

December 2, 2021

Presented by:  
Dr. Edward Bouquillon  
Gregory Joynt



**K**AESTLE BOOS  
associates, inc

# PAYING FOR ENERGY USE REDUCTION AND ENERGY GENERATING

Minuteman Regional Vocational Technical School District

A REVOLUTION IN LEARNING



**Edward A. Bouquillon, Ph.D.,**  
*Superintendent-Director*  
Minuteman Regional Vocational Technical School District

Dr. Edward Bouquillon is the Superintendent-Director of the Minuteman Regional Vocational Technical School District in Lexington – a role he has held since 2007. “Dr. B” has more than three decades of experience in the administration of career and technical education. While at Minuteman, he oversaw the 12 year district wide approval process resulting in the opening of the new school in 2019. The district has received numerous state and national recognitions for its academic rigor, including a 2018 National Blue Ribbon School designation, and in 2020, the Massachusetts Reading Association honored Minuteman with its Exemplary Reading Program Award.



**Kathleen Bouchard, M.Ed, C.A.G.S.**  
*Interim Principal and Director of Career Technical Education*  
Minuteman Regional Vocational Technical High School

Kathleen Bouchard is the Interim Principal and Director of Career Technical Education at Minuteman Regional Vocational Technical High School in Lexington. Ms. Bouchard has worked for Minuteman since 2009. She served as an Early Education and Teaching instructor for several years before becoming the Assistant CTE Director. She was named Director of CTE in July 2020. Bouchard was named Interim Principal in October 2021.



**Gregory Joynt, AIA, LEED BD+C**  
*Associate Principal*  
Kaestle Boos Associates, Inc.

Gregory Joynt is an Associate Principal for Kaestle Boos Associates, Inc. where he has overseen multiple large scale and technically complex projects Since joining KBA in 2007. Greg work includes the additions and renovations of the Bay Path Regional Vocational Technical High School in Charlton, along with multiple Public Safety, municipal and school district projects. Greg was the Project Architect for the construction of the new Minuteman Regional Vocational Technical High School.



# PHOTOVOLTAIC SYSTEM - GOALS

Dr. Edward Bouquillon  
Superintendent-Director



- Lead by Example
- Provide Teaching Opportunities
- Reduce Carbon Impact
- Reduce Operating Cost
- Limit Project Budget Impacts





## District Owned PV

- Benefits
  - No 3<sup>rd</sup> party power agreements.
  - No easements
  - Retain Environmental attributes
- Challenges
  - Upfront funding
  - Bonding costs

## Purchase Power Agreement (PPA) Bid

- Benefits
  - No up-front costs
  - Most competition
- Challenges
  - Timeframe
  - Smaller System Size

## Purchase Power Agreement (PPA) Power Options

- Benefits
  - Known Vendor
  - Upfront procurement completed
  - Design input
- Challenges
  - Environmental Attributes belong to the PPA vendor
  - District must join the consortium





