manufacturer recommended testing of new PV systems prior to its completion.

Emergency Response Service

Responding to urgent service needs. For those times where service cannot wait for a scheduled system maintenance visit.



Illinois Business Authorization**CONTINENTAL ENERGY SOLUTIONS LLC**

Loc. Code: 022-0054-6-001

815 COMMERCE DR STE 280
OAK BROOK IL 60523-8838Oak Brook (DuPage)
DuPage County

Expiration Date:

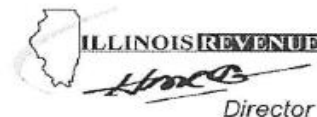
1/1/2022

Certificate of Registration

Sales and use taxes and fees

(4345-1209)

OFFICIAL DOCUMENT



Director

Issued Date: 11/02/2020

Taxpayer Notification
Business Authorization#BWNKMGV
#CNXX XX89 6X91 8880#
CONTINENTAL ENERGY SOLUTIONS LLC
815 COMMERCE DR STE 280
OAK BROOK IL 60523-8838

November 2, 2020



Letter ID: CNXXXX896X918880

Account ID: 4345-1209

We have enclosed your Certificate of Registration.

We have enclosed your Illinois Business Authorization. Please verify that all of the information on the attached Business Authorization is correct. In particular, be sure to verify that the information correctly represents whether you are within or outside of a municipality. If you are registered for Sales and Use Tax and the retail sales location listed is incorrect, contact our Local Tax Allocation Division at 217 785-6518.

If all of the information is correct, your authorization must be visibly displayed at the address listed.

Do not discard the attached Illinois Business Authorization unless the information displayed is incorrect or until it expires. Your Illinois Business Authorization is an important tax document that indicates that you are registered or licensed with the Illinois Department of Revenue to legally do business in Illinois.

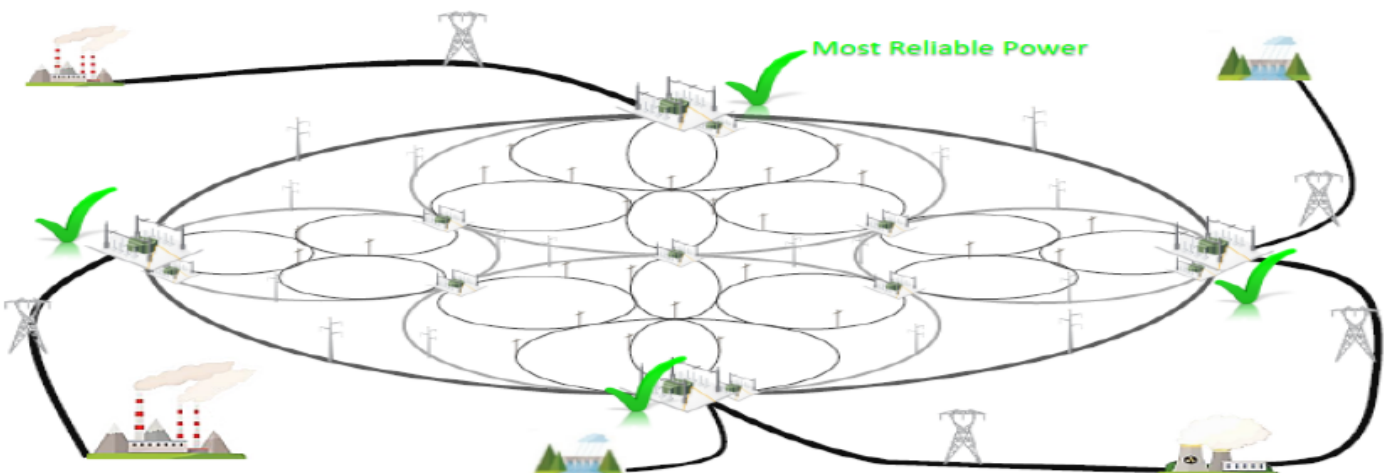
If you wish to be registered for any other taxes or fees, you must complete a new application. For questions, visit our website at tax.illinois.gov or call us weekdays between 8:00 a.m. and 4:30 p.m. at the telephone number below.

