

REQUEST FOR INFORMATION



Cuyahoga County Utility & Microgrids

Request for Information | July 15, 2022 at 5:00pm

prepared for:
Mike Foley

Director of the Department of Sustainability

Cuyahoga County
Department of Sustainability
2079 East 9th Street
Cleveland, Ohio 44115



Brewer-Garrett
6800 Eastland Rd
Middleburg Hts, OH 44130
440.243.3535

brewer-garrett.com



July 15, 2022

Mike Foley

Director, Department of Sustainability
Cuyahoga County Department of Sustainability
2079 East 9th Street, 8th Floor
Cleveland, OH 44115

Dear Mr. Foley,

RE: Cuyahoga County Utility & Microgrids Request for Information

The Brewer-Garrett Company (BG) is pleased to offer this response to your Request for Information (RFI) -Cuyahoga County Utilities and Microgrids. Cuyahoga County is leading the way on what will become the new standard for municipal utilities in the future. Your use of energy efficiency, microgrid technology, renewable energy integration, and microgrid convergence to produce a reliable, renewable, cost effective, and flexible utilities will attract valuable end users.

BG is based in Cuyahoga County and is ideally suited for these phases of development. Our most recent success involved designing and implementing a microgrid at Kent State University's main campus and PV Solar at their College of Podiatric Medicine, located in Independence, Ohio. We have executed successful energy conservation projects for Cuyahoga County in the past, as well as Tri-C, Cleveland State, Playhouse Square, Euclid Schools, and the City of Brookpark to name a few. Our ability to provide financing for these projects makes our team well suited for the next step of this process.

We will engage Eaton Corporation, with US headquarters based in Cuyahoga County, who is a world leader in electric power systems and power management for the microgrids and their convergence. Other partners will include a variety of Cuyahoga County based subcontractors including diverse, equity, and inclusion (DEI) participants. This team will assure the expansion of the Cuyahoga County workforce as desired. In addition, we have a great working relationship with FirstEnergy, which will be key as we move forward in this process.

BG is unique in that we are your one-stop-shop for all your project needs. We have extensive in-house mechanical, electrical, and energy engineering resources. When combined with our in-house estimating and project management teams, your success is assured. Our dedicated marketing department can then follow the progress to broadcast your successes.

Each program, once finalized, will include multiple options for financing. The financing will mirror the desire of the end user's, which is typically cost neutral but could potentially be a net positive cashflow. The structure of the financing will include rebates, investment tax credits, tax incentives, SRECs, grants, etc.

Once selected, we can begin to assess areas for renewables, opportunities for conservation, cogeneration potential, and microgrid integration in the most adoptable communities (Euclid, Brooklyn, Broadview Heights/Brecksville, or the Aerozone District). We will then develop construction estimates, energy savings, and cash flows so the next steps can be developed.

We look forward to working with Cuyahoga County to implement the new state-of-the-art utility and microgrids.

Very truly yours,



Jeffrey L. Zellers

The Brewer-Garrett Company

440.243.3535; jzellers@brewer-garrett.com



Table of Contents

Requested information 3

Optional/Encouraged Information 9

Appendix 17

 Vision..... 17

 Business Economic Models 18

 Organization Models 20

 Concession Agreement & Other Contracts 21

 Initiative Timelines 22

 Technology..... 23

 Diversity, Equity, and Inclusion..... 24

 Other 24

REQUESTED INFORMATION

1. *Entity/Business Name, Summary of Services and Relevant Experience*

The Brewer-Garrett Company (BG) was established in 1959 and began as a small design-build firm with big ideas and innovative solutions for the mechanical marketplace. Within a year, BG nearly doubled its revenue, gaining traction through large contracts like Niagara Power and respected industry awards such as “Contractor of the Year.” In the years since we have continued building a strong business based on quick response, quality work, and customer satisfaction.

BG has provided engineering, design, installation, and operations and maintenance services for more than 60 years. Our extensive in-house team enables us to coauthor fast-tracked comprehensive energy conservation solutions that guarantee no change orders. These capabilities, coupled with a team of certified energy managers that are highly versed in the energy services field, have allowed us to guarantee **over \$600 million in energy savings** since 2000.

BG has over six decades of continued growth. As we strive to stay at the forefront of our industry, we will keep raising the bar for our services, solutions, and delivered results.



The Brewer-Garrett Company headquarters in Middleburg Heights, Ohio today.

BG has been executing Guaranteed Energy Service Contracts for nearly 25 years. In contrast to other multi-national ESCO's, BG's size and structure enable us to be creative, nimble, and responsive. Because we are focused on the customer's needs, we continually deliver best-in-class service and results without being hampered by corporate bureaucracy, unnecessary approval delays, or red tape.

We utilize our in-house resources to provide our customers first-tier solutions to ensure the correct solution and the best design with the customer's business goals in mind. We provide direct engineering

and construction project control to ensure quality and contain costs. We remove the middleman to keep our project costs down and maximize the return on investment to our customers. With no middlemen or brokers, we can guarantee cost effective solutions and on-time installations focused to deliver customer satisfaction.

BG's Divisions and Services

BG has been providing single-source design-build energy solutions to our customers for over 60 years. The BG management team has worked together since 1996. The unique synergy of the group has made it possible for BG to experience significant growth during the time since. Each individual manager is responsible for the supervision, growth, and performance of their respective departments. BG's divisions are detailed below.