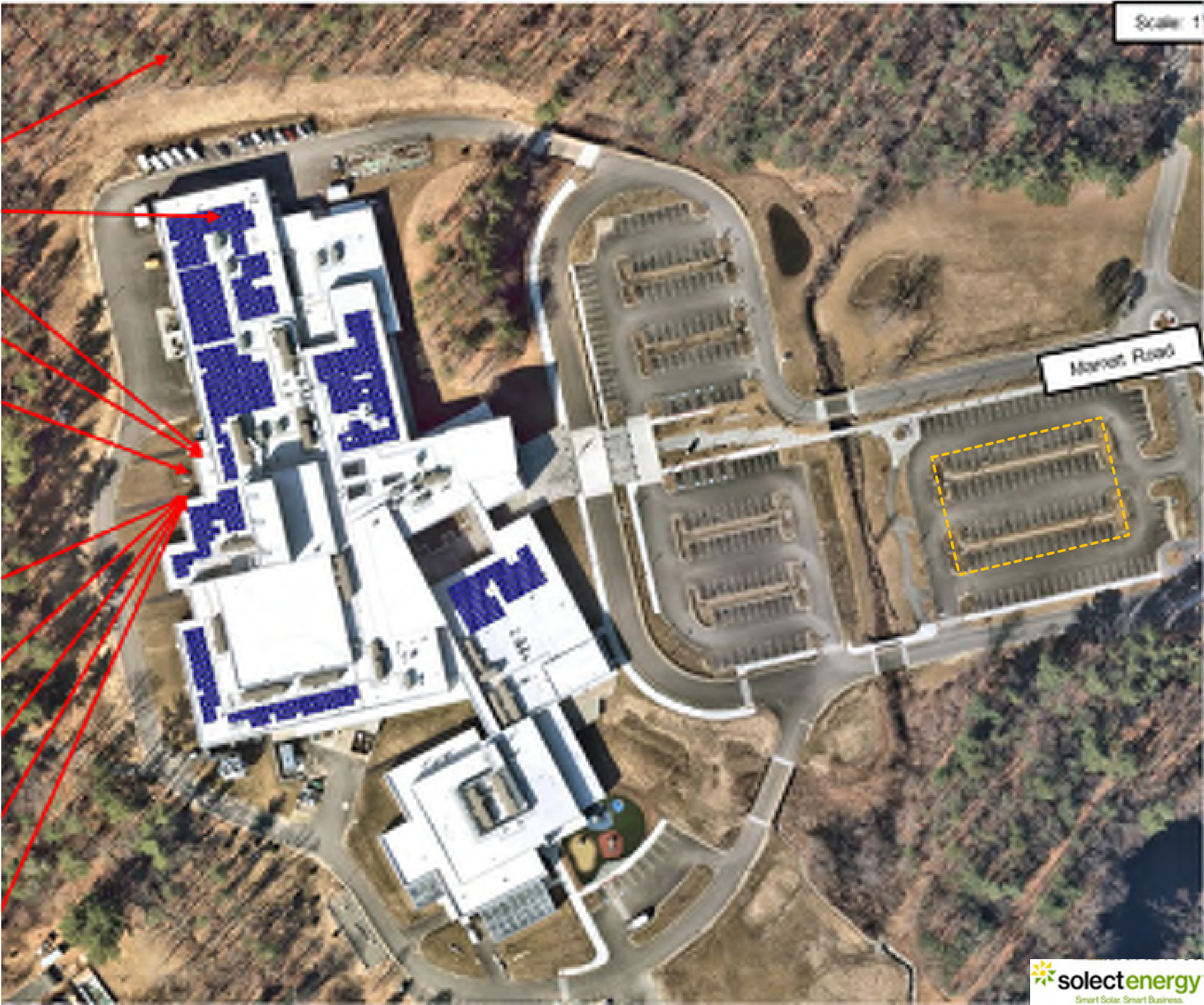
# PHOTOVOLTAIC SYSTEM – PPA DETAILS

Greg Joynt  
Architect



System Size: 250kW AC  
374kW DC  
Avg. Annual Production:  
397kWH  
Behind the Meter

Projected Cost Reduction\*:  
Annual: -\$28,500  
20 Yr. Life: -\$570,000  
\*85% guaranteed



