



# Geneseo

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To Whom it may concern,

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The Geneseo energy garden (eGarden), is an innovative and unique facility whereby environmentally friendly and sustainable ideas can be put into practice by students with the help of faculty and college staff. It also acts as a demonstration field station where pedestrians and visitors can view a variety of experimental projects in a highly visible area of the campus. In doing so, this encourages them to be mindful of the environment we live in and informs them of the new and exciting practices that they might undertake on their own. Frequently, these visitors become involved and design their own eGarden projects. Currently we have more than a dozen students from biology, biochemistry, chemistry, English, math, and physics working in the eGarden and the numbers are growing every month.

The State University of New York at Geneseo has allocated a one acre plot on campus, for the eGarden. The eGarden will someday be run off-grid and act as a sustainability demonstration project. It will also be used as a learning facility for students and as a research field station for faculty and local entrepreneurs. During the next few months a 3.5 Kilowatt, 12 foot diameter wind turbine will be mounted atop a 60 foot high steel mono-pole and begin to generate electricity for eGarden use. During the summer of 2016 a 0.5 KW direct solar water heating system capable of generating 120 degree water will be deployed and two 1.2 kilo watt sun tracking photovoltaic solar-panel arrays will be generating electrical energy for the eBarn. Several Solar Air-Heaters have been built and operated by students to aid in the heating of the eBarn. When complete, the eBarn will house battery storage, power convertors, computers and other electronic devices for

monitoring and controlling the facilities energy collectors, faculty lighting and building heating. A composting facility within the eBarn will utilize black soldier fly larvae as a means of converting pre and post-consumer food waste into a liquid fertilizer and a high protein animal feed. The food waste will be collected from the dining halls and delivered to the eGarden by a diesel truck that has been converted to run on waste vegetable oil. Initially the waste vegetable oil will come exclusively from the dining facilities on campus but eventually will be supplemented by local businesses as well, allowing for community engagement in Geneseo's sustainability initiatives. The additional oil gathered from these businesses will be used to fuel a vegetable-oil electric generator and furnace that will supply electricity and heat to the eBarn. In addition, four small ponds have been built to cultivate algae. The Algae will be chemically converted into bio fuel that can be burned in the eBarn's waste oil furnace. Recently two new projects have been undertaken. Students have added solar power to the eGarden's club car (golf cart). The eCart is being used as a platform to determine energy utilization as a function of speed and path. A parabolic solar cooker was recently purchased and has been demonstrated to students on the upper quad of the campus. Free black bean burgers BBB's, were given to students when they stopped by the cooker and eCart which were on display. Many of the students asked questions about the eCart, solar cooker and eGarden. The cooker and eCart have been used as excellent advertisements for the eGarden.

The use of eGarden is a collaborative effort between college faculty, campus facilities services, students, administrators, Campus Auxiliary Services (aka. Food Services) and the office of sustainability. It is a well-integrated effort using the skills and knowledge of the campus community to educate students and the public.

Sincerely

Dr. Stephen Padalino

Distinguished Teaching Professor of Physics