



JUNE 8-11

# 2020 SUMMIT

*A Virtual Leadership Symposium*

Learn more: [betterbuildingsolutioncenter.energy.gov/summit](https://betterbuildingsolutioncenter.energy.gov/summit)

U.S. DEPARTMENT OF  
**ENERGY**



---

# Packaged CHP eCatalog and Accelerator Program

June 10<sup>th</sup>, 2020

1:00 to 2:30pm



**Bruce Hedman**  
Entropy Research, LLC

# Agenda

---

**1**

Richard Sweetser, Exergy Partners Corp.

**2**

Aaron Tasin, 2G Energy Inc.

**3**

Brandon Bowser, Maryland Energy Administration

**4**

Q&A Session

Please go to [www.slido.com](https://www.slido.com)

using your mobile device or web browser

Enter Event Code

**#bbsummit**

...and then select the room “Packaged CHP eCatalog”

Let’s try a couple polls now!

# Follow along with Better Buildings, Better Plants

---

## #BBSummit2020

### Twitter:

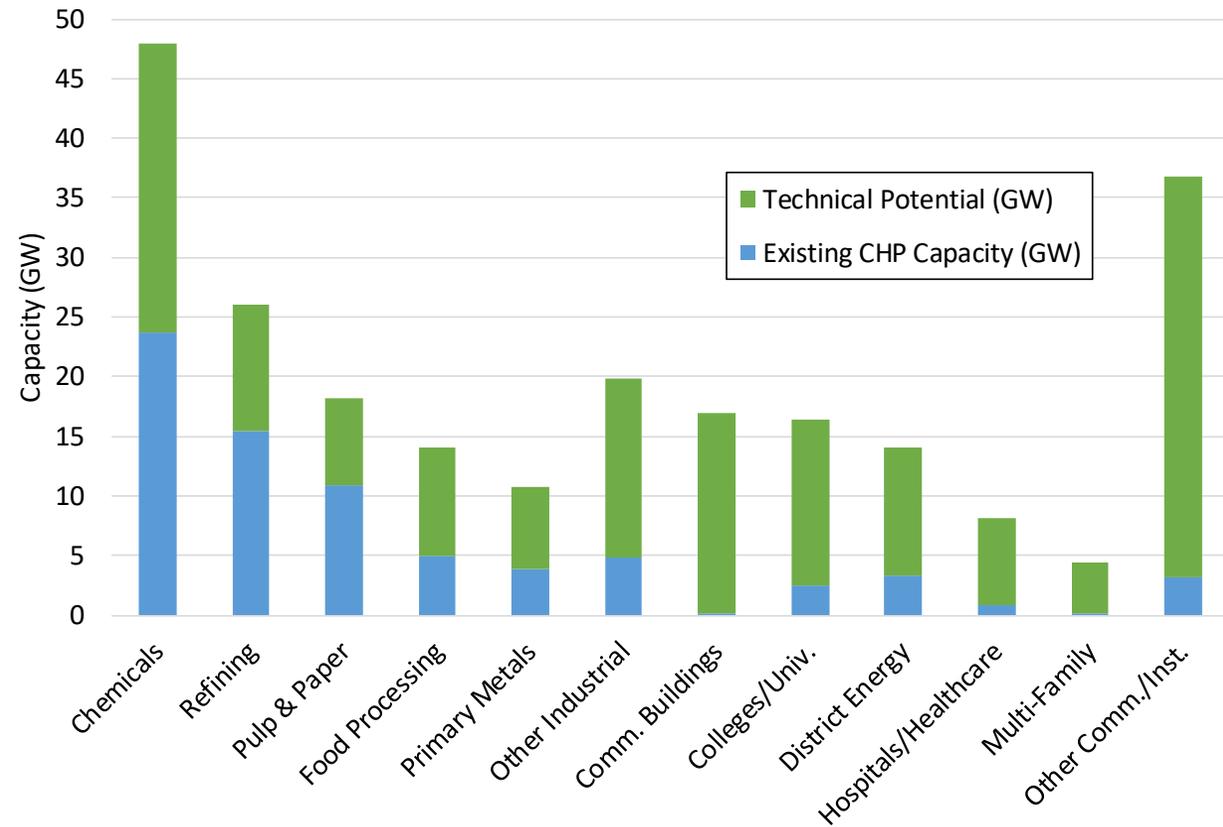
- @BetterBldgsDOE
- @BetterPlantsDOE

### LinkedIn:

- [www.linkedin.com/company/better-buildings/](http://www.linkedin.com/company/better-buildings/)
- [www.linkedin.com/showcase/better-plants/](http://www.linkedin.com/showcase/better-plants/)

# Non-traditional CHP Markets Are Growing

- Large CHP potential in small/midsized industrials, commercial, institutional, government and military applications
- Markets utilize smaller, packaged CHP systems (< 10 MW)
- Markets have limited CHP experience
- Users have limited technical resources
- History of issues with CHP system performance and with CHP sales and service support
- Many perceived risks by both users and suppliers

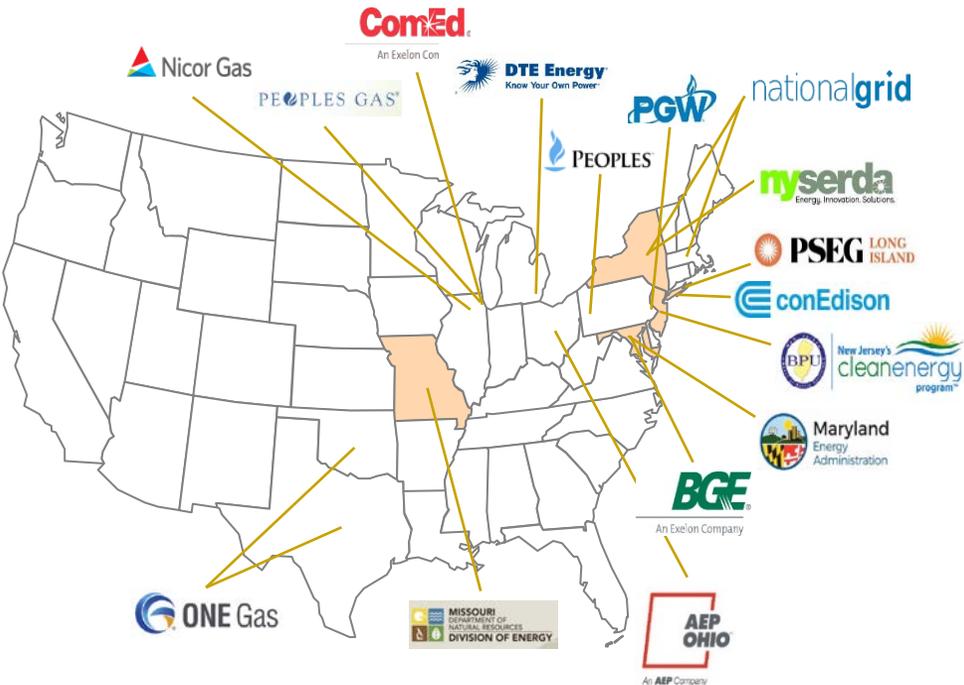


*Non-traditional markets represented 35% of the capacity and 70% of the projects installed since 2008*

# DOE Packaged CHP Accelerator

- **Better Buildings Accelerators** demonstrate innovative policies and approaches designed to accelerate investment in energy efficiency
- **Objective:**  
Populate, launch and publicize the eCatalog and promote packaged CHP
- **Goals:**  
Verify packaged CHP system performance in industrial, commercial, institutional and government markets
- **CHP Engagement Partners:**  
Utilities, states and federal agencies committed to promoting packaged CHP via CHP deployment and/or incentive programs
- **CHP Supplier Partners:**  
CHP packagers and solution providers participating in the national *eCatalog*

## CHP Engagement Partners



<https://betterbuildingsolutioncenter.energy.gov/accelerators/packaged-chp>

# Today's Presenters

---



**Richard Sweetser**  
Exergy Partners Corp



**Aaron Tasin**  
2G Energy Inc.



**Brandon Bowser**  
Maryland Energy Administration



Richard Sweetser  
Exergy Partners Corp.

Submit Questions  
[www.slido.com](http://www.slido.com) event code **#bbsummit**  
then go to room “**Packaged CHP eCatalog**”

# Packaged CHP Systems

U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy



**U.S. DOE Virtual Leadership Symposium –  
Packaged CHP Systems eCatalog**

Richard Sweetser, President - Exergy Partners Corp.  
Packaged CHP Systems eCatalog Coordinator

June 10, 2020

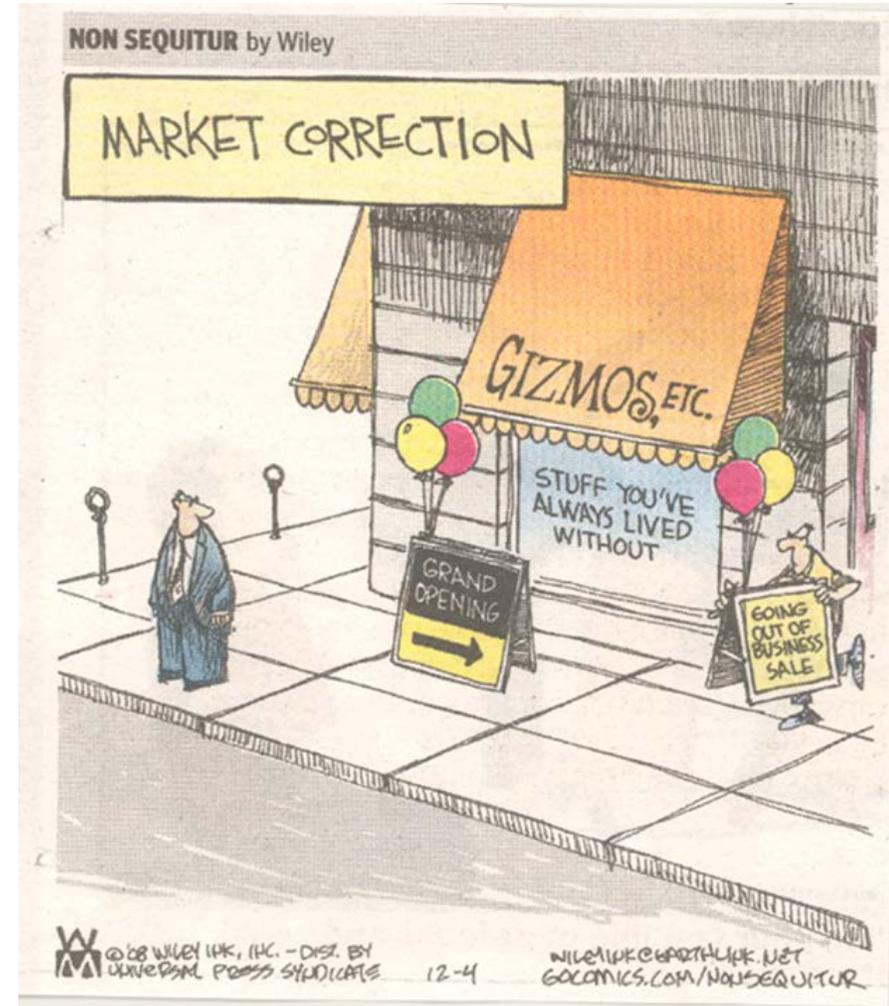
- eCatalog Background
- eCatalog Definitions
- eCatalog Demo