Our **Energy Services Division** maintains a staff of certified energy managers that are highly experienced in the energy services field; certified lighting professionals and mechanical engineers who have designed and engineered energy conservation programs for over 30 years; and energy engineers/auditors comprised of

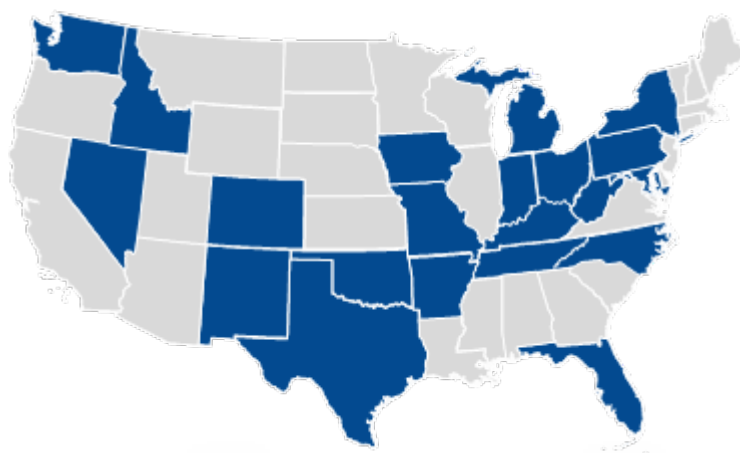
Our **Construction and Design-Build Division** includes in-house engineering, piping, sheet metal, and plumbing specialties. These capabilities allow us to coordinate scheduling, provide a simple line of communication during project installation, and provide direct engineering and construction project control to ensure quality, contain costs, and remove the middleman—minimizing project costs and maximizing the return on investment for our customers.

Our **Building Controls Division** is staffed with engineers experienced in the highly specialized field of mechanical system control design. Our experience includes the design and installation of pneumatic, electronic, and direct digital computerized controls systems. Proper design, installation, start-up, and on-going service and maintenance are essential elements of a quality control system.

Our **Commissioning Division** offers building commissioning expertise for facilities to consult and verify system design and performance. Commissioning a building also improves indoor air quality and comfort, which translates into enhanced employee productivity. Over time, mechanical systems begin to operate inefficiently, so it is important to evaluate whether a building is running at peak performance through the commissioning process.

Our **HVAC Service and Integrated Facility Service Division** is comprised of over 100 service technicians serving over 700 customized maintenance programs. We provide our customers with quality and responsive system maintenance to keep your facility operating reliably and cost effectively. Maintenance services include HVAC systems, chillers and boilers, electrical systems, lighting systems, fire and security systems, and plumbing systems.

Since 1996, BG has successfully designed and implemented over 830 energy conservation projects totaling over \$1.5 billion for customers in 21 States."



\$1.5B

\$550M

Resulting In Over \$550
Million In Energy Savings

2. *What Roles from Section 3 Would the Respondent Fulfill? Please provide a brief description of relevant experience for each role. Please provide any edits to the role's definition or responsibilities. (Optional: Consider providing a hypothetical organizational chart; a Responsible, Accountable, Consulted, and Informed (RACI) matrix; or other visual to help define roles and relationships.*

BG has the expertise and relative experience to provide our services in the following categories:

Developer of Utility Customers, Distributed Generation Projects, and/or Microgrids

BG has experience developing and financing distributed generation projects. We have developed many solar and battery storage projects, including microgrid solutions with solar, battery, and generator integration. Our unique combination of in-house design, engineering, and construction expertise makes us well suited to develop realistic solutions for real world applications. For example, the Kent State University Phase 2 project outlined in a case study below was developed and implemented by our team.

Design and Construction Team (Engineering, Procurement, Construction) of Distribution Infrastructure, Distributed Generation, and/or Microgrids

BG is unique in that we offer a combination of in-house design, engineering, and construction expertise. Our team members regularly develop, design, and construct solutions for our customers. As a design-build company BG advances beyond the typical developer and EPC setup to fill both roles. Again, Kent State University Phase 2 is a prime example of our teams' experience in developing, designing, procuring, and construction such a solution.

BG would envision the Developer and EPC role combined into one and served by our team.

Please see below for a hypothetical organizational chart reflecting the connectivity between BG's team, the county, and a third-party partner.



3. *Are there other roles not identified in Section 3 that the County should be aware of? What duties would these new roles perform? What else should the County know about each newly defined role?*

BG envisions the County hiring a Utility Integrator to interface between the County, Utility Manager, and Developer/ EPC. This County employee would manage the multiple team members and oversee the initiative for the County.

4. *What challenges or barriers could you see for your role(s) as envisioned by the County and what might be a way for the County to address those challenges?*

Recruiting customers to join the County Utility is the single largest change BG sees for our expected role. The County could support these efforts by engaging those initial potential customers already identified with the County Utility team once established. In addition, the County Utility could support in identifying and recruiting new customers to join.

Other typical project risks will need to be worked through including cost control, design management, equipment procurement, labor shortages. BG is extremely familiar with these and other risks of development and implementation. Below is an outline of our risk analysis approach.

Risk Analysis

Having a dedicated program management team allows us to integrate risk analysis into the project delivery. This approach encourages all project participants to share the responsibility of identifying and planning for risks to the project's cost and schedule. Well-established methods of risk analysis must be performed to help assess the feedback and understanding of the impact of risks. Program management ultimately involves active communication about these risks as well as detailed plans for avoiding or minimizing negative impacts or potentially exploiting opportunities.