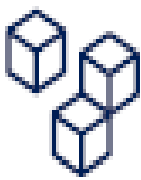
CENTRAL REGISTRATION DIVISION
ILLINOIS DEPARTMENT OF REVENUE
PO BOX 19030
SPRINGFIELD IL 62794-9030

217 785-3707

Chicago Principal Investigator for Bloom Energy's Manufacturing; Engineering for Hydrogen Energy Equity Team has provided market conditions for a proposed microgrid in USA Urban Communities starting in the City of Chicago, IL, as well the potential Economic job, income, and tax revenues that might accompany such an enterprise. Power interruptions have been estimated to cost commercial and industrial customers more than \$100 billion each year in the United States. As this RFI response will show, power downtime can have a significant impact on impact for all institutions & businesses become who become more reliant upon access to Microgrids. When companies experience power loss or low-quality power (such as a brownout), a wide range of businesses, including professional services, health care, data management, manufacturing and many others, are profoundly affected.

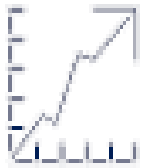
1. What are currently, and projected to be, the largest drivers for inefficiencies in current and future data centers and microgrids (i.e. efficiencies of power supply, data processing, data center cooling, etc.)?
2. What are effective ways to benchmark the computational performance capability of a data center & microgrids such that this can be normalized by its power usage?
3. Which of these areas do you identify as having the largest potential for innovation and can be these be innovated as component technologies or do they need to be co-designed as a system? Are there new insights, e.g. use of additive modalities such as additive ceramics to assist in concepts that allows coolants to connect to technology efficiently? What would be the entitlement?
4. Cost and reliability have been mentioned as barriers for implementation of new efficient technologies in data centers. To overcome these barriers and become as economically viable as baseline systems, should a performance increase be targeted such that an improved performance / cost ratio is achieved? If so, approximately, how much additional performance needs to be achieved for every dollar technology cost added?
5. Operational availability is a key metric for microgrids. Are there new transformational technologies concepts in the areas of h monitoring sensors and/or fail-safe mechanisms or controls that could contribute to achieving system operational availability comparable or better than state of the art?
6. Are there greater performance gains to be had from component-level or system-level technology approaches? What are specific system-level gains that couldn't be achieved with siloed component development efforts?
8. "The Woodlawn Project" consider additional resources to development/further augmentation of such software/hardware tools?
9. Are there any other promising technical approaches/areas not included in this document that "The Woodlawn Quantum Project" should consider for improving energy efficiency of microgrids & datacenters.





Modularity

Optimized modular alignment of all systems into common modules that are readily expandable. Our modular and containerized designs provide energy and operating efficiencies as well as build-out flexibility for our clients. In all cases, we look at our designs from a Total Cost of Ownership (TCO) perspective and use models that compare alternative technologies at various key points in the facility life cycle to determine those factors that have the greatest impact on TCO. We employ system concepts that align with costs to effectively deliver maximum utilization capability.



Scalability

Systems are designed and constructed to minimize initial capital cost, avoid stranding assets and to be readily expanded in the future without interruption to ongoing operations.



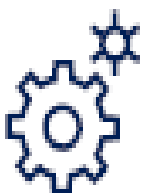
Flexibility

System designs provide the ability to deliver a broad range of power and cooling capacities to respond to a dynamic IT environment.



Adaptability

Anticipating potential for future transition to alternate emerging technologies.



Operational Continuity

We understand that not every project can be started in a greenfield condition. Many projects require the needs to maintain and/or improve operational systems that cannot go down. Our designs can account for phasing, operational considerations, and work planning on existing systems.