Reducing Risk with Recognized Packaged  
CHP Systems in the DOE eCatalog



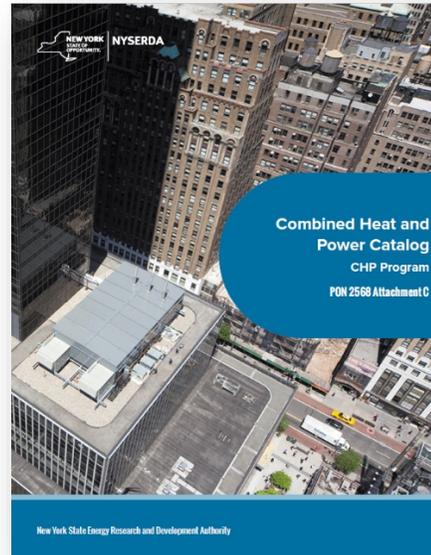
# Packaged CHP Market Challenges

- CHP viewed as a discretionary purchase
- Lack of user awareness / understanding
- Under-developed sales and service infrastructure
- Every installation is considered unique
- High soft costs
- End-user responsibility



# NYSERDA's Packaged CHP Catalog

- NYSERDA Packaged CHP Catalog - Reduce perceived risk of installing and operating CHP by offering comparable standardization of CHP systems and field service agreements.



Source: NYSERDA CHP Catalog

**2G Energy, Inc.** p01rus100NG-S1 100kW

Description		Type	Stack-Heat	Classification
Type of prime mover	Number of prime movers @ full	Synchronous or Inverter	Output (kW)	Stack-Heat Output (kW)
RICE	1	Synchronous	Yes	CHP

Performance		Net Electric Efficiency % (EFC)	Net Thermal Efficiency % (TEFC)	Stack Heat Output (kW)	Net Thermal Output (kW)	Net Total Output (kW)	NOx (ppm)	SOx (ppm)
% Load	100%	28.1	36.1	480	100	100	10	10
	75%	28.1	36.1	480	100	100	10	10
	50%	28.1	36.1	480	100	100	10	10

Footprint		Length (ft)	Height (ft)	Weight (lbs)
Case (includes base)	48"	132"	71"	Approx. 7,100
Case (includes base and control cabinet)	48"	132"	71"	Approx. 7,100
Heat Rejection	Included in module	Included in module	Included in module	Included in module
Required pad for delivery	48"	132"	71"	Approx. 7,100

**Vendor Information**

2G Energy, Inc.  
200 Continental Drive  
St. Augustine, FL 32080  
888-678-2217  
[www.2genergy.com](http://www.2genergy.com)

**Vendor Statement**

2G is a global leader in manufacturing highly efficient CHP cogeneration power plants. A leader in producing the world's most advanced and efficient cogeneration modules, and as per March 2016, having more than 1000 CHP's installed and operating, 2G is specialized in modular energy conversion technologies. All cogeneration systems are designed and manufactured "turnkey ready", are fully factory tested and come as complete "Plug & Play" modules. This allows for an extremely fast and cost-effective installation, increases production reliability, and ensures trouble-free operations. (Please watch our video located at [www.2genergy.com](http://www.2genergy.com))

"We offer fully comprehensive and onsite building installations."  
"Quality... is everything we do!"

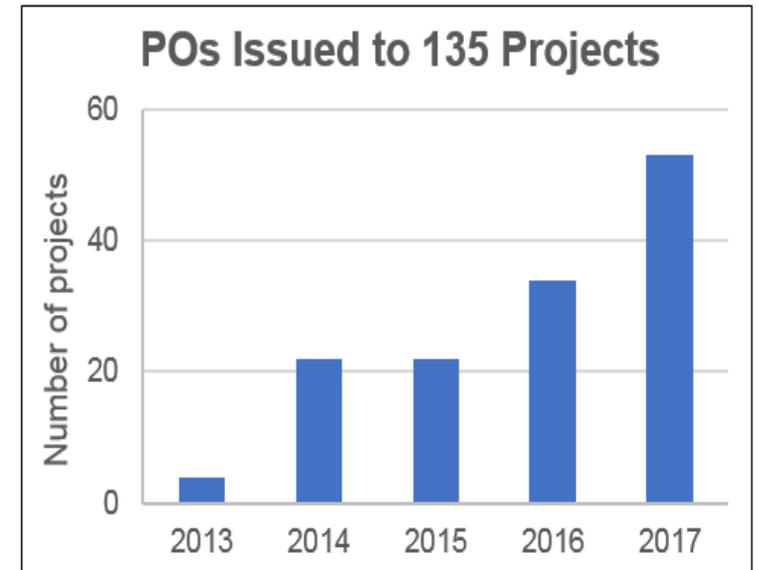
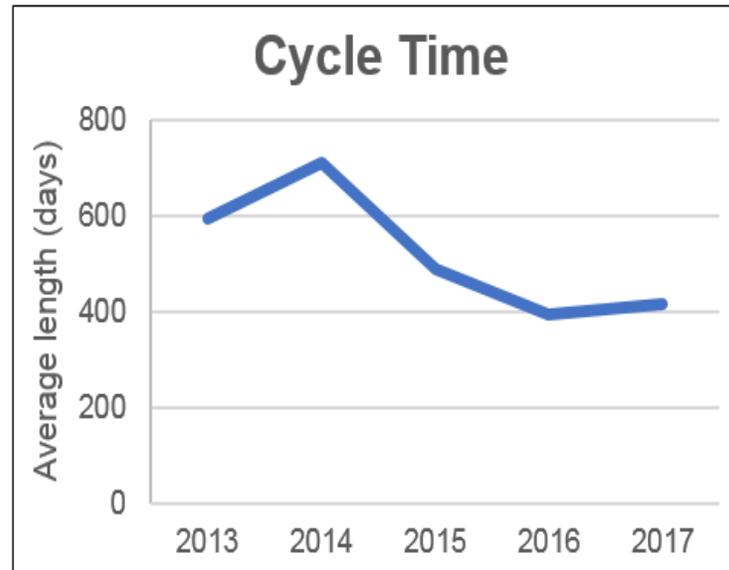
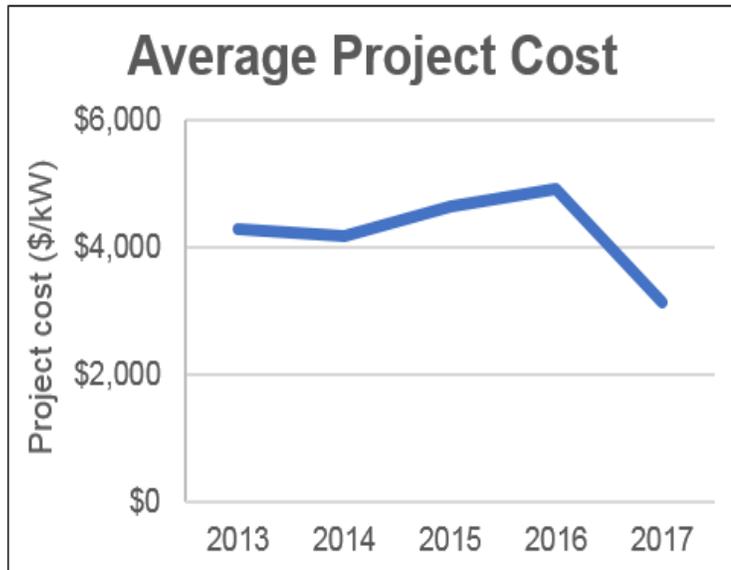
NYSERDA CHP Program PON 2568  
Version 4 Revised July 2016  
For the most recent version go to:  
<http://www.nyserda.ny.gov>

- v1: 8 Vendors & 36 systems
- v2: 10 Vendors & 64 systems
- v3: 13 Vendors & 141 systems
- v4: 22 Vendors & 219 systems
- V5: 26 Vendors & 253 systems

- Independent endorsement based on in-depth analytical review
- Single-point-responsibility as the basis for customer-vendor relationship
- Comparison shopping to promote competition and expand offerings

# NYSERDA CHP Program Successes

- Commoditization of offerings and expansion of options
- Project cost reductions and time compression
- Increased program uptake
- Less dependent on subsidies (incentives ramping down over time)



# Robust Market Engagement Was Key to Success

- **Public events** – Opportunities to provide introductions to CHP and connect end users with suppliers
- **Education** – Personalized understanding of technology and value proposition to specific business
- **Pre-screening** – High-level review of specific costs and benefits offered by CHP
- **Technical assistance** along project development path
- **Concierge to access financing, navigate permitting, identify supporting resources**

# Public Events - Talk and Tour

- **Introduction** to CHP technology
- Opportunity to **view successful CHP** installation – seeing is believing
- **Engage with current CHP end-users** other customers
- **Learn** about the **CHP project process**
- **Connect with suppliers**



# Education and Outreach

---

- **Address common misperceptions** on CHP technology
- **Engagement with decision makers** at all levels of organization
  - Facility managers, sustainability coordinators, C-suite, and everything in between
- **Identification of a project champion** within the organization
- **Providing clear and actionable information** to customers
- **Early-stage screening** to discover any CHP show-stoppers