Active program management will help the project to:

- Detect risks and avoid surprises
- Focus on key issues and prioritize actions
- Make more informed decisions and achieve better outcomes
- Stimulate creative team thinking and innovation
- Communicate with key stakeholders on project status, issues, and challenges

5. *What's the typical timeline/cycle for the respondents proposed role(s)? (i.e., it takes X year(s) to find customers for a microgrid and build it.)*

Development of a microgrid solution can take varying amounts of time depending on the size and complexity. BG would recommend allocating one year for development and customer participation. The timeline to design and construct the microgrid will depend on the location and size of the system, however based on our experience we would estimate two years.

6. Would the respondent meet with the County and/or its representative to present ideas and answer follow up questions?

Working closely with the County's representatives, facilities staff, and contractors is paramount to project success. Coordinating on a daily basis ensures all key members know where we are working and that we understand their schedule to complete the installation at each facility. Managing expectations of the critical occupants is an extremely important component of our success. They will need to be provided with accurate information on progress at all times throughout construction.

Having regular meetings with the County's project teams and facilities staff will allow us to deliver a unified message and understand each other's pressures on the project. Encouraging open communication helps to develop strong working relationships and involves active participation from all partners of each project. Our success comes not only from completing our work to meet and exceed the standards of the County, but also in our ability to see the bigger picture and work alongside other ongoing projects in order to turn the County's vision into reality.

7. All respondents will be placed on a list for other respondents to consider for teaming and/or subcontracting. If your entity requires exclusion from this list, please state so.

No, Brewer-Garrett does **not** require an exclusion.

OPTIONAL/ENCOURAGED INFORMATION

Includes published case studies, press releases, technical/marketing materials, detailed company profile information, questions that the County should consider in the development of potential RFQs/RFPs.

KENT STATE UNIVERSITY: PHASE II

Kent, OH

HB251 | Energy Conservation Program

brewer-garrett.com



SCOPE

Size: 3,700,000 square feet (Campus Wide)

Cost: \$19,798,982

Guaranteed Energy Savings: \$24,853,504

Guarantee Period: 15 Years

Duration: 23 Months

- Scope:**
- Summit Power Plant Upgrades
 - Retro-Commissioning
 - Greenhouse HVAC System Upgrades
 - Water Conservation Upgrades
 - Mechanical Upgrades
 - Demand Control Ventilation
 - Building Automation System (BAS) Upgrades
 - Building Envelope Upgrades
 - Roof Replacement
 - Electrical System Upgrades

SUMMARY

Kent State University (KSU) continued their main campus energy conservation project with Phase II. This improvement project included significant mechanical upgrades that optimized the safety, comfort, and serviceability of the university's infrastructure, while helping the university to achieve sustainability goals and reduce CO2 emissions.

Extensive design-build services were conducted in the main campus classrooms, laboratories, auxiliary buildings, and utility assets, totaling fifty buildings. This second phase is targeted to achieve a monetary savings of over \$36 million over the fifteen-year performance period.

BG performed system and software upgrades at the Summit Street Power Plant (SSPP), East Campus Chilled Water Plant, and various other chillers across campus. The enhancements automated decision making at the SSPP and standardizing operations of the turbines, boilers, and chillers to allow for more complex decision making on the purchase and production of utilities. An additional benefit was the increased participation options in grid incentive programs that maximized revenue through real time data collection of market conditions, site conditions, and time of day campus loads.

BG enhanced the HVAC and windows of the 5,500 square foot greenhouse. The windows were replaced with new 8mm clear, polycarbonate glazed glass that provides diffused lights. A new building automation system was installed to include automated vents, misting systems, lighting, and heating and cooling.

BG installed occupancy sensors in select restrooms to reduce the usage of the bathroom exhaust fans, which would otherwise run constantly. After fifteen minutes of no occupancy, the fans automatically shut off. This provides significant energy savings, less negative pressure within the building, and maintains comfort and safety.

BG executed a full survey of twenty-nine buildings and the campus steam tunnels to identify failed traps. The steam traps serve to filter out condensate and air without letting the steam escape. Each noted trap was either rebuilt or replaced, leading to a more efficient system as less steam was required to maintain comfort levels.

29 BUILDINGS

SURVEYED TO IDENTIFY AREAS
REQUIRING IMPROVEMENT

zero

CHANGE ORDERS

\$24M

IN GUARANTEED ENERGY SAVINGS

REFERENCE

Robert F. (Bob) Misbrenner

Project Manager II

- a. Suite 101 Harbourt Hall,
615 Loop Rd, Kent, OH 44242
- e. rmisbren@kent.edu
- p. 330.672-9653



KENT STATE UNIVERSITY: COLLEGE OF PODIATRIC MEDICINE

Independence, OH

ORC 156 | Energy Conservation Program

brewer-garrett.com



SCOPE

Size: 132,421 square feet

Cost: \$1,784,250

Guaranteed Energy Savings: \$2,888,503

Guarantee Period: 15 Years

Duration: 18 Months

Scope:

- Solar Array Installation

- Interior & Exterior Lighting Upgrades
- Building Automation System (BAS) Upgrades
- Boiler Replacement
- Heat Exchanger System
- Variable Air Volume (VAV) Replacement
- Lab Exhaust Upgrades
- Water Conservation Improvements
- Building Envelope Upgrades
- Retro-Commissioning

SUMMARY

Kent State University acquired the College of Podiatric Medicine building in 2012, located in Independence, Ohio on 27 acres of land. The building's location can be seen from the interchange of I-77 and I-480, making it highly visible to the public.

