

Environmental Engineering Seminar Series

Speaker: **Prof. Loring F. Nies**

Tuesday, October 15, 2:30 p.m, in HAMP 1113

Title: Feasibility Analysis for Solar-Powered Passenger Transportation in Urban America

Passenger transportation in the United States utilizes two primary modes, private automobiles and public transport. Commuter travel by private automobile consumes large volumes of gasoline annually for what are typically brief journeys. The average daily total driving is 36.1 miles. For this study a detailed engineering analysis of the resources required for full replacement of gasoline-powered vehicles with photovoltaic-electric vehicle travel was completed. For the top ten most populous Metropolitan Statistical Areas in the United States, the analysis determined the energy required to power electric vehicles using photovoltaic energy and the total area of photovoltaic arrays required for the new transportation system using currently available technologies. Calculations show photovoltaic coverage to require less than 2% of land area contained in MSAs. This estimate demonstrates the feasibility of fuel source conversion to solar photovoltaic for passenger travel. Additionally, carbon emissions reduction resulting from this conversion would result in a 17% total U.S. reduction relative to a 2005 baseline.

Refreshments will be served by 2:15pm