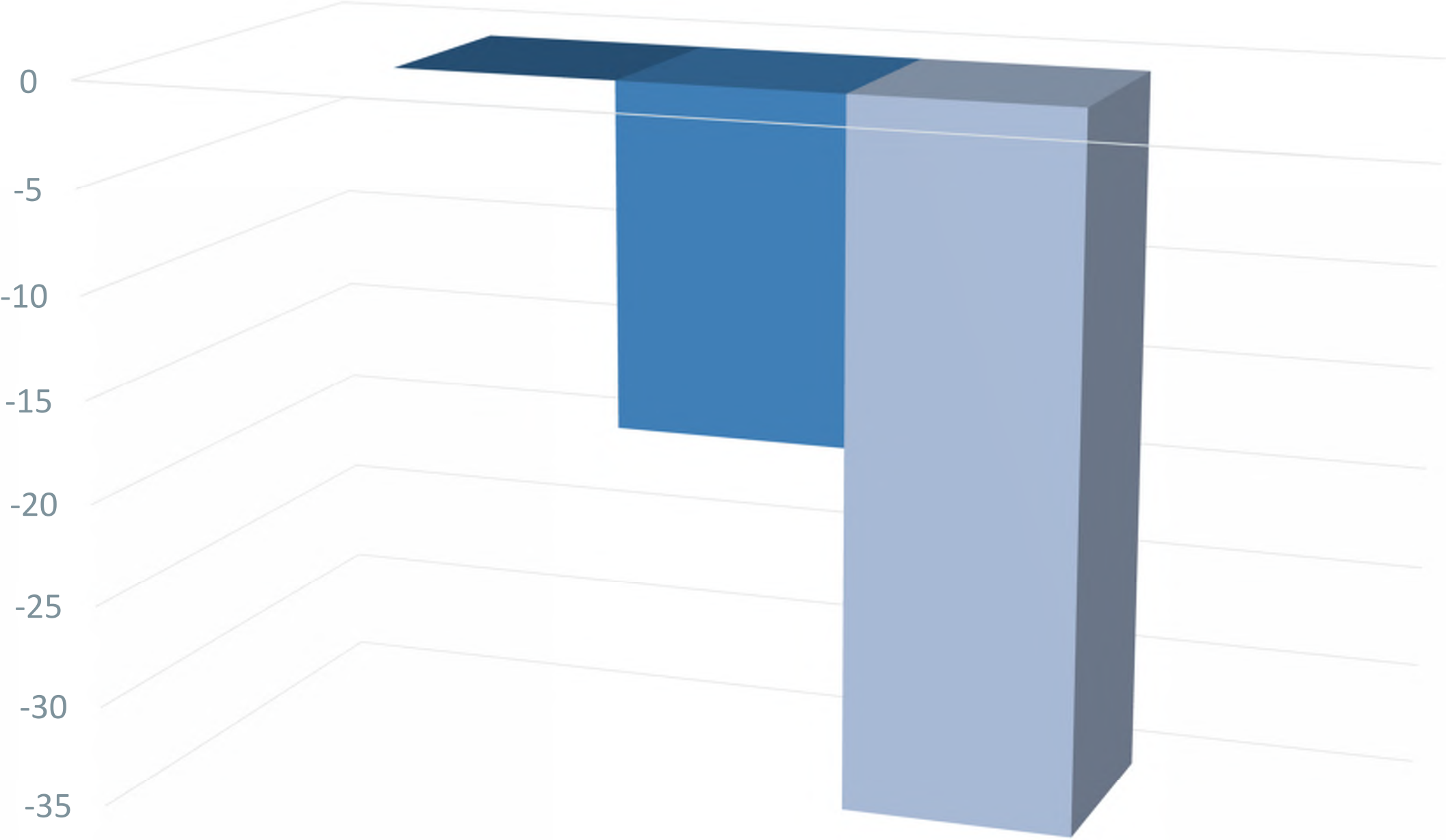
# PHOTOVOLTAIC SYSTEM – PROJECT IMPACTS

Greg Joynt  
Architect



Energy Savings by Cost (all energy)  
Without PV: 16.3% Below Code Baseline  
With PV: 33.8% Below Code Baseline

LEED Energy Performance Impacts  
Without PV: 6 points  
With PV: 13 points + 1 Regional Priority



■ Base Case   ■ Design Without PV   ■ With PV



# PHOTOVOLTAIC SYSTEM

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Superintendent-Director



**MINUTEMAN**  
A REVOLUTION IN LEARNING

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**THANK YOU!**