It is the only accredited college of podiatric medicine in Ohio and is also only one of nine nationwide. This design-build, energy conservation project entailed major upgrades to the facility's ventilation system, but also involved designing and constructing a solar array to help power the building.

BG replaced the existing cadaver tables that were not allowing for proper ventilation, even though the ventilation system in place was constantly running. The tables were replaced with direct exhaust air connections that ran from the top of the table to plenum areas with contact closures. Variable speed drives were installed on both the exhaust fan and supply fan to conserve energy when the space was not occupied.

BG expertly modified the ceiling grids to incorporate two new VAV terminal units with hot water reheat coils. This included some modifications to the ductwork to include supply air diffusers. The university was then able to greatly save on energy and repairs as the previous units were aging and failing, and parts were becoming difficult to find.

BG collaborated with Paradise Energy Solutions to install a solar array comprised of 788 individual solar panels. The electricity is connected directly to the building's electrical system and will power about one third of the facility's electrical needs. The array produces around 350,000 kilowatt-hours, which is enough to power forty-two homes a year and reduce the carbon footprint by 271 tons. That is the equivalent of removing fifty-two cars from the road each year.

270^{TON}

REDUCTION IN CARBON FOOT-
PRINT THROUGH SOLAR ARRAY

350

MWH PRODUCED PER YEAR

\$2.8M

IN GUARANTEED ENERGY SAVINGS

REFERENCE

Robert F. (Bob) Misbrenner

Project Manager II

- a.** Suite 101 Harbourn Hall,
615 Loop Rd, Kent, OH 44242
- e.** rmisbren@kent.edu
- p.** 330.672-9653



Below are social media recap posts of BG associates engaging with the community. To increase our marketing reach, our partners are included within the posts, boosting their visibility. Note the link for the Kent State University example as it directs you to a marketing campaign video showcasing the solar array project and includes drone footage.

<https://www.linkedin.com/feed/update/urn:li:activity:6772166128983695360/>

The screenshot shows a LinkedIn post from 'The Brewer-Garrett Company' with 2,174 followers. The post features a video titled 'BG Solar Array - KSU College of Podiatric Medicine'. Below the video, there are two sections of analytics:

- Organic discovery**: Shows 2,595 Impressions and 690 Unique impressions. A yellow banner suggests getting more impressions by sponsoring the post, with a 'Boost' button.
- Organic engagement**: Shows 91 Engagements at a 3.5% Engagement rate. Other metrics include Clicks (67), Click-through rate (2.6%), Reactions (22), Comments (0), and Shares (2).
- Video performance**: Shows 121 Views, 64 Viewers, and 68.2 Minutes viewed.

The interface includes standard LinkedIn navigation elements at the top and bottom, such as the home icon, search bar, and user profile picture.

[Home](#)
[My Network](#)
[Jobs](#)
[Messaging](#)
[Notifications 20](#)
[Me](#)

[Work](#)
[Post a job for free](#)

The Brewer-Garrett Company
Super admin view
View as member

[All Pages](#)
[Content](#)
[Analytics](#)
[Activity 5](#)

[Admin tools](#)

The Brewer-Garrett Company
 2,173 followers
 4mo •

The Brewer-Garrett Company has always been a big proponent of education, which is why we were so happy to have our Senior Project Manager, [Gerard Prepetit](#), speak to the students at [Euclid High School](#) about the oppor ...see more

26

2 shares

Like
 Comment

Be the first to comment on this

See organic performance
 [View analytics](#)

[Home](#)
[My Network](#)
[Jobs](#)
[Messaging](#)
[Notifications 20](#)
[Me](#)

[Work](#)
[Post a job for free](#)

The Brewer-Garrett Company

[Organic discovery](#)

1,330
Impressions

799
Unique impressions

This post doesn't qualify for boosting. [Learn more](#)

[Boost](#)

[Organic engagement](#)

275
Engagements

20.7%
Engagement rate

Clicks

247

Click-through rate

18.6%

Reactions

26 →

Comments

0

Shares

2 →

[Home](#)
[My Network](#)
[Jobs](#)
[Messaging](#)
[Notifications 20](#)
[Me](#)

[Work](#)
[Post a job for free](#)

The Brewer-Garrett Company
Super admin view
View as member

[All Pages](#)
[Content](#)
[Analytics](#)
[Activity 5](#)

[Admin tools](#)

Posted by Chris Sopko • 3/29/2022

The Brewer-Garrett Company
2,173 followers
3mo •

BG's Electrical Service Manager, **Jim Pavlik**, has been in the industry for over 40 years and has been teaching first-year students in the Industrial/Electrical Apprenticeship program at [Cuyahoga Valley Career Center \(CVCC\)](#) for ...see more

Mary Schnell, CEBS Fellow and 16 others 1 share

Like
 Comment

Be the first to comment on this

(20) The Brewer-Garrett Company
+

[linkedin.com/company/85...](#)

Brewer-Garrett
 Google
 Social Media
 Stock
 SharePoint

[Home](#)
[My Network](#)
[Jobs](#)
[Messaging](#)
[Notifications 20](#)
[Me](#)

Organic discovery

618 Impressions

429 Unique impressions

This post doesn't qualify for boosting. [Learn more](#)
Boost

Organic engagement

120 Engagements	19.4% Engagement rate	
Clicks		102
Click-through rate		16.5%
Reactions		17 →
Comments		0
Shares		1 →

[Home](#)
[My Network](#)
[Jobs](#)
[Messaging](#)
[Notifications 20](#)
[Me](#)

