

# Strategic Research Strengths at Western

## Environmental Sustainability & Green Energy

With escalating concerns about global energy shortages and the impact of human activity on ecosystems, a great deal of attention has turned to advancing green technologies and discovering alternative sources of energy. Western University has emerged as a leader in research related to energy deficits, sustainability and pollution.

### Biofuels and Alternative Energy Discovery

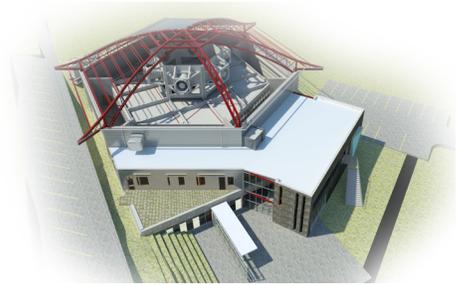
- Focus on biofuels and other clean energy sources, and new methods for using alternative forms of energy more efficiently
- **Agri-Therm**: spin-off company has developed a portable pyrolysis unit to convert agricultural by-products into value-added products
- **Power Systems Engineering Group**: working to restructure the electric industry and accelerate the growth of clean energy sources
- **Particle Technology Research Centre**: advancing biodiesel production, semiconductor photocatalysis for producing clean fuel and manufacture of carbon nanotubes for solar energy
- **Chemical Reactor Engineering Centre**: developing innovative green reactor technologies, including catalytic desulphurization of gasoline, novel fuel cells and treating toxic contaminants in air, water and soil through advanced oxidation

### Environmental Remediation

- Focus on sustainable processes for controlling, reducing and preventing pollution; biosensors for environmental monitoring; and solar-powered degradation of air and water pollutants
- **Geotechnical Research Centre**: mitigating fallout from environmental hazards, managing wastes, developing drinking water treatment technologies and ensuring the safety of such structures as nuclear power plants
- **Research for Subsurface Transport and Remediation (RESTORE)**: generating groundbreaking technologies that contain and reduce subsurface contamination
- **Southern Ontario Water Consortium**: full-scale demonstration and validation facility for new, close-to-market wastewater treatment technologies, in partnership with the City of London

### Key Facilities and Centres

- **Biotron Experimental Climate Change Research Centre**: large-scale, realistic, environmentally controlled studies of climate change, environmental disturbances, pollution and ecosystems
- **Claudette MacKay-Lassonde Pavilion**: 'green' building advancing work in the green technologies field
- **Ontario Bioindustrial Innovation Centre**: integrating the renewable bio-based and traditional petrochemical industries
- **Western Bioproducts Initiative**: promoting sustainable farming and renewable energy through a biogas facility and the **Institute for Chemicals and Fuels from Alternative Resources**
- **WindEEE Dome**: Developing sustainable cities by exploring ways to build and retrofit buildings to produce and save energy



*The WindEEE Dome will help develop sustainable cities by exploring ways to build and retrofit buildings to maximize energy savings and production, and to understand wind farms,*

### Highlights:

- More than 100 researchers from seven faculties engaged with Western's Centre for Environmental Sustainability
- Nine Canada Research Chairs and three Industrial Research Chairs in this area
- The national Network for Business Sustainability connects corporations with policy makers and researchers to integrate sustainability research into business practice
- Researchers have designed a novel class of fuel cell expected to produce electricity while consuming carbon dioxide
- Geographer Gordon McBean was lead author for the Intergovernmental Panel on Climate Change awarded the 2007 Nobel Peace Prize



Western  
Research