# Ongoing Technical Assistance Was Critical

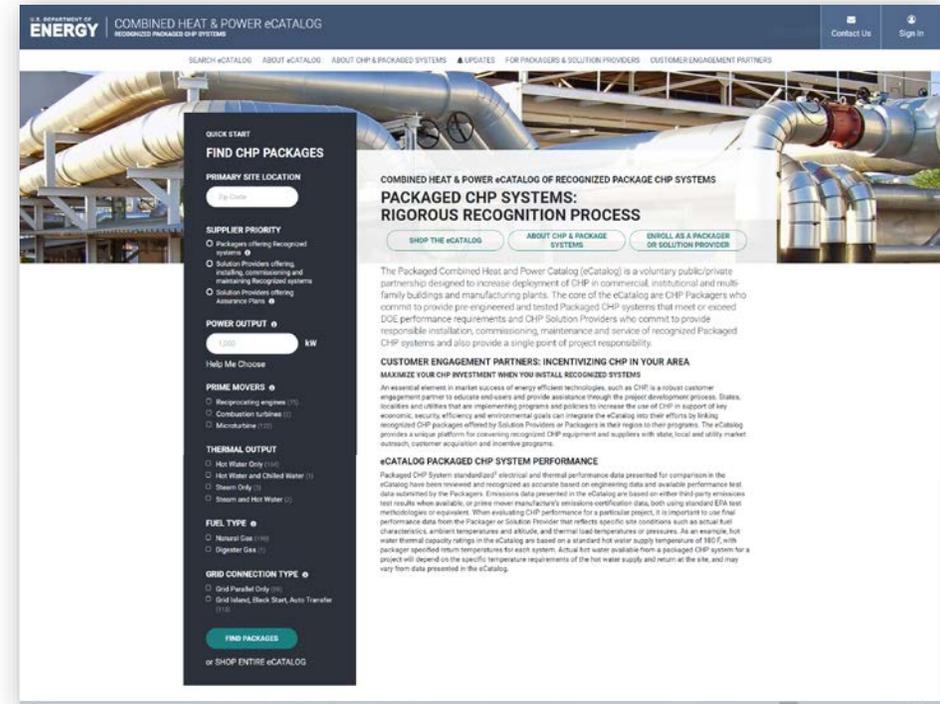
- Many projects stall at the vendor bid solicitation and selection process
- Proposals come in all different shapes and sizes
- Lack of meaningful and accurate data for customers to make a decision
- **Once customers lose interest, the project usually doesn't get revived**



# The Packaged CHP Systems eCatalog

# DOE Packaged CHP eCatalog

- A national web-based searchable catalog (eCatalog) of DOE-recognized packaged CHP systems and suppliers with the goal to reduce risks for end-users and vendors through partnerships with:
  - **CHP Packagers** that assemble and support recognized Packaged CHP Systems
  - **Solution Providers** that install, commission and service packaged CHP systems
  - **CHP Engagement partners** that provide CHP market deployment programs at the state, local and utility level
- **Pre-engineered and tested packaged CHP systems that meet DOE performance requirements**
- **End-users and design engineers search** for applicable CHP system characteristics, and get connected to packagers, installers and CHP engagement programs
- Allows users to **compare technology options on a common basis**



<https://chp.ecatalog.lbl.gov/>

# Packaged CHP eCatalog Status

- Launched Nov 8, 2019
- 31 recognized Packagers
- 19 recognized Solution Providers
- 201 Package Offerings
  - 118 reciprocating engine
  - 82 microturbine
  - 1 gas turbine
  - 196 natural gas
  - 5 digester gas
  - 55 grid parallel only
  - 134 grid islandable/auto transfer
  - 24 kW to 7.5 MW
- 9 Customer Engagement Partners

The screenshot displays the 'FOCUS YOUR RESULTS' interface for the packaged CHP eCatalog. The left sidebar contains search filters, and the main area shows a grid of 12 package offerings.

**FOCUS YOUR RESULTS**

- reset | save search | favorites
- PRIMARY SITE LOCATION: Zip Code, Selected: Somerset, NJ
- SUPPLIER PRIORITY:  Packagers offering Recognized systems,  Solution Providers offering Assurance Plans,  Solution Providers offering Energy Services
- CUSTOMER ENGAGEMENT PARTNER:  Prioritize program-eligible packaged systems
- POWER OUTPUT (kW): kW Size, Consider Multiple Units, \*Default includes a max. of 120% of unit size and a min. of 70% of unit size.
- PRIME MOVERS:  Reciprocating engines (108),  Combustion turbines (2),  Microturbine (122)
- THERMAL OUTPUTS:  Hot Water Only (269),  Hot Water and Chilled Water (1),  Steam Only (2),  Steam and Hot Water (16),  Steam, Hot Water, and Chilled Water (4)
- FUEL TYPE:  Natural Gas (285),  Digester Gas (7)
- GRID CONNECTION TYPE:  Grid Parallel Only (83),  Grid Island, Black Start, Auto Transfer (192)
- OUTDOOR INSTALLATION:  Required (160)

**DISPLAYING: 187 Packages ordered by Relevance**

Legend: Available, Solution Provider, Assurance Plan, Local Support, Outdoor Install, Within Footprint, U.S.A. Packaged, Installed, Favorite

Package Name	Power Output (kW)	Thermal Output	Fuel	Prime Mover	Grid Connection	Match Status
AVUS 1500C NG	1,508 kW	Hot Water Only	Natural Gas	1x Reciprocating engine	Black Start, Auto	FULL MATCH (100%)
C800S-ICHP HPNG DM MAX EFFICIENCY	800 kW	Hot Water Only	Natural Gas	4x Microturbine	Black Start, Auto	FULL MATCH (100%)
ECOMAX 9 NGS 1.1 HW	838 kW	Hot Water Only	Natural Gas	1x Reciprocating engine	Black Start, Auto	FULL MATCH (100%)
CAT CG132B-16 POWER HEAT MAX CONTAINER NG	784 kW	Hot Water Only	Natural Gas	1x Reciprocating engine	Black Start, Auto	FULL MATCH (100%)
QUANTO 800 C	784 kW	Hot Water Only	Natural Gas	1x Reciprocating engine	Black Start, Auto	FULL MATCH (100%)
MARTIN ENERGY GROUP MEG S1000N-HW	988 kW	Hot Water Only	Natural Gas	1x Reciprocating engine	Black Start, Auto	FULL MATCH (100%)
UNISON AVUS 2000C NG	1,928 kW	Hot Water Only	Natural Gas	1x Reciprocating engine	Black Start, Auto	FULL MATCH (100%)
COOREN CPT - SOLAR TURBINE - TAURUS 70	7,501 kW	Steam Only	Natural Gas	1x Combustion turbines	Black Start, Auto	FULL MATCH (100%)
Lochinvar XRGI 25	24 kW	Hot Water Only	Natural Gas	1x Reciprocating engine	Parallel Only	FULL MATCH (100%)

<https://chp.ecatalog.lbl.gov/>

# eCatalog Live Demo





Aaron Tasin  
2G Energy Inc.

Submit Questions  
[www.slido.com](http://www.slido.com) event code **#bbsummit**  
then go to room **“Packaged CHP eCatalog”**

**We Care for a Better Future.**



# CHP Packaged Solutions.

**2G. Cogeneration.**



- Founded 1995 - Headquarters in Heek in North West of Germany
- Solution provider: development, project engineering, production, service
- CHP systems for biogas, natural gas, propane and hydrogen applications  
60 – 2,500 kW electrical power
- Strong focus on R&D
- 10 national and international subsidiaries
- Since 2007 listed on the German stock market
- 650 employees
- Over 6,000 CHP plants in more than 50 countries worldwide



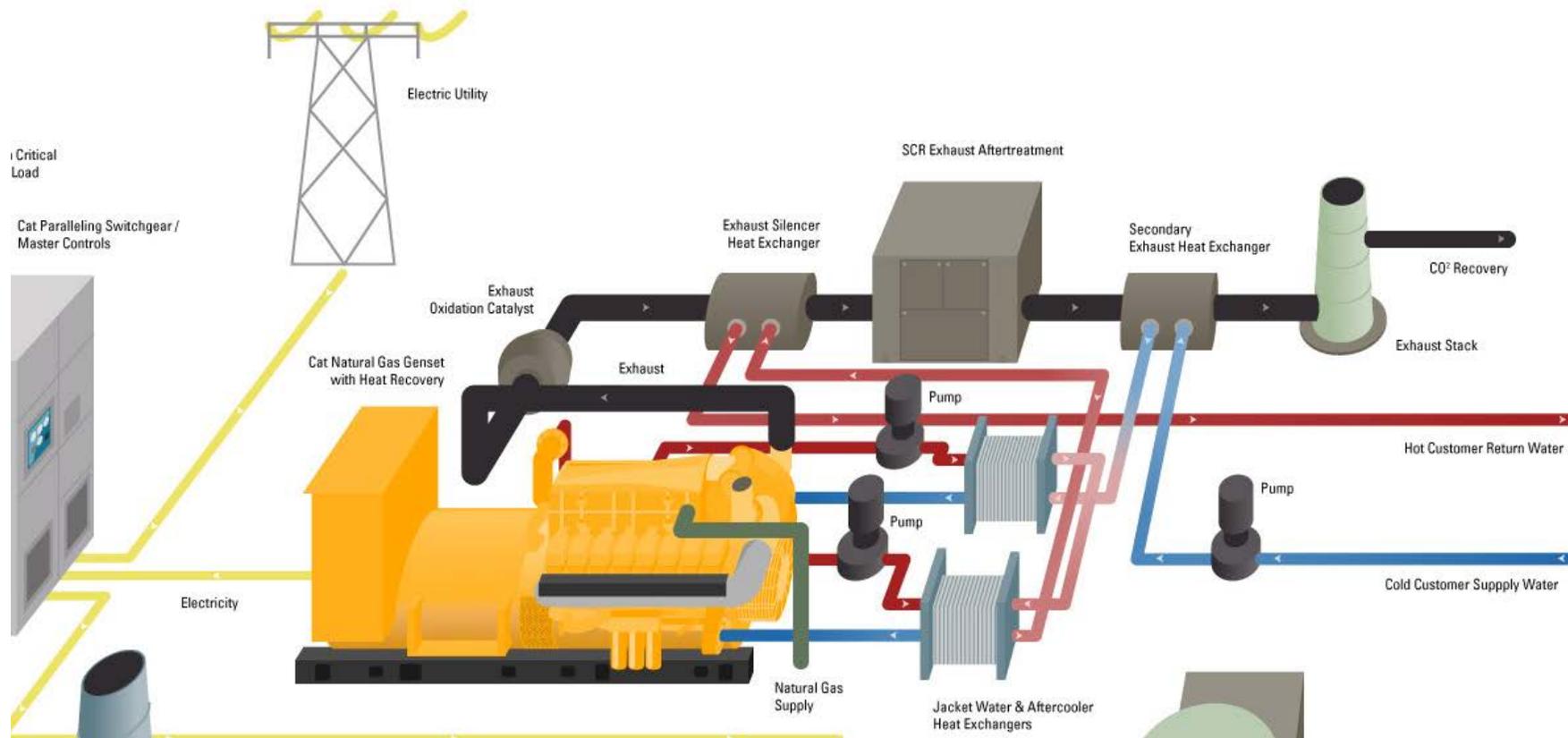


- Non-traditional Applications
- Resilience
- Complete Solutions
- Flexible Financing Solutions
- No Touch Solutions
- Carbon Reduction
- Low Risk