[Work](#)
[Post a job for free](#)

The Brewer-Garrett Company
Super admin view
View as member

[All Pages](#)
[Content](#)
[Analytics](#)
[Activity 5](#)

[Admin tools](#)

The Brewer-Garrett Company
 2,173 followers
 6mo • Edited •

Energy Engineering Manager, [Meg Bair](#), is a recent recipient of the Patriot Award —given by the [Employer Support of the Guard & Reserve \(ESGR\)](#). [Jacob Scavuzzo](#), a BG energy engineer and member of the Ohio Army National Guard, is a recent recipient of the Patriot Award. ...see more

58

9 comments • 1 share

Love

Comment

See organic performance

[View analytics](#)

[Home](#)
[My Network](#)
[Jobs](#)
[Messaging](#)
[Notifications 20](#)
[Me](#)

[Work](#)
[Post a job for free](#)

The Brewer-Garrett Company

[Organic discovery](#)

2,362 Impressions

1,441 Unique impressions

This post doesn't qualify for boosting. [Learn more](#)

[Boost](#)

[Organic engagement](#)

215 Engagements
 9.1% Engagement rate

Clicks

147

Click-through rate

6.2%

Reactions

58 →

Comments

9 →

Shares

1 →

[Home](#)
[My Network](#)
[Jobs](#)
[Messaging](#)
[Notifications](#)
[Me](#)

[Work](#)
[Post a job for free](#)

The Brewer-Garrett Company
Super admin view

[View as member](#)

[All Pages](#)
[Content](#)
[Analytics](#)
[Activity](#)

[Admin tools](#)

Posted by Chris Sopko • 5/5/2022

The Brewer-Garrett Company

2,173 followers
2mo •

Brewer-Garrett GSA Project Manager, [Lawrence Mieral](#), is excited to announce that his son's team has been awarded first place in the [National Fluid Power Association Fluid Power Vehicle Challenge](#). ...see more

Mary Schnell, CEBS Fellow and 22 others

Like
 Comment

See organic performance
[View analytics](#)

(20) The Brewer-Garrett Company

[linkedin.com/company/856...](#)

Brewer-Garrett
 Google
 Social Media
 Stock
 SharePoint

[Home](#)
[My Network](#)
[Jobs](#)
[Messaging](#)
[Notifications](#)
[Me](#)

[Work](#)
[Post a job for free](#)

Organic discovery

991 Impressions

686 Unique impressions

This post doesn't qualify for boosting. [Learn more](#) [Boost](#)

Organic engagement

108 Engagements	10.9% Engagement rate
Clicks	80
Click-through rate	8.1%
Reactions	23 →
Comments	2 →
Shares	3 →

Engineering and Construction Day

In a previous design-build program we executed, we volunteered significant time and resources to hold Engineering & Construction Days for nearly 1,000 students at 11 schools, we awarded 3 scholarships at high schools, and presented thousands of dollars in prizes to 34 exceptional students. This has been received so well by the students, principals, and teachers that we will develop this program for Cabell County Schools. Our hope is to inspire engineers and construction



APPENDIX

Vision

a. What is your vision as to how the County Utility could fit into the emerging energy ecosystem?

As the electrical grid evolves from a history of large, remote, fossil fueled power plants to a future powered by distributed resources, the roles of utilities will change as well. Regional and interstate transmission is important to overall grid stability, but the challenges of that coordination overlap poorly with the day-to-day concerns of decentralized resource management and development. The County Utility should provide incentives and oversight for distributed generation and load management capacity, as well as developing localized storage and stabilization resources. The County Utility is better situated to run energy efficiency, demand response, and microgrid/segmentation programs than larger regional entities; and from that standpoint, can better serve the specific needs of local customers of all sizes.

b. How might the County Utility improve services compared to traditional systems?

Traditional electrical utility systems are based on the idea that generation is most efficient at massive, centralized installations, and that supply-side load management is the only effective way to marry generation and consumption. In an interconnected, distributed energy ecosystem, both of these assumptions should be challenged.

A major advantage of distributed energy resources compared to legacy generation technology is that it can be easily unitized and installed at almost any scale. With sufficient penetration of small scale renewables, storage, and backup generation, the County Utility's grid can become resilient to events that disrupt the grid more broadly. Local energy resources also take advantage of existing distribution infrastructure and require less investment in transmission capacity.

Additionally, modern networking technology offers the opportunity to shed loads in real time. In a situation where a legacy utility might initiate a planned outage, due to extreme weather conditions or capacity issues, the County Utility could send a signal to customers enrolled in a voluntary demand reduction program to limit load and keep the power on. The County Utility could sectionalize microgrids with sufficient distributed resources (both supply and demand) to keep them running even through a widespread blackout.

c. How would you propose building a system in a manner that constrains costs based upon available loads, yet is flexible enough to adapt to new end users who are attracted to the system?

In order to control costs, BG suggests beginning this project with localized grids. This would be accomplished by selecting focused concentrations of large consumers to establish various microgrid arrays. An example of this might be the Aerozone region, which contains two large consumers—Cleveland Hopkins Airport and the NASA Glenn Research Center. We would design the required infrastructure to handle the load of these facilities. However, the design would allow for consideration to expand both the power generation component as well as the electrical distribution. This method enables the County to meet current loads and prepare for future end users. In order to optimize this process, BG would suggest the County implement an energy efficiency program for any customers who join the County microgrid. This program would lower the overall required load and thus lower the required generation.

d. How might your approach be different for new developments, such as industrial or commercial parks, versus existing customers? Would you envision merging district energy or transportation or hydrogen into the development?

