



# The CECON Group, Inc.

## Science and Engineering Consultants

### New and Green Energy Consulting

#### Summary:

Batteries with higher energy storage density (joules/kg); lower cost photovoltaic arrays; new materials for photovoltaic devices; fuel cells and photoelectrochemical cells; hydrogen production and storage; membranes and advanced separation systems; fermentation and bioenergy; waste recycle and heat recovery; and improved composite designs and materials for durable windmill air foils — CECON has experts in all of these new green energy technologies.

CECON also provides experts for clean coal combustion, coal gasification and coal liquefaction (Fischer-Tropsch). We have experts in optimizing boiler system operations, building insulation, diesel engines, furnaces, diesel particulate traps and many other conventional energy applications where efficiency, energy conservation and clean energy are important.

CECON is building its network of consultants in the area of new and green energy technology.

#### CECON Helps You By:

- Providing **state of the art experts** related to green energy technology.
- Bringing in **materials experts** to focus on fundamental issues related to new and energy and energy conservation.
- Providing **energy conservation** experts that will optimize building plant energy conversation.
- **Assessing the economics** of new energy technologies.

#### Representative Past Projects:

<b>Photovoltaic Array</b>	Provided marketing information on the organic resins and films used in state of the art photovoltaic devices.
<b>Battery</b>	Technical assistance related to proprietary battery separators made from fluoropolymer resins.
<b>Coal Liquefaction</b>	Chemical and mechanical engineering design for the production of a large scale Fischer-Tropsch reactor.
<b>Biomass</b>	Converting biomass to liquid fuels using Fischer-Tropsch technology.
<b>Engine Efficiency</b>	Thermodynamic calculations of engine concepts. Heat and combustion expert assisted entrepreneurs with simulations to determine the thermal efficiency and patentability of heat engines.
<b>Waste to Fuels and Chemicals</b>	Biomass syngas-to-liquid products analysis. Small team developed capital and O&M costs for cases of biomass syngas conversion to liquid chemical and fuel products. Required analysis of furnace and catalyst technologies similar to traditional coal/syngas Fischer-Tropsch technology, adapted to various U.S. wood/rubber feed blends.
<b>Tire Pyrolysis and Recycle</b>	Engineering design for recycle tire pyrolysis facility. Pyrolysis expert worked extensively with new owner of licensed technology. Required knowledge of furnace technologies, heat balance calculations, equipment capabilities and cost estimation.
<b>Plastic Recycle</b>	Plastic materials engineering expert developed process trials to determine value of recycling various glass consumer and construction products into higher value building products. Required knowledge of mixed material properties, compounding technologies, material substitutions, and market applications.