## Traditional CHP Installation

Hundreds of components must be Engineered, purchased, and installed inside a building by local mechanical and electrical contractors who rarely install CHP systems:



## A packaged CHP system is:

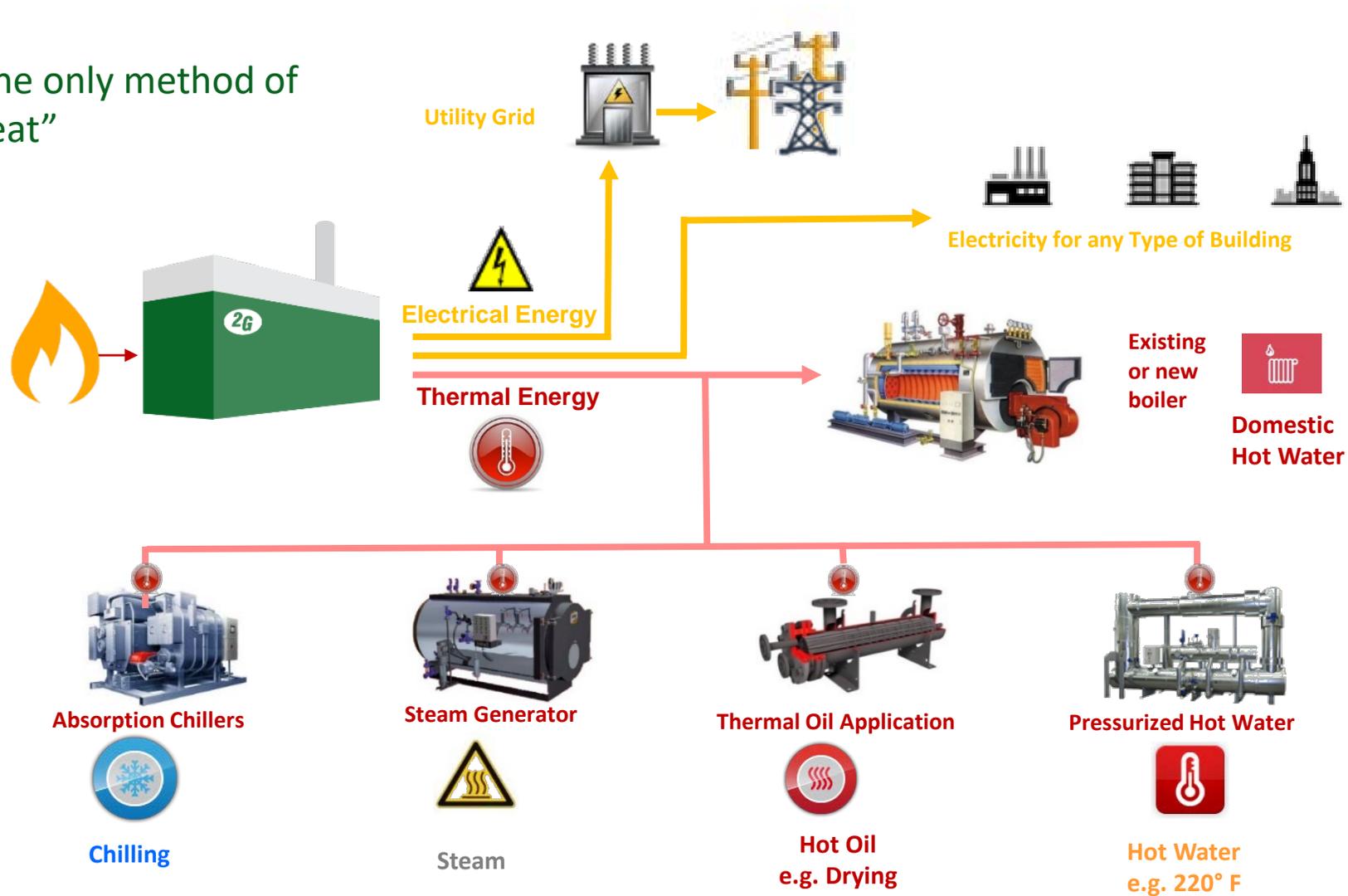
- Standard repeatable design which includes (but not limited to):
  - **100% pre-wired**
  - **100% pre-piped with customer ready connection**
  - **Properly ventilated**
  - **Sound insulated**
  - **Fire rated insulation**
  - **Gas detection and smoke alarm**
  - **Fluid containment**
  - **Auxiliaries sized appropriately and shipped with connecting piping and wiring complete**
  - **Packager has bulk purchasing power that local contractors do not**



# Combined Heat & Power

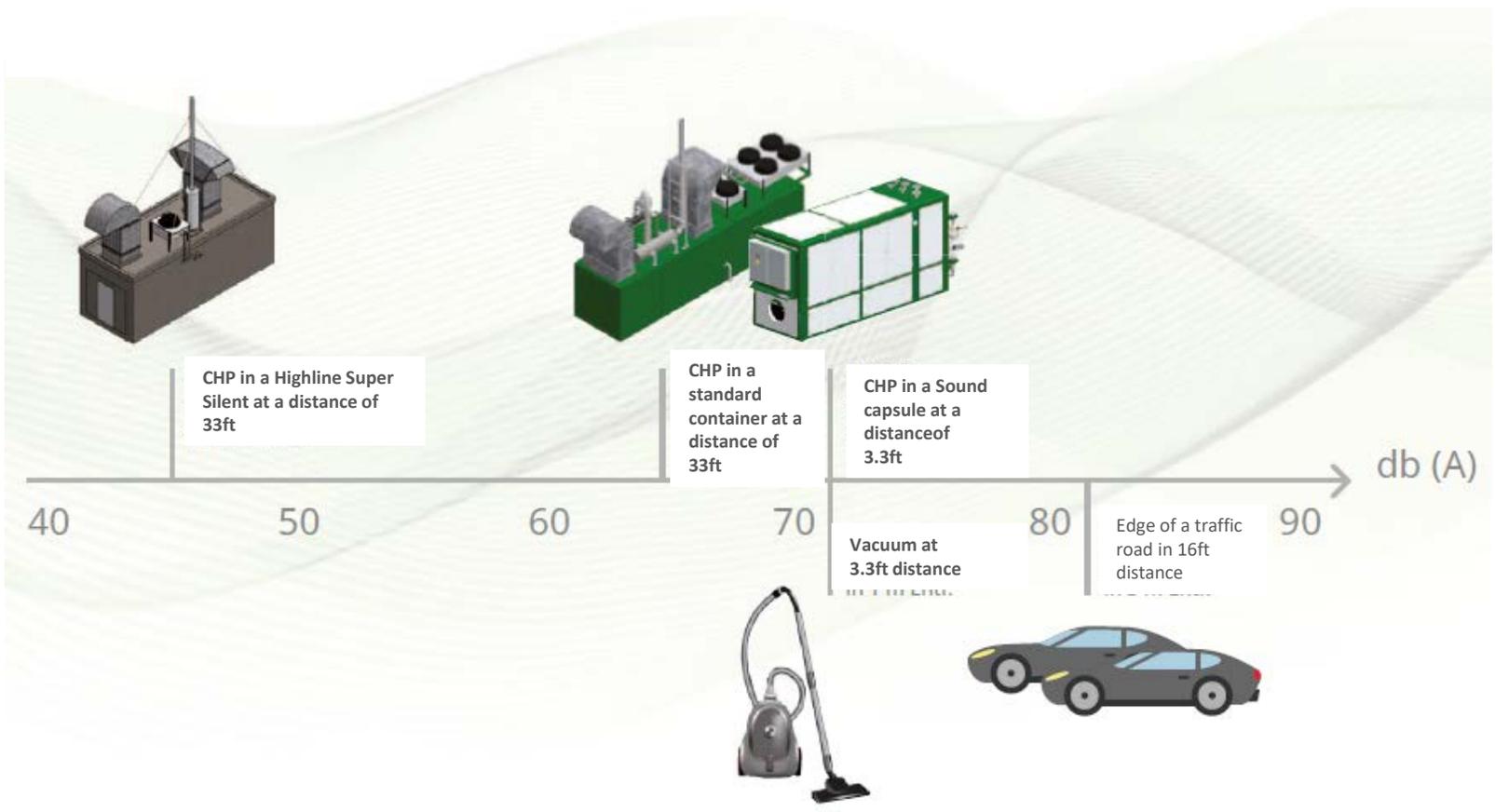


Hot water is not the only method of utilizing “waste heat”





## Sound emissions.

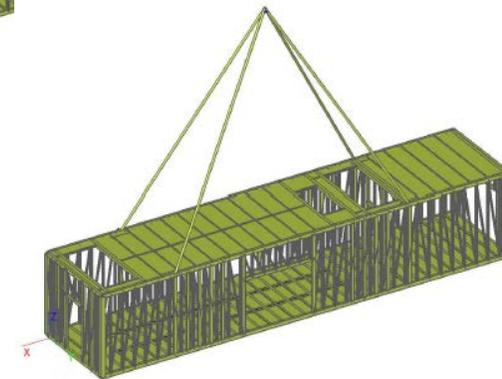
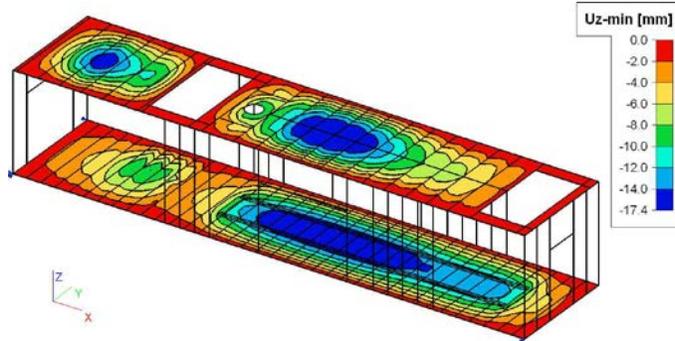
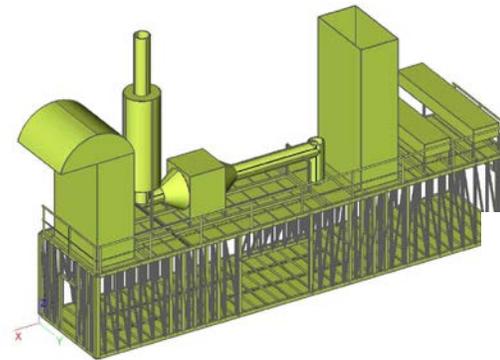
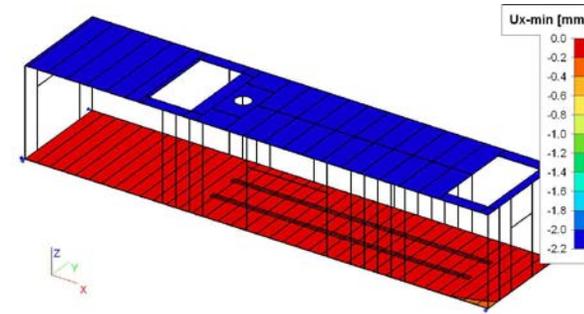




