

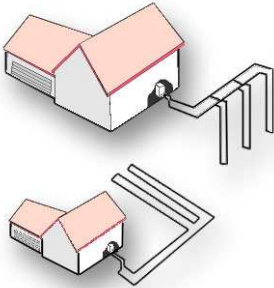
# Introduction to Alternative Energy Technologies

## A 3 Week Accelerated Workshop Presented by Centennial Energy Institute

### Purpose of this Workshop

This workshop is designed for anyone interested in current and future energy technologies. Our highly experienced instructors gear course content to all audiences, from those with no experience in the field to skilled tradespersons, engineers and technologists.

Workshop participants will learn about the primary alternative energy technologies used today. Upon completion, participants will have a better understanding of the appropriate applications of these technologies, the skills required for effective installations, and perspective on how they can incorporate alternative energy solutions into their homes, workplaces and communities.



### Course Instructors

David Farahmand & Phil Coulter

### Course Outline - Topics Covered Include:

#### 1. Solar Energy

- Photovoltaics (direct conversion)
- Indirect conversion (glycol panels)
- Energy storage/grid interfacing

#### 2. Wind Power

- Low/medium/high power systems
- Wind energy prospecting/siting
- Res./Comm./Ind. applications

#### 3. Water Power (mini-hydro)

- 5-40 kW pond, stream, rivers
- Types/installation techniques
- Typical mini-hydro design selection

#### 4. Bio-Mass Energy

- Thermodynamics, combustion theory of fuel burning
- Applications, fuel types and preparation, control systems
- Boiler/steam engine/generator design configurations

#### 5. Bio-Gas Energy

- State-of-the-Art review
- Developments in *Waste-to-Power*
- System Design & Industry applications
- Environmental issues/bio-gas digester designs

#### 6. Geothermal Energy

- Types/theory of geothermal
- Typical systems in use and design considerations
- Commercial/Industrial application for heating/cooling/ice making
- New systems and retrofits
- Geo-exchange/standards

#### Notes:

- Select field trips for items 1, 2, 4, 5, & 6
- 3-ring binder with info will be provided
- School Certificate of Achievement issued upon successful completion

### Workshop Details

**Location:** Centennial's HP Science & Technology Centre, located at the northeast corner of Morningside and Ellesmere (just south of highway 401) in Scarborough.

**Runs:** Tuesday and Thursday nights, from 6:30 - 10:30 p.m.

**Starts:** Tuesday, July 28th, '09

**Ends:** Saturday, August 15th, '09

**Cost:** \$591.25 (includes GST & admin fee)

**Room:** TBD

**Contact:** 416-289-5000 ext. 8172, or [cie@centennialcollege.ca](mailto:cie@centennialcollege.ca)

**Web:** [www.energyinstitute.ca](http://www.energyinstitute.ca)