BG sees two main differences in approach for a new development versus an existing customer. The first is a new development can be designed around the microgrid, while an existing customer would need to be designed around existing equipment and space utilization. Our team suggests the County engage new developments at the design phase to allow for options such as district energy to be fully explored while it may be most viable. Unfortunately, existing customers will already have end use devices that may be too costly to replace or retrofit. In this case, technology must be chosen to suit the customers and will need to closely resemble existing utility supplies to keep paybacks low. The second difference is transmission of utilities for new developments versus existing customers. Again, early engagement of new construction projects will offer the most flexibility to both the County and new end users. Our approach for existing customers will be to work with one of our partners, First Energy, to utilize existing infrastructure where possible. This model would also be applied to district energy where applicable and advantageous. Regardless of scenario, BG envisions leveraging district energy, transportation, hydrogen, and renewables to create a comprehensive microgrid solution.

e. How might you go about marketing your vision to end users?

At BG, we believe if we only do one project for you, we have not done our job. We highly value the long-term relationships we have built with our clients and believe there is a symbiotic relationship between our achieved successes. We recognize the magnitude and profound investment that encompasses this project and how the transformation will affect the County's residents, industries, and commercial businesses. Likewise, we understand that our work is a direct reflection of your investment, and it is in our best interest to ensure that our projects are a major success. There is an inherent value in advocating the accomplishments we share through the promotion of marketing material. The work you are doing to promote a cleaner, more resilient, and cost effective energy grid should not go unnoticed, and BG has a dedicated marketing department that can help support the promotion of your endeavors by:

- Generating engaging content for print and digital media highlighting construction progress
- Showcasing the County's leadership and commitment to sustainability and its residents
- Enhancing visibility to future residents, industries, and businesses
- Encouraging and boosting pride and support from current residents, industries, and businesses

Business Economic Models

a. How do you envision revenue flowing through the various entities?

As described below, revenue collected from ratepayers and individual PPA off-takers is passed through the County/ Utility Manager to the developer/ EPC partner.



- b. The County envisions a scenario where the developer/concessionaire is compensated through a pass-through model from power purchase agreements with individual customer/off-takers. Do you see any problems with this model or have suggestions on possible alternative compensation models?*

BG is experienced with power purchase agreement (PPA) models and believes this could be an attractive model for compensation of completed generation projects. This model allows for cost recovery of design, installation, and operation of the generation source over time—minimizing the initial investment required.

One potential concern with this model is that rates could be much higher than traditional generation options available today. Keeping other costs within the rate structure lower, providing higher reliability, and renewable energy generation solutions could help ensure new customer participation.

- c. What process would you take with the County to design customer billing (i.e., tariffs) in a fair and transparent way?*

The County needs to consider multiple variables when developing a rate structure. All system costs outside of generation, including distribution, must be covered by the customer billing outside of the PPA rate. BG will work with the County to understand and evaluate all of these variables. Balancing expected generation and sufficient off-takers will be required for planning a rate structure and reducing costs for customers. The system's ability to address both energy and demand all need to be considered and accounted for in billing. The final billing structure can be summarized and explained in a transparent way to potential new customers, as well as existing customers, as changes are made in the future.

- d. What types of tariffs are needed to support the County initiative?*

Tariffs for energy efficiency programs and promotions would be beneficial in supporting this initiative. These tariffs would allow the County to pay for support initiatives and/ or rebate programs to encourage customers to be energy efficient. This includes demand reduction incentives, time-of-use rates, and peak shaving programs.

As the County system expands beyond microgrids that serve select, local customers, the different varieties of customers that join may require new tariffs. For example, a city interested in joining the County system typically will not have their street and traffic lighting systems metered. This would require a new tariff structure to account for the usage in an appropriate way.

- e. Would you be willing to provide the capital for the scope/role the County envisions?*

BG regularly secures financing for our customers and would be able to do the same for the County. Given the County's vision this would likely occur over multiple phases as the system develops.

- f. How would you ensure prices for specific projects (i.e., new distribution line or a microgrid) are competitive?*

BG is uniquely qualified to ensure competitive pricing for construction projects. Our team of in-house electrical engineers, mechanical engineers, energy engineers, electricians, estimators, and project managers regularly provide contract-ready pricing for most projects. Our firm has vast experience

competitively bidding large mechanical and electrical projects to ensure the customer receives the best price as well as a quality installation. This process includes pre-qualifying bidders to ensure pricing is coming from qualified companies, providing a high level of information via bid documents and drawings for bidders to have as much information as possible when pricing, and evaluating bids for a best value selection.

Organization Models

a. Would you be willing to contract directly with the County to be responsible for the full scope of this initiative?

BG envisions a teaming approach with partners to provide the best value to the County. However, BG is willing to contract directly with the County for the full scope of this initiative to be addressed with our partners.

Eaton, with US headquarters in Beachwood, as a world leader in electric power systems and power management would be a great partner for this initiative. In addition, First Energy would likely be engaged throughout this project to varying degrees.

b. What are the tradeoffs for one firm serving all roles versus separate firms serving separate roles?