# How a packaged CHP system is built

## Initial Design of system includes:

- Stress analysis
- Wind Load
- Snow Load
- Static and Dynamic Forces
- And more
- Design would be repeatable for similar systems

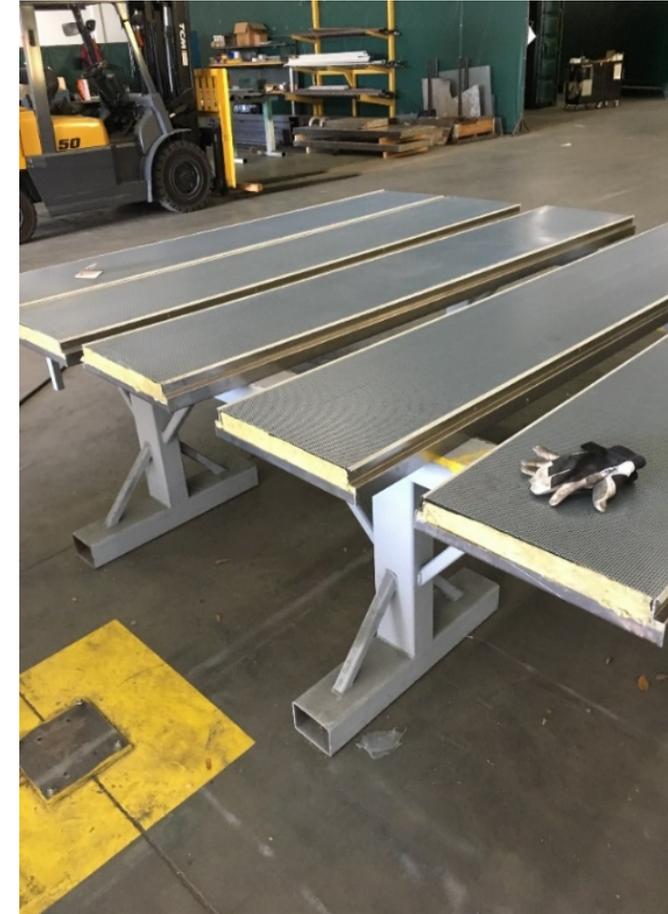


CALCULATION REPORT  
Container hanging on the crane by cables

## Custom purpose-built container



Container size, noise rating, wall openings are determined and fabricated per the engineered analysis:



# Custom Built Container



The top, bottom, and sides are welded together



The engine, pumps, valves, heat exchangers, wiring, etc are installed





Finished Product ready for shipment and installation





# Container options



## Compact container.

### Available sizes (LWH)

20ft x 8ft x 9.5ft

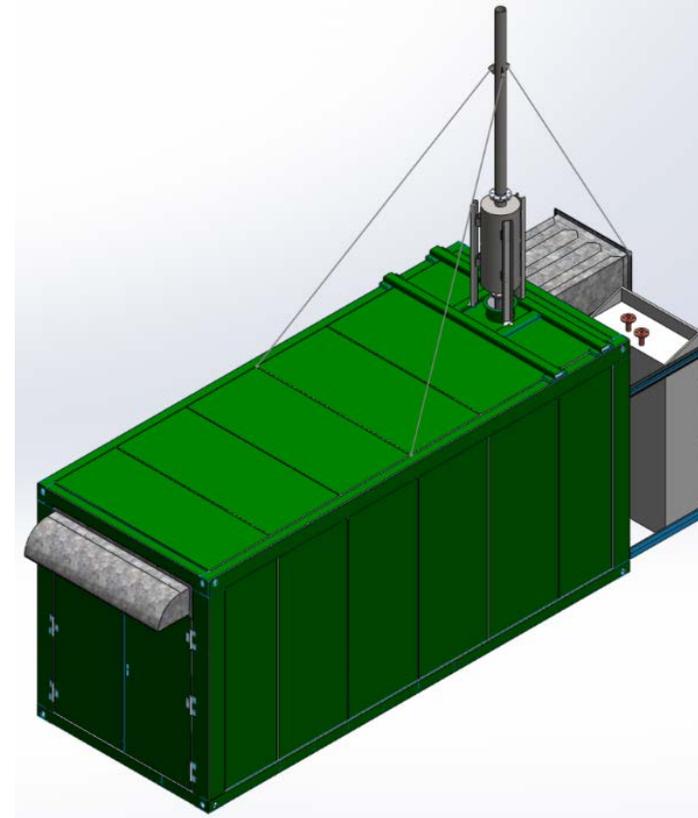
### Noise emissions

Standard: 65 dB (A)\*

Super Silent: 55 dB (A)\*

### Info:

- Sheet steel container
- Walls and roof are sound-proofed with 80mm rock wool
- Interior clad in non-woven material and galvanised perforated sheet metal
- Integrated electrical installation



\*all sound pressure levels are measured at a distance of 33ft in free field conditions



## Compact container.

### Available sizes (LWH)

23ft x 10ft x 10ft

AddOn: 31.5ft x 10ft x 10ft

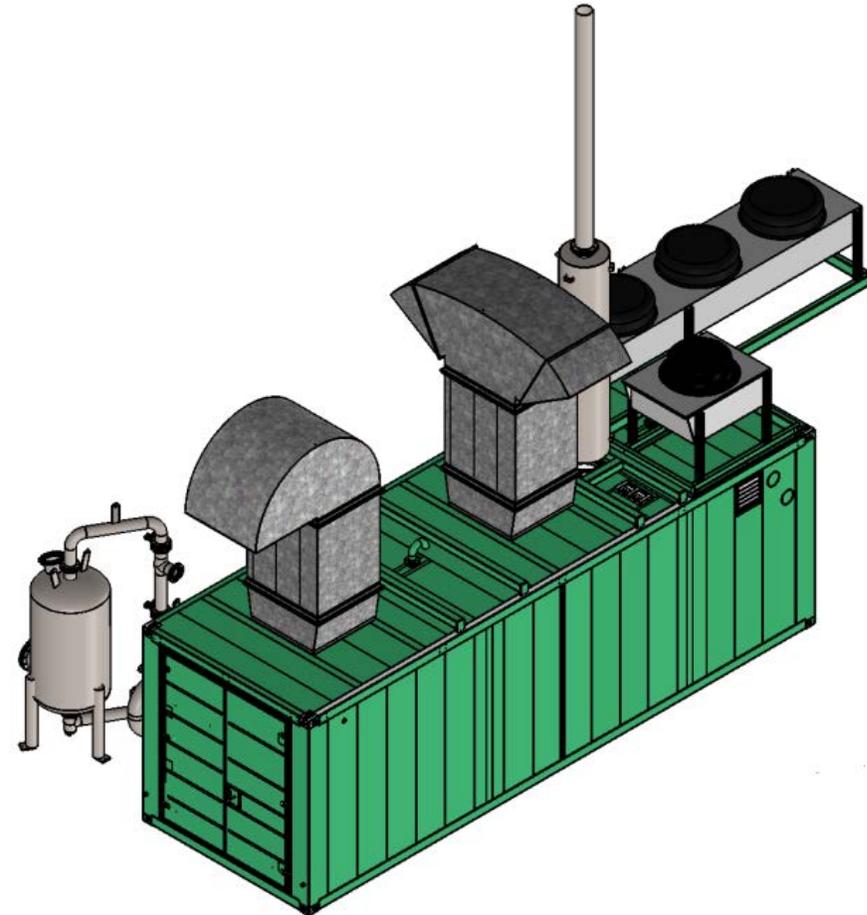
### Noise emissions

Standard: 65 dB (A)\*

Super Silent: 55 dB (A)\*

### Infos:

- Sheet steel container
- Walls and roof are sound-proofed with 80mm rock wool
- Interior clad in non-woven material and galvanised perforated sheet metal
- Integrated electrical installation



\*all sound pressure levels are measured at a distance of 33ft in free field conditions