Potential financial incentives overview



Incentive	Type	Description
Property Tax Incentive Classifications <i>Class 66b, 7a, 7b, and 7c</i>	County	6b: Encourage the full utilization and new construction of industrial buildings in areas in need of industrial development 7a/b/c: Encourage the full utilization and new construction of commercial buildings in areas in need of commercial development
Neighborhood Opportunity Fund (NOF)	City	Grant funding that will pay for the development or rehabilitation of real estate and projects that support new or expanding businesses or cultural assets in many of Chicago's South and West side neighborhoods
Tax Increment Financing (TIF)	City	TIF assists development projects by using the increased property tax revenue generated by these projects. TIF may provide reimbursement for eligible development costs such as land acquisition, site preparation, environmental remediation, building rehabilitation and repair, public infrastructure, professional fees, leasing commissions, up to 30% of the construction period interest costs, and job training
Enterprise Zone	City	Exemptions are available for companies that make minimum statutory investments that either create or retain a certain number of jobs.
New Market Tax Credits (NMTC)	Federal	Commercial or industrial development of the property can benefit by attracting investment from a qualified Community Development Entity; the investment can consist of a loan or equity participation.
Opportunity Zone	Federal	Opportunity zones are designed to spur economic development by providing tax benefits to investors. First, investors can defer tax on any prior gains invested in a Qualified Opportunity Fund (QOF) until the earlier of the date on which the investment in a QOF is sold or exchanged, or December 31, 2026.

In Conclusion Chicago Power Utilities are seizing the lack of electricity is now a reality. 25 States are suffering 50 degree freezing never seen before. Chicago Woodlawn Development; IIPD Chicago Port and MPEA will lead the USA & Midwest market sort of market there might be for resilient power, and what impact it might have on the local economy and tax generation. Microgrids are commonly recognized by their incorporation of electrical storage devices into a distributed energy resource system. Hydrogen storage and innovation is what Bloom Energy's research team delivers. We thank the City of Chicago AIS for the opportunity to serve.

Bloom Energy (NYSE:BE) market position has changed in the last 10 months, due to the fast-moving US economy demand for Clean Energy "Microgrids". The Chicago Recovery Task Force & Civic private stakeholders now demand revenue outcomes' disruptive proven CAPEX & OPEX solution plus immediate recovery via New Clean Energy on demand 24x7x365 Microgrid power. What is a microgrid & how do they work? A microgrid is a self-sufficient energy system that serves a discrete geographic footprint, such as a hospital complex, campus or community. During a power outage, the microgrid islands from the utility grid, and the microgrid's on-site resources provide power to its host buildings. An advanced microgrid also optimizes multiple energy resources and load to achieve the hosts' goals for price, sustainability or efficiency.

Bloom Energy & Cypher is a developer of cost-effective, reliable, clean energy projects using the breakthrough all-electric solid oxide fuel cell technology. The fuel cells produce reliable base load power using a highly resilient and environmentally superior non-combustion process. The result is a new option for energy infrastructure that combines increased electrical reliability with fast, targeted, and unobtrusive deployments, and significantly lower environmental impacts. The Bloom Energy Server™ enables customers to deploy a form of power generation that is clean, reliable, predictable, and avoids the operational problems, complexity, efficiency issues, thermal limitations, siting challenges, and environmental shortfalls that have hindered power generation equipment that requires waste heat utilization, as well as systems that simply store grid energy that had been previously generated via combustion. Bloom's technology gives its users the flexibility and reliability to respond effectively in times of crisis. Bloom's clean, non-combustion technology generates electricity without harmful combustion, allowing you to produce power **without any of the PM 2.5, NO_x, or SO₂ emissions associated with purchased grid power.** A recent Harvard study linked **fine particulate matter (PM 2.5) exposure to higher mortality rates in COVID-19 patients.** Click on the Link to evaluate for the benefit of all USA underserved sites. <https://projects.iq.harvard.edu/covid-pm>