When weighing the difference between one firm serving all roles versus a team of firms serving separate roles, flexibility and coordination can be part of the tradeoff. While a single firm offers consistency throughout the project, it may lead to a lack of flexibility and experience in all required areas, and a team approach will require large amounts of coordination. BG feels a team approach will allow for each team member to act as an expert for their component of the project. For this reason, we believe the team approach will create the most successful project.

c. How would you structure the relationship between yourself, the County, and other entities (if applicable)?

For the relationship of this project with the County and other entities, BG could serve in two different roles. The first role could be as the lead, responsible for ensuring all entities are communicating effectively, managing the implementation of all projects, and coordinating the overall microgrid project(s). Given the potential scope of work, BG would also be willing to work as a subcontractor to the County or another entity as a design firm and MEP contractor for installation of microgrid components.

d. What level of responsibility, if any, would you be willing to have for microgrid project identification and development, customer identification and selection, customer contract negotiations, etc.?

The BG team possesses a strong business development team, as well as immense knowledge of potential County microgrid facilities. Our firm is capable of handling necessary project identification and development as well as customer identification and selection. While we are capable of handling customer contract negotiations, our firm would recommend selecting a team member who specializes in this area.

e. What level of pre-design and other information or assurances would you need to respond to an RFP/Q and engage in negotiations with the County?

No level of pre-design would be required to respond to an RFP/Q. However, a more vague RFP/Q would provide more creativity in responses. An RFQ would require some level of expectation on direction and/or outcomes the County would like to see. This option would give the County the opportunity to review Statements of Qualifications and start discussing and developing a solution with a partner. Brewer-Garrett believes this is the best path forward for the County to start this initiative.

If the County desires starting with an RFP, some additional information and time would be required for a response depending on the level of detail and accuracy desired. The County would need to layout the roles expected, based on answers to these RFIs, and request one or multiple responses for different roles to be fulfilled. This would be based on the County's response to these RFIs and what type of team was desired. Again, the more vague the specific solution request the more creative solutions will be proposed. But given that this would provide the County with multiple solutions to evaluate; in the end the creativity and qualifications of the responders will likely be a driving force in the selection process.

To engage in contract negotiations after either an RFP or RFQ, a specific scope of work and expected deliverables would be required. BG is comfortable and experienced in being selected as a partner and then working with our customers to better define contract negotiations.

f. What level of commitment would you need to have from potential County utility customers to respond to an RFP/Q and engage in negotiations with the County?

To respond to an RFP/Q, while buy-in would be nice, no specific commitment would be required. However, to engage in negotiations with the County, BG would expect a contract level of commitment from one or multiple off-takers to participate in the new County utility.

Concession Agreement & Other Contracts

a. What contracts will need to be in place and between what entities?

The County would need to have a contract with the Utility Manager and the Developer/EPC.

b. What critical terms and conditions need to be addressed?

The following terms and conditions need to be addressed:

- Project Cost (\$/project or \$/kWh)
- Project Savings
- Contract Term
- Ancillary Services to be included in Contract

c. What term lengths would respondent be comfortable with for a distributed energy or microgrid PPA?

Typically, PPA contract terms are between 20 and 35 years. BG is comfortable with this range of term lengths and willing to discuss other options the County might see fit.

d. What additional information would you need to sign a contract with the County for a scope of work?

To engage in contract negotiations after either an RFP or RFQ, a specific scope of work and expected deliverables would be required. BG is comfortable and experienced in being selected as a partner and then working with our customers to better define contract negotiations.

Initiative Timelines

a. What is a typical turn-around time for you to sign a contract for your role(s)?

BG has all required team members for contract approval in one facility. Because of this, our typical turn-around time for an executed contract is less than a month.

b. What is a typical development time for a microgrid, from customer recruitment through operation? What are the major milestones?

Development of a microgrid solution can take varying amounts of time depending on the size and complexity. BG would recommend allocating one year for development and customer participation. The timeline to design and construct the microgrid will depend on the location and size of the system, however based on our experience we would estimate two years.

c. What impact on this initiative do you foresee, if any, from the current supply chain disruptions?

Supply chain disruptions have pushed lead times for major electrical equipment to unprecedented highs—in some cases exceeding a year from order to shipment. While there is no substitute for the flexibility afforded by shorter lead times, the County can plan work with the supply chain environment in mind and mitigate the worst effects of the disruptions.

First, the County should identify a wide range of potential projects well in advance of potential need. From an engineering, procurement, and construction (EPC) standpoint, it is faster and easier to execute a clearly defined scope of work based on an existing study or set of criteria than to include investigation and development in the EPC process. By maintaining a portfolio of schematic projects, the County will be able to minimize the time needed between RFP and procurement.

Second, the County should develop a funding process that allows for advanced procurement of major equipment. In a traditional design-bid-build construction project executed in the current supply chain environment, there is a huge lag between permitting and when equipment arrives, and when major construction can begin. In order to reduce this lag, the engineering design phase can prioritize the elements of a project with the longest lead time and initiate procurement before the project design is finalized. There is of course risk associated with any advanced procurement, but there is also risk from project delays and equipment price increases.

Technology

- a. What technologies should the County consider addressing power issues for commercial and industrial customers? (power quality issues vs. short power outages vs. long power outages)*

Initially, the bulk of power provided via the County Utility will flow through the conventional generation and transmission network. As the County stands up distributed resources, the Utility will have the option to form microgrids around those resources and restore power ahead of the return of transmission power.

From a quality standpoint, it is essential that the Utility emphasize digitization and connectivity for its distributed assets. Because distributed power relies on smaller assets than conventional generation and transmission, coordination of those assets is necessary to achieve a robust power system.

