



Solar & Wind Energy Systems

PROJECT PROFILE



Photovoltaic Array

Apex Engineering & Management, Inc. was retained to provide engineering services for the permitting, bidding and construction phases for three power generating systems for Northwestern Michigan College's M-Tech facility in Traverse City.

The solar photovoltaic (PV) array is supported by a structural steel frame and concrete pier type foundations. The PV array is connected to the Traverse City Light & Power grid and provides supplemental source of electricity to the adjacent M-Tech facility.

The solar thermal panels are installed with structural steel channels and pipes that allow the panels to rotate about a top hinge. This allows the panels to be adjusted to the sun's rays to be as efficient as possible with the different seasons. The panels are placed in the "down" or "vertical" position to eliminate significant loads due to snow in the winter. The solar thermal tube panels are connected to the adjacent M-Tech facility to provide supplemental hot water and heating.

The wind power generator main tower and guy wires are supported by reinforced concrete footings. The generator provides supplemental electricity for the NMC University Center.

Project:	Solar-Wind Generation Systems (M-Tech)
Location:	Traverse City, MI
Owner:	Northwestern Michigan College
Contact:	Bill Queen
Contractor:	Various
Project Type:	Green Technologies
Structural System:	CMU Walls Structural Steel Frame Concrete Foundations
Completion date:	October 2006



Solar Thermal Tube Panels



Wind Power Generator