



Norfolk Aggie – Agricultural (Ag) Solar Opportunity



July 26, 2022

Ag Solar



- New approach and a New Project that integrates into the original Norfolk County and Aggie Sustainability Initiative
 - Extending Educational Component of North Street
 - Add to experiments with Pollinator Species
- Excellent Fit with Aggie Curriculum
 - Learning Experience
 - Design to Completion to Operations
- Cutting edge, positions Aggie as a leader in sustainability and agri-voltaics
- Marketing/Partnering Opportunity
 - Integration with UMASS-Amherst
 - Partner with construction contractor to offer internships through construction phase with eligible students / graduates
- Involves multiple disciplines at Aggie
 - Forestry
 - Environmental Science
 - Sustainable Farming
- Expands available land for haying and agriculture and provides energy, rent and restoration of proposed location

Environmental Benefits

Fisher St. 1 MW AC Ag Solar: Carbon offsets and Equivalencies: 1,769 tons CO2 annually offset

Carbon sequestration equivalent is **1,967 Acres** vastly offsetting **4 acres of 2nd growth trees** removed



Taking 349 passenger vehicles off the road



The electricity use of 292 homes



Consuming 180,620 gallons of gasoline

The MA DOER Agricultural Solar Opportunity



- Massachusetts DOER SMART AG Solar program encourages development of solar + agriculture solutions
- What is AG SOLAR:
 - Built on current Farmland
 - Raised structure that allows for agricultural workers and / or machinery (8-10ft)
 - No more than 50% shading
 - A crop and farming plan endorsed by MDAR and UMass Amherst to ensure viability
 - An ongoing monitoring / research program delivering an annual scorecard to the DOER / UMass Amherst and MDAR
- Following initial discussions with MDAR and DOER and Aggie, there are significant teaching / research potential

History: 5 years of Consultation, Discussion, Site walks and Refinement with the working group

Q3 '17 – Q4 '18



Q1 '19 – Q4 '20



Q1 '21 – Q2 '22



“AG” Aggie Solar is a Unique & Exciting Opportunity Revised Layout July 25, 2022



- Aggie “AG” system would be ~ 1.0MW AC (reduced to allow for proper distancing from abutters)
- No fence lines around the array
- Existing haying operations would continue and could be expanded to experimental cropping
- Kearsarge will collaborate with the Aggie team in designing the array to suit the cropping plan and will bring in outside experts to assist
- Collaboration with UMass / MDAR / DOER on the opportunity
 - Potential to publish Results and Papers
- An Ag Solar style facility will position the **Norfolk Ag school** as a leader in studying and promoting agriculture and renewables

The Details



Dimensions:

Array would "sit" on ~ 7 Acres, overlapping ~ 4.5 Acres of existing field
With no fences, total farmable field space would increase from ~9 Acres to ~13 Acres
Minimum setbacks 100 feet from all property boundaries, larger setbacks close to 170 feet in southern wooded area

Row spacing, height and tracking:

Final row height and spacing will be based on farm equipment needs / Aggie input

- Currently panels set to 11ft high and 20+ feet rows
- Tracking system used to increase production, minimize shade (<50%) and allow for equipment movement
- Turn arounds of 50ft (min) at either end of the rows for equipment



Tracker system to maximize clearance and kWh



Hands on learning opportunity



Sized to allow equipment under panels



Rows wide enough for equipment

Clearing:

Working with the Aggie forestry team, ~ 4 Acres of 2nd growth / harvestable evergreen timber would be removed
Important plantings in the South East have been identified and will be avoided

Minimum Array Setbacks



- Distance to neighboring property boundaries is a minimum of 100ft and up to 200+ ft.
- Kearsarge will add screening as needed during site plan review
- Array is located outside all environmental buffer zones
- Will allow for continued use of the fields and trails for school activities, including:
 - Annual Hay Ride
 - Cross Country training and events
 - Farming and Hay Production