BIOFUELS and CONNECTICUT:
CONTRIBUTIONS FROM CAES

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THE PROBLEM

Supply of Petroleum-Based Energy Sources

- Non-renewable supplies
- Peaking(ed) supplies from high grade sources

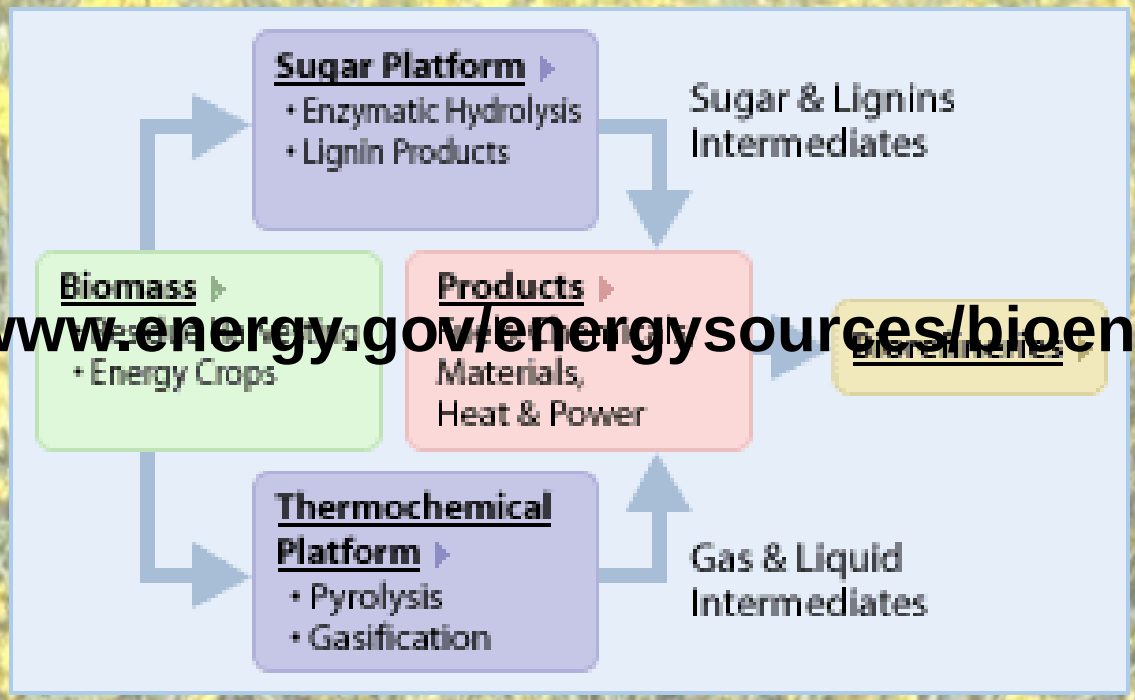
Demand for Petroleum-Based Energy Sources

- Continual increase in world-wide energy requirements

THE SOLUTION

High-demand technical solutions

- **Long-term development, high cost**



http://www.energy.gov/energysources/bioenergy.htm

Lower-demand solutions

- **Shorter development time, more modest cost**

A comprehensive roadmap for Connecticut:

CAES/Industry/UCONN Biofuels Cooperation

The whole will be greater than the sum of its parts.

"…improved production of biomass feedstocks; the integration of biomass production into sustainable agrosystems; conversion of biomass into energy; technology [support and] transfer to companies, state agencies, nongovernmental organizations and citizens…"

Penn State Agriculture, Winter/Spring 2007 issue

CAES contribution to the biofuels roadmap for Connecticut

CAES Strategy:

Focus the expertise of the Connecticut Agricultural Experiment Station on investigations of sustainable, bio-based energy sources appropriate to the State and the Northeast region.

CAES Tactics:

- Investigate species and cultivars of oil-seed crops for their regional suitability
- Investigate biodiesel yield from species and cultivars of oil-seed crops, as well as assessing their green manure value and impact on agricultural sustainability
- Investigate species and cultivars of oil-seed crops under integrated pest management (IPM) conditions for effectiveness as biofumigants
- Assess the value and suitability of pressed seed cakes as organic fertilizer

CAES Tactics:

- **Develop chemical methods for analyzing Connecticut-produced biodiesel for its sulfur content**
- **Develop chemical methods for analyzing Connecticut-produced biodiesel for its elemental composition**
- **Compare chemical methods based on ICP-OES with ASTM instrumentation**
- **Develop chemical methods for analyzing Connecticut-produced biodiesel for chemical contaminants which might compromise its usage**
- **Develop chemical methods for profiling biodiesels as function of crop source for regulatory issues**
- **Investigate improvements in biodiesel production**