

# The Nation's Largest Renewable Energy Powered Transit Depot with On-Site Green Hydrogen Production

Equipment Maintenance & Transit Operation Center (EMTOC)  
Montgomery County, MD

## Revolutionizing Sustainable Transportation: AlphaStruxure's Hydrogen Powered Microgrid and Charging Solution

### Challenge:

- Montgomery County, Maryland is a national leader in responding to the challenge of climate change with goals to reduce greenhouse gas (GHG) emissions 100% by 2035
- The County wants to transform their Equipment Maintenance & Transit Operation Center (EMTOC) into a self-sustaining bus depot to power a mixed fleet of 200+ buses with renewable energy.
- Incorporate green hydrogen production to support fuel cell electric buses (FCEBs) and enhance the county's Bus Rapid Transit (BRT) network.
- Uninterrupted transit bus services under any power circumstances are required to ensure a ready supply of sustainable, resilient, and cost-effective power for the new bus fleet

### Solution:

- Montgomery County leveraged its progressive energy purchasing regulations to create a public-private partnership with AlphaStruxure to design, build, finance, own, and operate the Microgrid
- The 7MW microgrid will consist of 5MW of solar, 2 MW/7.35 MWh battery energy storage, and 4.5 MW of charging capacity
- An on-site electrolyzer powered by solar and battery energy storage will enable green hydrogen production to support FCEBs
- The microgrid will be interconnected to the utility but engineered to operate in island mode, ensuring uninterrupted service during power disruptions
- The solution is delivered at no upfront cost through a Energy as a Service agreement, ensuring predictable operating expenses and guaranteed performance for sustainability, resilience, and reliability

### Results

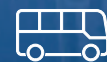
**The largest**  
self sustaining bus depot in the nation,  
powered by renewable energy

**First on the east coast**  
to feature green hydrogen production

**4,000 metric tons**  
reduction in scope 1 and 2 CO2 emissions



**100% Operating Capacity**  
in the event of extreme weather  
events or power outages



**Operational flexibility**  
with full control over dispatch and  
bus routing



**Long-term cost predictability**  
of energy supply



# Resilient Microgrids for Transit

## Smart Energy Bus Depot Visualization

### 1. Solar canopy

Solar photovoltaic canopy provides cost-effective and predictable clean energy

### 2. Energy control center

Schneider ECC delivers autonomous microgrid solutions managing multiple energy sources and prioritized loads

### 3. Battery storage

Battery energy storage optimizes energy utilization, maximizing on-site renewables usage

### 4. EV chargers

Pantograph and multi-dispenser chargers provides comprehensive charging solution for eBus fleet

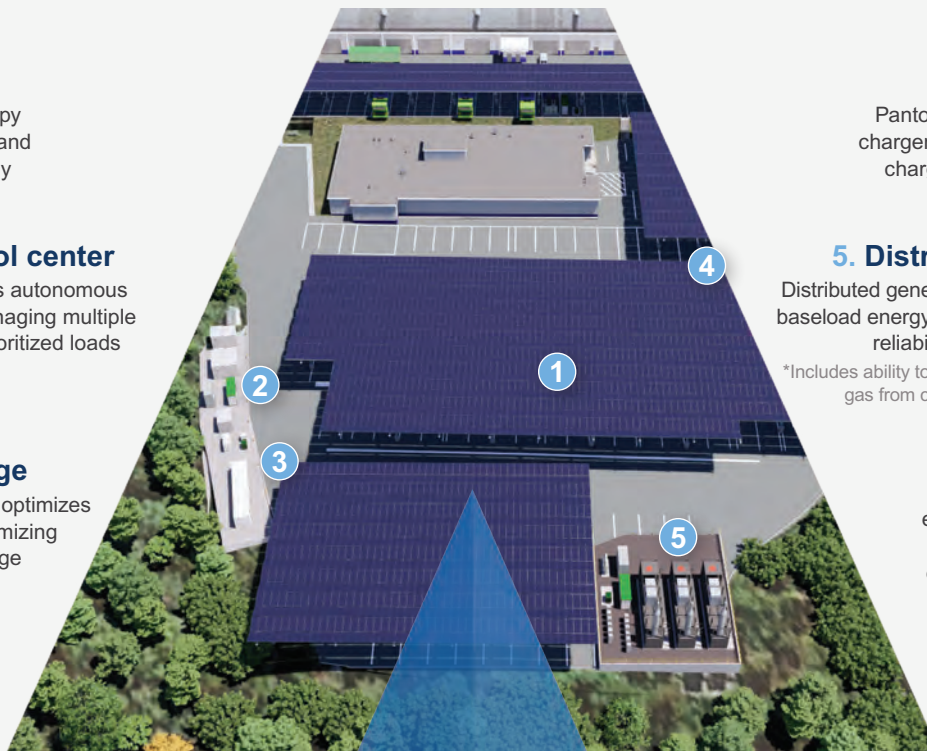
### 5. Distributed generation

Distributed generation provides low-carbon baseload energy\* while ensuring resilience, reliability, and guaranteed uptime

\*Includes ability to incorporate renewable natural gas from county and state waste streams

### 6. Remote control

AlphaStruxure's Integrate end-to-end, multi-microgrid platform and network operations center provides digital optimization and system management



## AlphaStruxure

AlphaStruxure helps organizations achieve ambitious, tailored energy transformations — without the CapEx or complexity. As owners of our clients' Energy as a Service systems, we're fully accountable for your long-term goals around resilience, reliability, greenhouse gas reduction, and cost stability. **Here's how:**



### Design

We design and engineer tailored energy infrastructure to achieve your goals for greenhouse gas reduction, resilience, reliability, and cost stability.



### Finance

Direct access to strategic capital from Carlyle removes funding roadblocks and reduces financial risk to accelerate your energy transformation.



### Build

Partnering with industry experts, we manage your energy infrastructure construction to ensure an efficient, safe, and streamlined build process.



### Own

We are accountable for the energy infrastructure across its lifecycle, and which means we hold a long-term interest in your success.



### Operate

We operation assets through our digital platform and Microgrid Network Operating Center to deliver long-term outcomes.



### Maintain

As experts in the evolving technology landscape, we deliver zero CapEx asset optimization and upgrades.



CARLYLE

As a steadfast innovator in the new energy landscape, AlphaStruxure's joint-venture model combines Carlyle's capital backing with Schneider Electric's 185+ year legacy and track record as the #1 microgrid technology provider, with 350+ successful projects in North America.

Contact us at [info@alphastruxure.com](mailto:info@alphastruxure.com) to learn more.  
[alphastruxure.com](http://alphastruxure.com)

One Boston Place  
201 Washington Street, Floor 27  
Boston, MA, 02108 United States