

Mechanical Engineering Department Seminar

3:35pm November 13, 2013
1130 Mechanical Engineering



The Biorefinery – Producing Chemicals and Fuels from Biomass

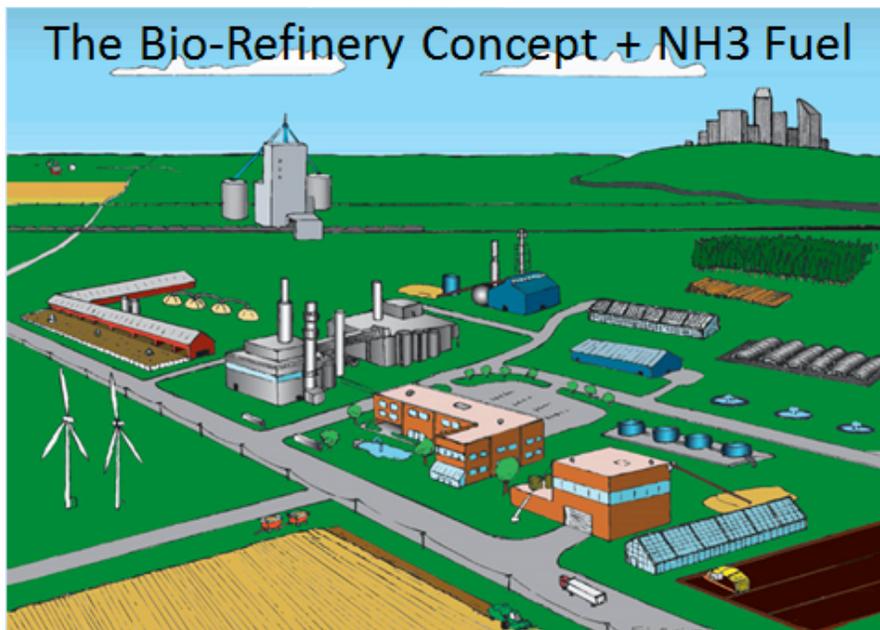
Norman K. Olson

BECON Project Manager; Iowa Energy Center

Prior to the 1940's numerous chemicals were derived from plant material (biomass). During the 1940's chemicals made from low-cost petroleum gradually began to replace these biomass-based chemicals, a trend which continued to gain strength for the remainder of the century. Petroleum-based chemicals now dominate the organic chemical market.

Technological developments combined with relatively higher petroleum prices have sparked a renewed interest in producing chemicals and fuels from biomass. The benefits to the rural economy of transitioning from a petroleum-based economy to a bio-based economy are potentially enormous.

Some of the conversion technologies and the potential economic impact of biomass-based chemicals and fuels (i.e., the biorefinery concept) will be presented. The impressive attributes of NH₃ fuel will be highlighted as a part of this presentation.



Bio: Norman K. Olson, P.E. has over thirty-five years of experience in energy efficiency and alternative fuels projects. He has been a registered Professional Engineer since 1982. His past experience includes work as: Product Design Engineer for Lennox Industries; Product Design Engineer for Dunham-Bush Inc.; Chief Engineer for the Iowa Energy Policy Council; Energy Manager for the University of Iowa; and Project Manager for the Iowa Energy Center's Energy Resource Station (ERS). He is currently employed as Biomass and Alternative Fuels Program Manager at the Iowa Energy Center (IEC). Manage the IEC's Biomass Energy CONversion (BECON) Facility. BECON is a facility with six pre-commercial-scale systems designed to convert biomass into a wide variety of chemicals and fuels. He currently serves as Chair of the NH₃ Fuel Association Board of Directors. The main objectives at BECON are to strengthen the rural economy and decrease U.S. dependence on imported petroleum by developing cost-effective methods of converting agricultural-based plant materials into value-added chemicals and fuels. Program elements supporting implementation of the biorefinery concept at BECON include demonstration, training, education, testing and performance verification in addition to research.