



Renewable ENERGY



As Energy Costs Rise, Building Owners and Facility Managers are becoming increasingly aware of the benefits of intelligent building design – design that considers overall energy consumption and conservation. This shift is also being reinforced through various Government Programs designed to drive adoption of renewable technologies within the province. The Green Energy and Economy Act and its Feed-in Tariff (FIT) program is one of the most aggressive incentive programs of its kind. It is a clear indication by the Government of Ontario of their commitment to reducing our carbon footprint part of its overall “green energy” goals as identified in their most recent Long Term Energy Plan. **Building Owners** and **Energy Developers** alike are taking advantage of these incentives through long term Power Purchase Agreements to do their part to ensure a cleaner future for generations to come.

SOLAR PHOTOVOLTAICS (PV)

Solar PV has experienced significant growth and advancement over the past two decades and has become a reliable and sought after technology for clean and relatively maintenance-free power production. With a resource of 89,000TW the sun generates enough energy to deliver almost 6,000 times the power required to satisfy the entire planet needs. While the industry is still in its early stages when compared with fossil fuels and nuclear, the benefits of solar PV are numerous, with a market ripe for considerable advancement.



SOLAR PV SERVICES

Solar PV Applications and Design (Rooftop): the use of solar PV technologies in today's modern landscapes is a challenge from both a structural and economic standpoint – not every building will accommodate a solar PV system. Bondfield's breadth of construction knowledge and depth of experience within the municipal and institutional sectors enable us to deliver best of breed in solar solutions for our customers – solar PV solutions that contemplate building life cycles and your bottom-line. Through our solar PV design experts and structural engineers we work closely to deliver a solar PV system that maximizes ROI while minimizing building impact.



Solar PV Applications and Design (Ground Mount): For long-term success with utility scale solar projects, developers need to work with civil and electrical contractors that pride themselves on their attention to detail. Overall project management must also be in place to ensure on-time and on-budget delivery. That's the smart way to begin a long-term PPA.

At Bondfield, we can manage your project from start to finish and anything in between, including 3D solar system design/modelling to ensure minimized shading impacts based on terrain, straight through to site monitoring and maintenance.

Solar System Design

- Site surveying
- 3D solar system design/modelling (advanced shading analysis)
- Civil and Electrical Engineering

Civil Works

- Site prep – Grubbing & Clearing
- Grading and Excavation
- Access roads and drainage
- Site facilities and fencing
- Trenching and Service Layouts
- Foundations and Racking

Electrical and Utility Works

- Panel installation
- DC wiring and combiners
- Inverter Installation
- Transformers, switchgear and substation
- SCADA controls and transfer trip
- Testing, commissioning and start-up

Operations, Maintenance and Monitoring

- System maintenance and monitoring
- Weather Station Monitoring
- Property maintenance and site security

We Are Committed – as one of the leaders in green construction, we are expanding that commitment with a focus on the renewable energy market. As project developers and their financiers work to assist the Ontario Power Authority in delivering their long-term energy plans, Bondfield stands as a proven name in construction committed to this critical market.

WIND POWER

Bondfield has been managing construction projects, pouring concrete and erecting structures for over 40 years. It is that history that enables us to deliver best-in class construction services to Wind developers across the Province.

Our success is driven by understanding our clients' needs and working as a partner from the earliest stages of development. As the renewable energy mix continues to grow within the Province, there is no shortage of risk and uncertainty for renewable energy developers. By engaging with developers early in the process, Bondfield stands as a ready partner, providing certainty and project commitment at every level.





WIND POWER SERVICES

Pre-Construction

- Site review and construction optimization
- Permitting and Approvals
- Civil and Electrical Engineering

Civil Works

- Grading and Excavation
- Service/Access Roads
- Trenching and Cabling/Service Install
- WTG Foundation Design and Install
- Substation/Interconnect facilities

Turbine Erection, Electrical and Utility Works

- Logistics and trucking/delivery
- Tower and turbine erection/assembly
- Transformers, switchgear and substation
- SCADA controls and transfer trip



Bondfield Construction's Energy Division is proud to offer its extensive construction experience to Energy Developers, Facility and Building Owners looking to assist the province in achieving its Green Energy goals.

GEOTHERMAL



Client

Town of Richmond Hill

Project

Richmond Hill Centre for the Performing Arts
Richmond Hill, Ontario

Value **Completed**

\$28,771,000 July, 2008

Architect

Diamond & Schmitt Architects

Consultant

MHPM Project Managers Inc.

Renewable Energy Type

Geothermal

Due to recent advances in heat pump performance, ground source heat pumps (GSHP) are growing in popularity as a means of heating and cooling home and building spaces. GSHP solutions offer a compelling alternative to traditional forced air systems from an economic standpoint, while also delivering an environmental benefit.

GASIFICATION



Gasification is a clean method of converting carbon based (organic) materials into carbon monoxide and hydrogen by reacting the raw materials with controlled amounts of oxygen. The resulting gas mixture (syngas) is burned to produce heat and steam. The steam is used to drive a turbine which produces electricity.

With rising landfill costs (both economic and environmental) and the dirty power associated with coal-fired power plants, gasification exist as a ready alternative designed to solve two growing challenges – clean electricity production and the disposal of municipal solid waste.

SOLAR THERMAL

Solar thermal is expected to see continued growth within the ICI market. As building owners continue to explore alternative approaches to heating and cooling as a means of reducing overall operational expense, solar thermal exists as a tried and tested solution. Solar thermal systems deliver both space and water heating and cooling while also contributing to overall green house gas (GHG) emission reduction goals.



Client

Hamilton Wentworth Catholic Elementary School

Project

St. Mathew's Elementary School
(Binbrook Elementary School)
Hamilton, Ontario

Value **Completed**
\$12,900,000 April, 2010

Architect

Lintack Architects Incorporated

Renewable Energy Type

Solar Thermal



Client

York Region

Project

York Region Transit Operations
and Maintenance Facility

Value **Completed**
\$38,771,000 March, 2010

Architect

Delcan Corporation

Renewable Energy Type

Solar Thermal



SERVICES OFFERED

- site and building evaluation
- system/power performance analysis
- cost benefit analysis
- system design and building integration considerations
- PPA contracting
- construction and maintenance



ENERGY DIVISION

EXPECT MORE POWER



SOLAR PHOTOVOLTAICS (PV)

WIND POWER

GEOTHERMAL

GASIFICATION

SOLAR THERMAL

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