## Highline Container.

### Available sizes (LWH)

30ft x 10ft x 12ft

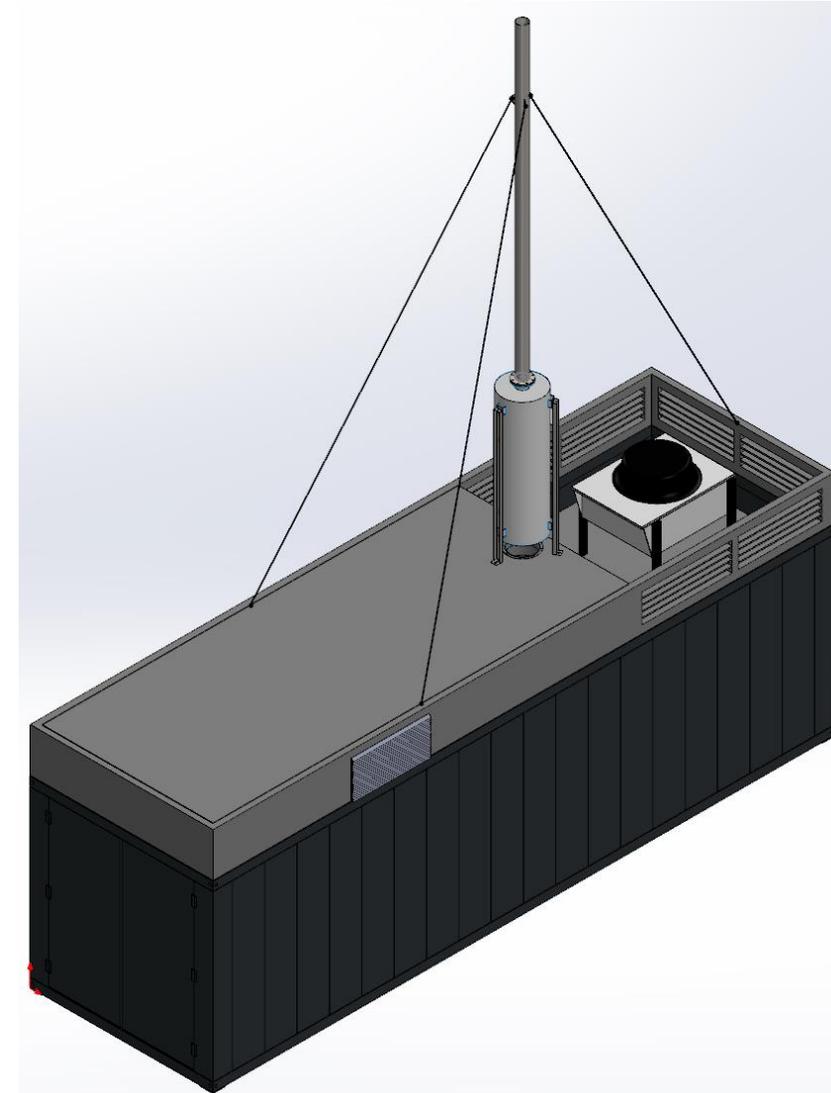
### Noise emissions

Standard: 55 dB (A)\*

Super Silent: 45 dB (A)\*

### Infos:

- Optimised design of the standard container version
- Coolers and supply/ exhaust air ducts integrated into container roof
- Frequently used in industrial zones and built-up areas



\*all sound pressure levels are measured at a distance of 33ft in free field conditions

## Heavy Container.

### Available sizes (LWH)

40ft x 10ft x 10ft

50ft x 10ft x 10ft

55ft x 10ft x 10ft

### Noise emissions

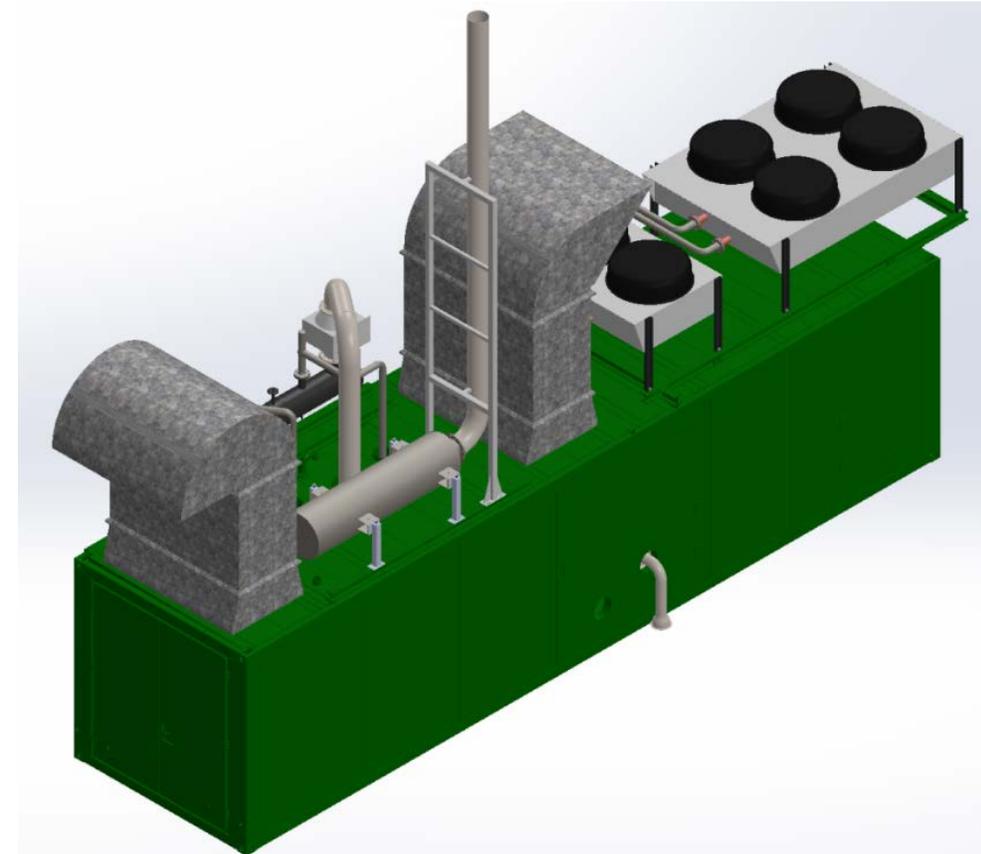
Standard: 65 dB (A)\*

Super Silent: 55 dB (A)\*

### Infos:

- Sheet steel container
- Walls and roof are sound-proofed with 80mm rock wool
- Interior clad in non-woven material and galvanised perforated sheet metal
- Integrated electrical installation
- Static calculation for weights up to 60 tons total weight

\*all sound pressure levels are measured at a distance of 33ft in free field conditions



## Warm country version.

If it gets too hot inside the engine room, electronics can be damaged. Consequences are reduced power or an emergency shut-down.

Modifications:

- Switch cabinet air conditioning system
- Combustion air cooling
- Larger emergency and mixture cooler

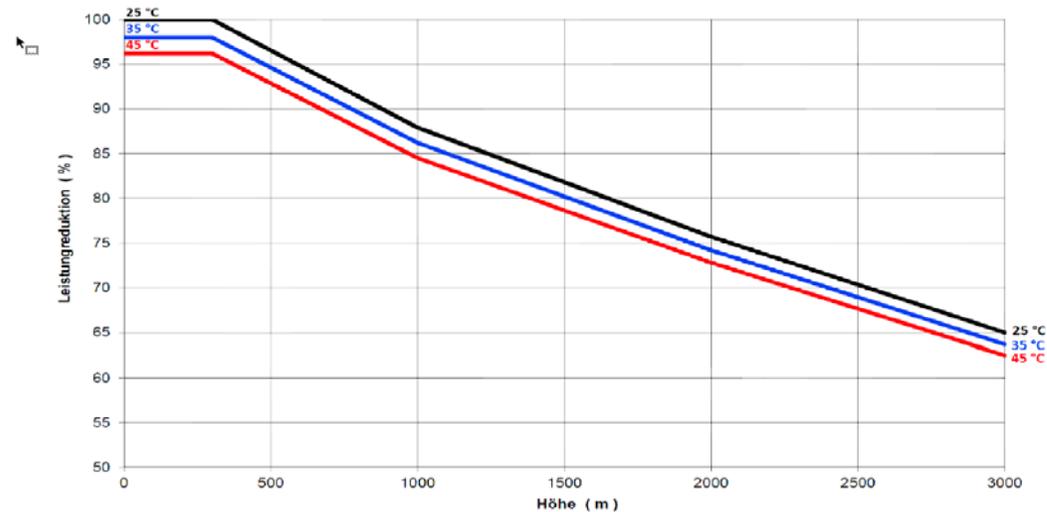
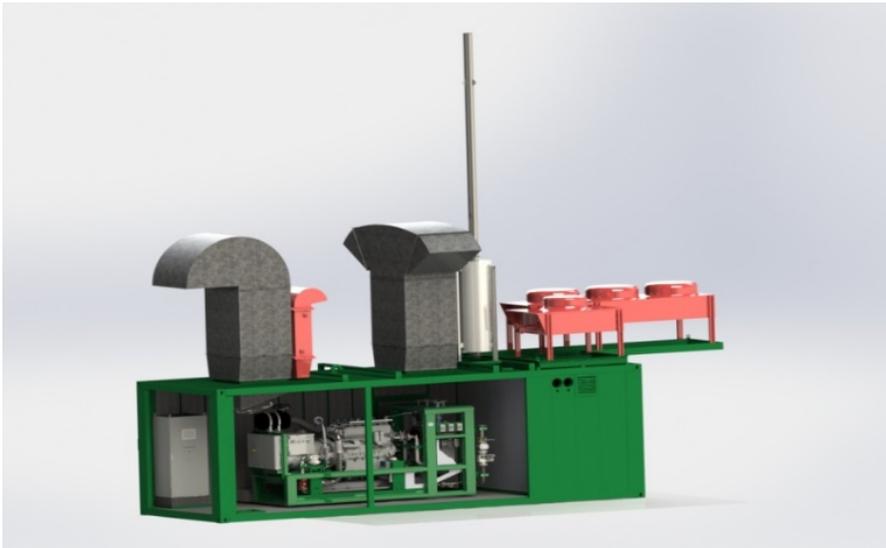


Abbildung 1: Leistungsreduktion in Abhängigkeit von Lufttemperatur und Aufstellhöhe - Magermotoren

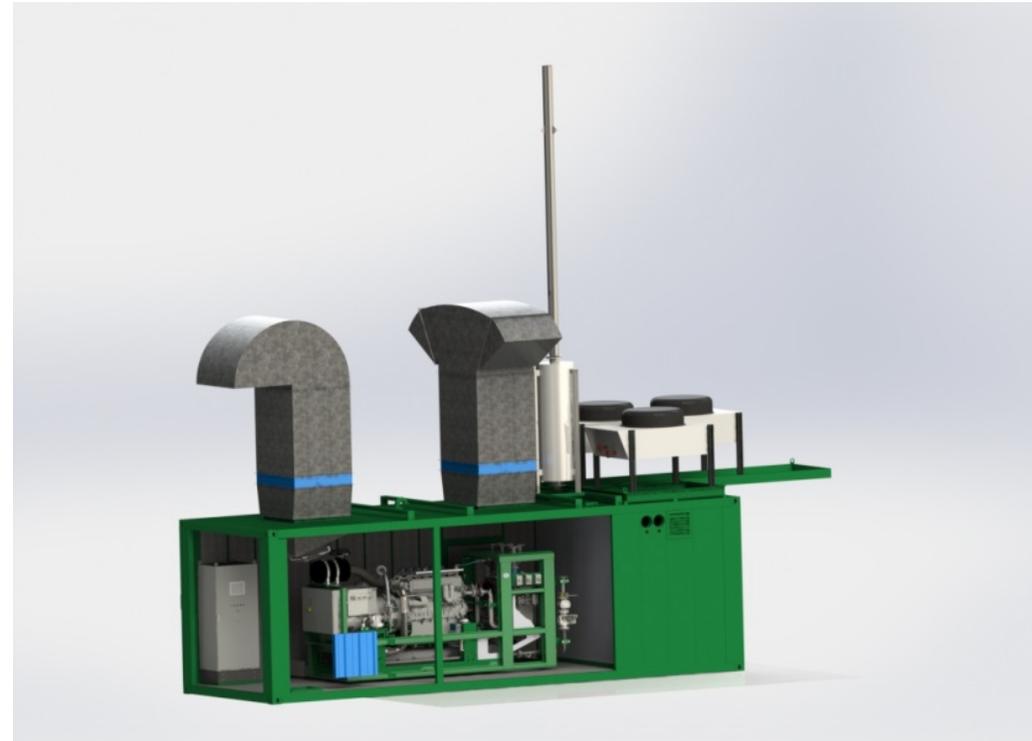


## Cold country version.

The cold country version is designed for a temperature of -31 °F and prevents damages of the components.