- b. Can you provide high-level cost estimates for distribution infrastructure, distributed generation, and/or microgrid technologies across different sizes? (i.e., 14.4 kV feeder, 1 MW/1 MWh battery, 5 MW solar PV)*

BG has worked with vendors for various distributed and microgrid technologies, including grid-scale battery storage and solar, megawatt-scale grid-capable backup generators, and medium-voltage feeder installers. Due to current market volatility, providing a current cost estimate could be misleading, as costs are likely to change by the time actual project development begins. However, BG's estimating and project development teams are experienced in developing and maintaining project budgets throughout the project lifecycle.

- c. Are there ranges of economic feasibility that the County should be aware of when considering on-site generation, storage, etc. For example, do projects only over X MW prove to be economically feasible in your experience?*

Facility/Utility battery storage systems are typically produced in "containerized" units, where the battery cells and all required management and cooling systems are mounted inside a shipping container. These containers typically come in increments of roughly 0.5 or 1.0 MW.

On-site engine generators designed for grid support are typically best deployed in the largest available increments, roughly 2.0 MW, because of the expense of the supporting infrastructure.

Solar PV installations are highly configurable, due to the small, individual capacity of all components. Good siting is the most important factor in determining economic viability of the individual systems.

- d. How should cybersecurity of the utility, individual microgrids, customers, or other pertinent entities be ensured?*

Like energy resources themselves, cybersecurity should be considered on a distributed and layered basis. Each entity, such as the Utility's central resources, individual substations and generating facilities, and individual customers, should be secured separately. Data transmission should be encrypted where possible. Prominent informational security standards such as the NIST Cybersecurity Framework and ISO/IEC 27001 provide a baseline for effective cybersecurity practices within those entities. The Utility sequence of

operations will need to account for the differing levels of security available to different customers, i.e., residential clients with solar installations or demand management appliances.

e. What is your approach to managing: capacity and transmission peak load contributions? Energy market arbitrage? Frequency regulation?

For a smaller utility, peak loads should be managed by creative tariff construction. The County Utility has the opportunity to provide incentives to help curb peak demand, as well as bring additional distributed resources online to help manage the peak through peak shaving programs.

Transmission peak concern can also be mitigated by the deployment of distributed resources. By serving loads over the local distribution network, peak demand is kept off the transmission facility, reducing the need for transmission upgrades.

Diversity, Equity, and Inclusion

a. How will you ensure Diverse, Equitable and Inclusive (DEI) partnership(s) throughout this Initiative?

The BG team strives for a high level of inclusion on all its projects—meeting and exceeding required participation goals. Understanding that the County places particular importance on DEI partnerships, BG will develop a specific subcontracting strategy to ensure maximization participation of small and diverse businesses.

The foundation of the BG team’s DEI business participation philosophy is to seek out, qualify, and hire DEI contractors that can deliver quality construction at a competitive cost, and meet critical schedule deadlines without creating undo risk for successful implementation of the County’s project. The following criteria are used to pre-screen and qualify potential partners:

- Certified MBE, WBE, DBE, and EDGE contractors
- Prequalified by evaluating past performance, key personnel resumes, and financial stability
- Interviewed, analyzed, and sought proposals for specific scopes of work related to this project
- Reviewed lowest and most responsive proposals for alignment of project’s goals
- Confirmed commitment of resources and dedication to the project

Other

a. What potential risks, setbacks, or hurdles do you see for this Initiative?

Energy is an increasingly chaotic market and rising natural gas prices have broken many economic models for the generation costs of various sources of energy. The forecast for any conventional fuel source is uncertain at best. Municipal and Cooperative utilities that have embraced distributed resources have weathered the storm better than most, but the utility industry as a whole is the most risky it has ever been.

Many components of distributed energy resources, particularly solar PV modules and the electronics associated with solar and battery inverters, feature components and manufacturing facilities that are subject to international trade disputes. In just the last year, a tariff case with the Department of Commerce

effectively shut down solar PV imports for weeks before a resolution was reached. Similarly, sources of raw materials for these systems are in many cases still under development at the scale necessary to meet anticipated demand.

b. Please provide any other information that you feel would be pertinent to the County at this stage of the process.

We have addressed all information that we feel is relevant at this time elsewhere in this document.



Brewer-Garrett
brewer-garrett.com



Corporate Headquarters

6800 Eastland Rd
Middleburg Hts, OH 44130

Columbus

6037 Frantz Rd, Ste 105
Columbus, OH 43017

Dayton/Xenia

1400 Brush Row Rd
Wilberforce, OH 45384

The Brewer-Garrett Company promises innovation that will exceed your expectations. For 60 years, we've used our in-house expertise to develop customized solutions for our customer's unique facility needs.

We attribute our excellence in customer service to three distinct assets: we have the best people, programs, and technology.

First and foremost, our highly experienced team makes our company as great as it is. We make a point to hire people who inspire and innovate, and we're sure you'll be convinced of that when you work with us. Our associates are constantly searching for the most efficient solutions to benefit both you and the environment.

And because of the ongoing training we offer, those talented associates are always improving. We provide extensive in-house programs to keep our team members up-to-date about emerging methods and new techniques so they come ready to face any and every challenge your project poses.

Finally, we only use state-of-the-art technology. We embrace change because we know every challenge requires a unique response. With our custom, comprehensive solutions, you'll find that all your needs are addressed, and you'll see results both immediately and in the long term.