



By Consolidated Energy Design, Inc.



Mgmt.: NAI Emory Hill Real Estate Group
7250 Parkway Drive, Hanover, MD

Project: **FADRS® Near Net Zero** (pronounced faders)
Smart Grid Technology Showcase utilizing patented Artificial Intelligence, Prediction & Human Centric Technology.

Contractors:
Consolidated Energy Design (Patent Holders)
Third Party BAS Contractor (Installation)

Funding Agency:
C-PACE funding through Counterpointe
Sustainable Real Estate and incentives from
Maryland Energy Administration (MEA) and
Baltimore Gas and Electric

PRE-Conditions: 5 Story Tenant Occupied Office Building; 81,000 square feet.
85 Water Source Heat Pump System
Typical Building Automation System (BAS) for space heating/cooling.

POST-Conditions:

- DEEP Lighting and Plug load Retrofits
- FADRS® Next Generation Enhanced BAS
- Distributed Generator
- Solar PV (minimum requirement of 72 KW)
- FADRS® Painless Demand Response®
- ~105 Power Quality Sub Meters
- Battery Energy Storage System (BESS)
- EV Charging Stations

ALL ECMs either overlaid on top of existing BAS or reporting to existing BAS.
FULLY AUTOMATED control (No Human Intervention). Bidirectional control in real-time.

Completion Date: **FADRS® Near Net Zero Enhanced Building Automation System Performance:**
Enhanced Energy Savings from April 1, 2022, to March 31, 2023

Normalized Baseline (NBL) for HVAC, Plug Loads & Lighting = 1,580,909 kWh (\$185,915)
AI Achieved Maximum Energy Savings by March 31, 2023
823,218 kWh (\$79,111) = 47%

FADRS® Painless Demand Response® Performance:
(12/24/22 Winter Capacity Event)
139 KW down to 0 KW AC (This Event lasted 15 hours) = **100%** DR Reduction



ELECTRIC SAVINGS AT MEA PROJECTS

Building 7250

April 2022 to March 2023	KWh (NBL)	Dollars	Dollars/SF (81,000 SF)	KWh W/FADRS®	Dollars W/FADRS®	Dollars/SF (81,000 SF)	KWh Saved	\$ SAVED	% SAVED
	1,540,177	\$ 148,011	\$ 1.83	823,218	\$ 79,111	\$ 0.98	716,959	\$ 68,900	47%

The system achieved average energy savings of **47%** by the end of March 2023 utilizing our patented Essential FADRS® AI prediction and human-centric technology to operate the building in a more efficient manner. The AI functionality of our system learns how to improve operations and increases the annual percentage of energy savings over time.

DEMAND RESPONSE EVENT

The PJM Grid called for a Demand Response Winter Capacity Event at 6:00 am on December 24, 2022. It lasted for 15 hours ending at 9:00 pm. We islanded the building from the grid and participated 100%. At the start of the event the building was using 139 KW and we dropped to 0 for the entire event.

The Peak Market Price on a typical day is between \$.03 to \$.05 / kWh but during the event, the Peak Price rose to \$2.10 / kWh.