### Modifications:

- Air intake and outlet louvers with servo motor
- Electric engine preheating
- Electric frost protection heating
- Cover flaps on the ventilation in the oil room
- Auxiliary heating and isolation of the exhaust gas condensate line





# Case Studies



**Why CHP:** Energy savings, resiliency of being able to operate the entire hospital with loss of grid power, and lower emissions

**Fuel Type:** Natural Gas    **Application:** Hospital

**Size of CHP:** 2 x 1,560 kW

### Project Description

- Location: Salisbury, Maryland
- Facility peak load: 5 MW
- Use of thermal energy: Heating, Domestic Hot Water

### Highlights\*:

- Energy Savings Agreement (ESA) with 17% reduction in energy cost.
- CHP plant can be islanded if the electric grid fails
- Reduces greenhouse gas emissions by 50%



Two 2G Energy – 1.56 MW Packaged CHP Systems

SOURCE: UNISON ENERGY

\*Source: Mid-Atlantic CHP TAP Project Profile



**Why CHP:** Ability to fully operate hotel and convention center during a grid outage, plus significant energy savings, and environmental benefits.

**Fuel Type:** Natural Gas    **Application:** Hotel & Convention Center  
**Size:** 3 x 2,000 kW

**Project Description**

- Location: National Harbor, Maryland
- Facility peak load: 10 MW
- Use of thermal energy: Heating, DHW, and Reheat

**Highlights\*:**

- Energy Savings Agreement (ESA) with 15% reduction in energy cost.
- CHP plant can be islanded if the electric grid fails
- Reduces greenhouse gas emissions by 59%



**Three 2G Energy - 2 MW Feb 11 Packaged CHP Systems**

SOURCE: UNISON ENERGY

\*Source: Mid-Atlantic CHP TAP Project Profile



**Why CHP:** Energy savings, environmental benefits, and the ability to operate the entire hospital in case of a grid outage.

**Fuel Type:** Natural Gas    **Application:** Hospital

**Size:** 4 x 2,000 kW + HRSG + hot water

## Project Description

Installation of 4 x 2,000 kW CHP facility producing:

- 52,000 MWh electricity annually
- 12,000 lb/hr of 115 psi steam
- 14,000 MMBtu/hr hot water
- 800 tons chilled water (Future)

## Savings

- 52,000,000 kWh annually at \$0.0515/kWh
- Reduced steam need – lower boiler wear & tear
  - Steam production
  - Direct hot water to hot water heating
- Reduced electric load from offloading chillers – absorption chiller





- Showcases 2G packaged systems
- Allows channel partners to showcase 2G packaged systems
- Expands 2G's presence beyond traditional markets and locations
- Connects 2G with new Customer Engagement Partners
- Provides fair performance comparison
- Reduces risk for all parties

The screenshot displays the U.S. Department of Energy eCatalog interface for Combined Heat & Power (CHP) systems. The header includes the U.S. Department of Energy logo and the text "COMBINED HEAT & POWER eCATALOG RECOGNIZED PACKAGED CHP SYSTEMS". Navigation links include "SEARCH eCATALOG", "ABOUT eCATALOG", "ABOUT CHP", "UPDATES", "PACKAGERS & SOLUTION PROVIDERS", "CUSTOMER ENGAGEMENT PARTNERS", and "CHP TAPS".

The main content area features a sidebar on the left titled "FOCUS YOUR RESULTS" with filters for:

- PRIMARY SITE LOCATION:** Zip Code
- SUPPLIER PRIORITY:**
  - Packagers offering Recognized systems
  - Solution Providers offering, installing, commissioning and maintaining Recognized systems
  - Solution Providers offering Assurance Plans
  - Solution Providers offering Energy Services
- CUSTOMER ENGAGEMENT PARTNER:**
  - Prioritize program-eligible packaged systems
- POWER OUTPUT (kW):** kw Size

The main display shows three product cards:

- AGENTOR 412 NG:** 438 kW Power Output. Thermal Output: Hot Water Only. Fuel: Natural Gas. Prime Mover: 1x Reciprocating engine. Grid Connection: Black Start, Auto. AV, US, 108. FULL MATCH (100%).
- AVUS 1500C NG:** 1,508 kW Power Output. Thermal Output: Hot Water Only. Fuel: Natural Gas. Prime Mover: 1x Reciprocating engine. Grid Connection: Black Start, Auto. AV, US, 108. FULL MATCH (100%).
- AVUS 1500C NG (UNISON ENERGY):** 1,508 kW Power Output. Thermal Output: Hot Water Only. Fuel: Natural Gas. Prime Mover: 1x Reciprocating engine. Grid Connection: Black Start, Auto. AV, SP, AP, US, 0. FULL MATCH (100%).



Thank you very much for your attention!



2G Energy Inc. | 2G Energy Corp.  
205 Commercial Drive | St. Augustine, FL 32092  
[Sales.us@2-g.com](mailto:Sales.us@2-g.com) | [www.2g-energy.com](http://www.2g-energy.com)



## Brandon Bowser

Maryland Energy Administration

Submit Questions

[www.slido.com](https://www.slido.com) event code **#bbsummit**  
then go to room **“Packaged CHP eCatalog”**

# Maryland Energy Administration CHP & Resilience

Brandon Bowser  
June 10, 2020



Maryland  
Energy  
Administration

# Resilience Value Proposition

## GRID THREATS

severe storms cyberattacks  
high summer  
frigid winter temps

## POTENTIAL SITES

businesses  
health care  
higher learning campuses  
government facilities  
multi-family housing

## RISING TECH DEPLOYMENT

distributed energy resources (DERs)  
PV  
storage  
CHP  
grid-interactive solutions

# Incentives

MEA offers grants and low-cost financing solutions for clean energy technologies and energy efficiency upgrades

Focus on CHP Grant Program and Resilient Maryland Program

Anticipation: U.S. DOE CHP eCatalog will expedite project design

# CHP

Up to **\$500K** toward the equipment and installation costs

Both standard and innovative CHP approaches are welcomed

Minimum **60%** annual fuel use efficiency required (Electrical Output + Recovered Thermal)/Fuel Consumed)

First-come, first served basis

Two phase payout: groundbreaking (30%) and commissioning (70%)

Stackable with other incentives and capital sources (e.g. utility incentives, C-PACE, etc.)





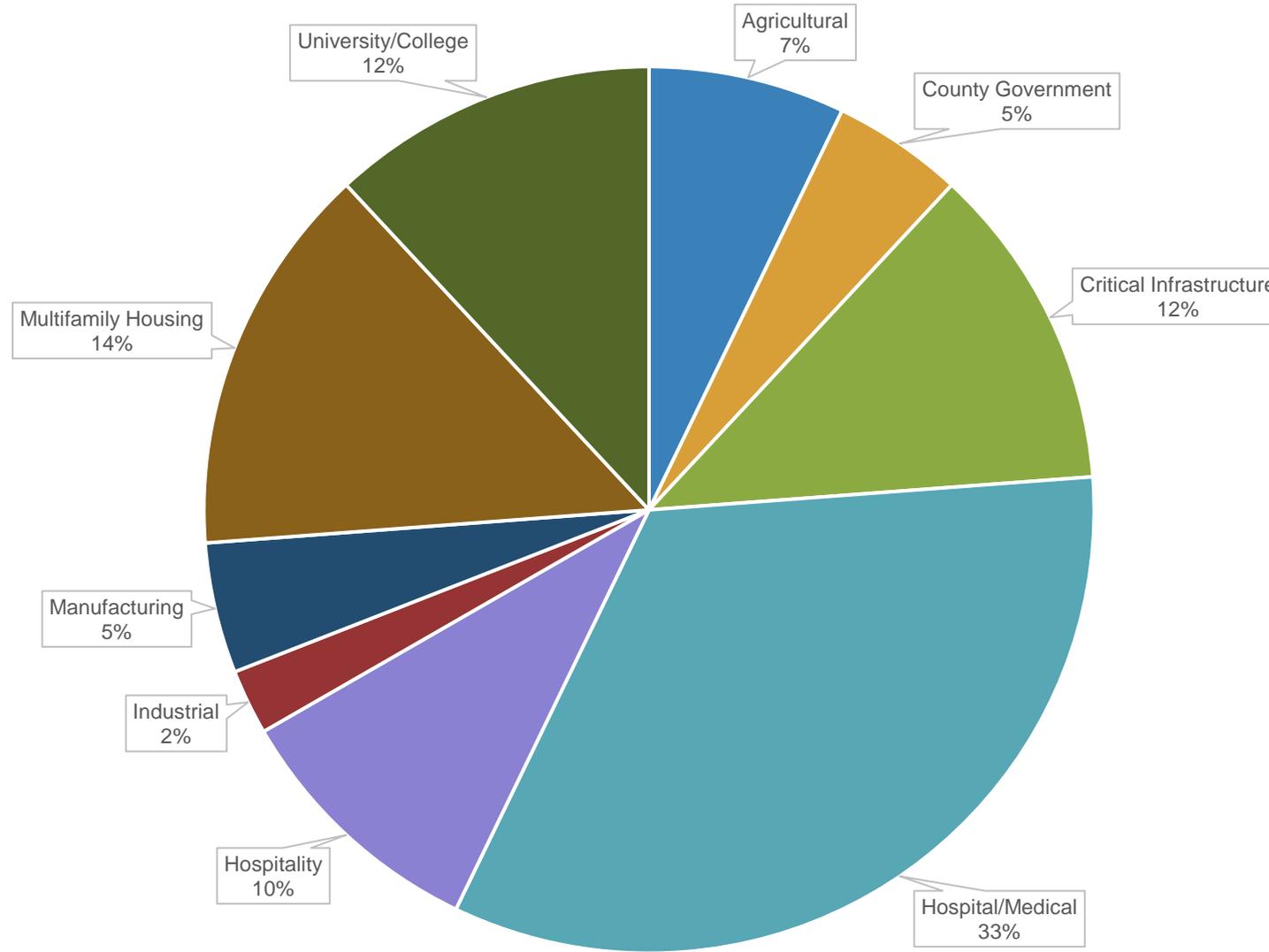
# Since FY 2015:

**42** active and completed awards

Value of over **\$13** million dollars

Broad appeal: agricultural, county government, critical infrastructure, hospital/medical, hospitality, industrial, manufacturing, multifamily housing, and university/college

## MEA CHP Total Active and Completed Awards, FY 2015 - Present



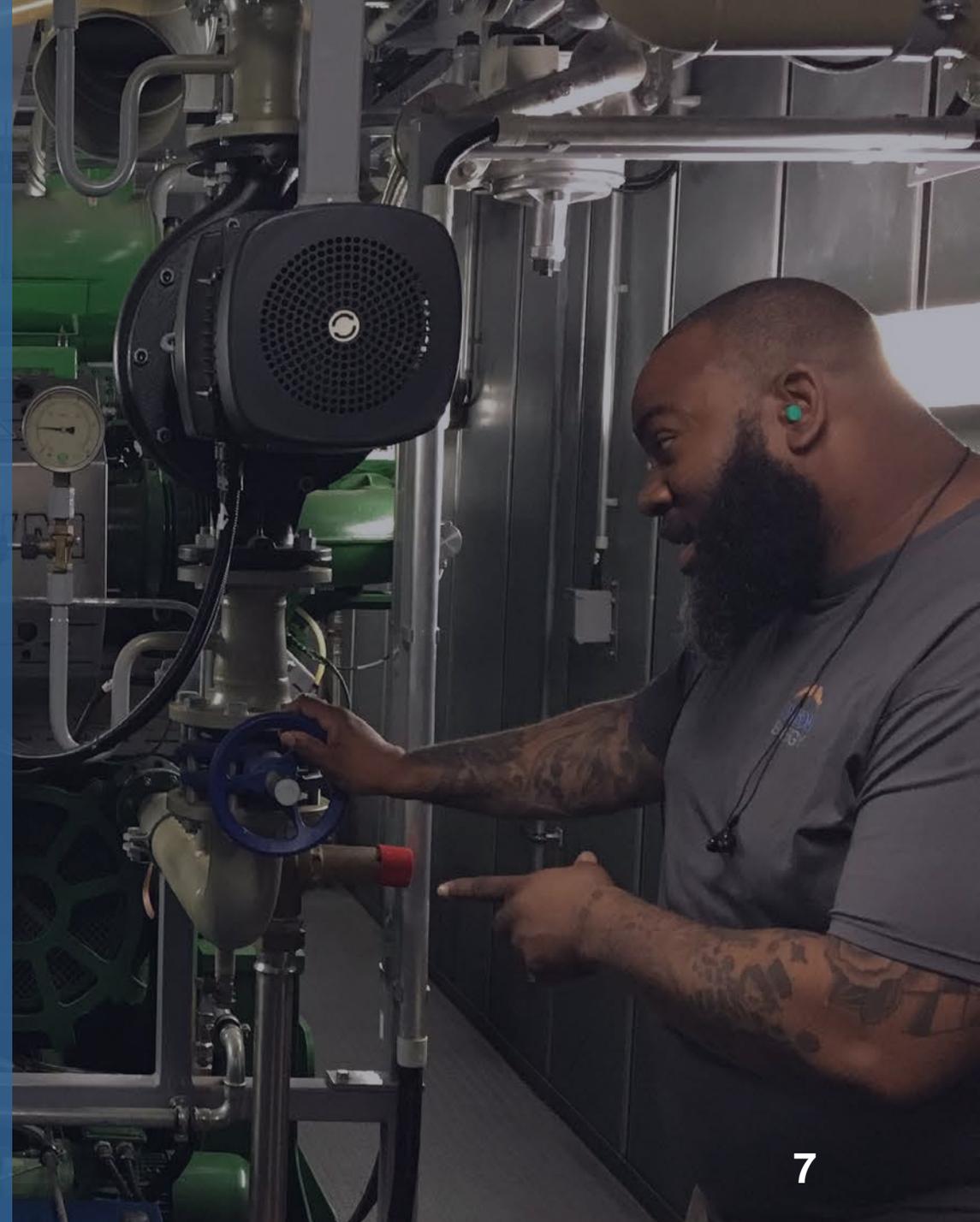
# INSIGHTS

**Influx in demand for smaller, packaged units in multifamily housing complexes (FY 2019 – 20)**

**Developers are integrating packaged CHP as part of clean, efficient facility management strategies**

**Growing emphasis on resilience benefits over economic benefits**

**Increase in thermal load-following systems to enhance resilience in FY20**



# Maryland's Holistic Approach to Energy Resilience:

# *Resilient Maryland*

MEA's grantees, applicants, and the energy industry stakeholders and influencers we have worked and partnered with note that surmounting the initial planning & design hurdle is typically the "make or break" point.

Organizational decision-makers and capital providers need proof of concept through vetted designs and modeled performance, savings, and ROI to provide buy-in

This step can be costly to adopters, who often don't have adequate access to the capital necessary to complete this phase. Provides grants for DER system feasibility analysis, engineering, and design to help get projects to "shovel-ready"

# Resilient Maryland Program Operation

## Four Areas of Interest (AOIs)

**AOI 1: Community/Campus Microgrid Planning (Up to \$100,000 per Project)**

**AOI 2: Resilient Facility Power System Planning (Up to \$25,000 per Project)**

**AOI 3: Advanced CHP Planning & Design (Up to \$10,000 per Project)**

**AOI 4: Resiliency Hub Planning & Design (Up to \$10,000 per Project)**

**Grantees will use funds to complete a set of final project deliverables**

**Detailed Feasibility Report**

**Preliminary Engineering & Designs**

**20-Year Pro Forma Financial Model**

**Greenhouse Gas Reduction Report**

**Implementation Barriers Report**

# Resilient Maryland Response

## 25 unique project proposals

Applicants demographic: government (fed, state, local), agricultural, low-to-moderate income (LMI), multifamily housing, food processors, universities, essential infrastructure, businesses, and nonprofits

15 Projects awarded for a combined total of \$1.15 million of state investment

Grantees will be prepped for equipment procurement and system installation

Lessons Learned - replicable and scalable DER system models + insights into common project barriers

# CHP eCatalog Benefits

Functional and intuitive user interface

Highly-customizable search filters make planning unique energy profiles and building characteristics seamless for managers

Pre-vetted DOE technical metrics, eliminate engineering / design costs

These benefits pair well with the holistic energy management goals of Maryland's rate base

# Long-term Goals

Large need for replicable, scalable, and cost-effective DER system designs in Maryland

Enormous potential for eCatalog to serve as a nonbiased & accredited tool in this endeavor

Trusted engagement partner, drive eCatalog development and outreach



**Questions?**

**Maryland  
Energy  
Administration**

**BrandonW.Bowser@Maryland.gov  
443-306-0304**

**Energy.Maryland.gov**



**Maryland  
Energy  
Administration**

# Q & A

Submit Questions

[www.slido.com](http://www.slido.com) event code **#bbsummit**,  
then go to room **“Packaged CHP eCatalog”**

# Better Buildings: Summer Webinar Series



**BEHIND THE METER  
DISTRIBUTED ENERGY  
RESOURCES:**  
BEST PRACTICES FOR INTEGRATING  
DERS INTO COMMERCIAL BUILDINGS

July 8



**NEXT-GENERATION BUILDING  
PERFORMANCE POLICIES:**  
MAXIMIZING ENERGY SAVINGS AND  
ENVIRONMENTAL IMPACTS

July 16



**EVERYONE HAS A  
DATA CENTER:**  
HOW TO BE AN ENERGY  
CHAMPION FOR YOURS

July 28



**PROGRAM DESIGN WITH  
EVERYONE IN MIND:**  
LOW-INCOME SOLAR  
PROGRAM STRATEGIES

July 9



**STRATEGIES TO COMBINE  
ENERGY + HEALTH UPGRADES  
IN MULTIFAMILY HOUSING**

July 21



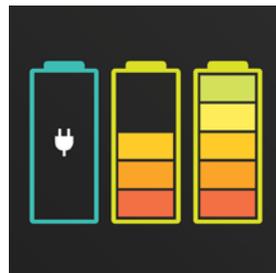
**SUCCEED WITH  
SUBMETERING:**  
HOW TO MAKE THE BUSINESS CASE

August 4



**THE DYNAMIC DUO:**  
UNLEASH PUBLIC SECTOR ENERGY  
SAVINGS WITH FINANCING AND  
TECHNICAL ASSISTANCE

July 14



**CASE IN POINT:**  
OREGON'S RECENT EFFORTS TO  
REDUCE PLUG LOAD ENERGY  
CONSUMPTION

July 22





# BETTER BUILDINGS SOLUTION CENTER

# Additional Questions?

Please Contact Us



Follow us on Twitter  
[@BetterBldgsDOE](#), [@BetterPlantsDOE](#)



Better Buildings Solution Center  
<https://betterbuildingsolutioncenter.energy.gov/>



General Inquiries  
[betterbuildings@retechadvisors.com](mailto:betterbuildings@retechadvisors.com)



Program Support  
[ksanderson@retechadvisors.com](mailto:ksanderson@retechadvisors.com)



Richard Sweetser  
Exergy Partners Corp.  
[exergypartners@outlook.com](mailto:exergypartners@outlook.com)



Aaron Tasin  
2G Energy Inc.  
[a.tasin@2-g.com](mailto:a.tasin@2-g.com)



Brandon Bowser  
Maryland Energy Administration  
[brandonw.bowser@maryland.gov](mailto:brandonw.bowser@maryland.gov)



Bruce Hedman  
Entropy Research, LLC  
[bhedman.entropyresearch@gmail.com](mailto:bhedman.entropyresearch@gmail.com)