



## **PRESENTATION**

**to the**

**PRE BUDGET COMMITTEE**

**by the**

**ONTARIO GEOTHERMAL ASSOCIATION**

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**Ontario Geothermal Association**

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The Ontario Geothermal Association (OGA) represents the geothermal industry in the Province of Ontario. We wish to partner with the Ontario government to promote the development of the largely overlooked geothermal resources in the Province.

### **What is Geothermal Energy?**

Unlike wind and solar energy, which tap intermittent sources above the earth, geothermal energy is literally “heat from the earth”. The core of the earth is molten rock which radiates heat outward to the Earth’s surface and beyond into outer space. About 99% of the Earth’s mass is hotter than 1000 degrees C and only the outer few kms are cool enough for human survival.

In Ontario’s climate, the top 200 m of the earth is a constant 9 to 11 degrees C, and this is where we recover our geothermal energy. Water is circulated through pipes in the earth and can be upgraded in heat pumps to heat our buildings, or used directly for cooling. This form of clean energy eliminates fossil fuels for winter heating and reduces peak electrical usage for summer air conditioning

The vast repository of heat within the Earth is renewable and will become the world’s primary source of heating and cooling energy, after the remaining oil, gas and coal reserves are used up. In fact, the supply of geothermal energy within 10 kms of the Earth’s crust is 50,000 times more than exists in all the oil and gas reserves in the world.

Among the various forms of renewable energy, geothermal power is uniquely reliable.

### **Ontario’s Transition to Renewable Energy**

Introduction of the Green Energy and Economy Act (GEEA) in 2009 put Ontario in a leadership role in the global march to greener energy. Energy policies, such as the FIT (feed-in tariffs) program, were created to spur growth of renewable electricity generation. Solar and wind created the



most hype and in terms of megawatts, they accounted for about 96% of the FIT applications in 2010.

Several challenges with the solar and wind energy initiatives have emerged over the past year, including:

- need for more transmission lines to distribute the intermittent pulses of electricity (when the wind blows, or the sun shines);
- need for back-up fossil-fuel plants or electrical storage facilities during periods of darkness and zero wind;
- hikes in electricity rates to subsidize solar and wind power, new transmission towers, and new gas peaker plants;
- “domestic content” concerns of the solar and wind equipment manufacturers;
- public concerns and esthetics of wind turbines; and
- loss of prime farm land with large solar farms.

Geothermal energy faces none of the challenges listed above. It is hidden below ground, does not affect the use of land, is generated at the place of use, 24 hours a day and is the lowest cost.

Neither the Green Energy and Economy Act, or OPA’s recent Long-Term Energy Plan has considered geothermal energy. Nevertheless, our industry has grown exponentially in Ontario over the past few years. A major network of residential geothermal suppliers and installers has developed across the Province.

Commercial geothermal installations have also accelerated over the past five years. Most new schools, social housing apartments and



government buildings are currently being equipped with geothermal energy systems.

Ontario has become the Canadian leader in the installation of residential and commercial geothermal energy systems. If geothermal energy is now added to Ontario's renewable energy portfolio, it would help to offset the "intermittency" issues that affect the cost and sustainability of solar and wind.

### **How is Geothermal Energy Different from other Renewables?**

The key difference between Ontario's geothermal energy and other renewables is that no electricity is produced. It is used primarily to heat and cool our homes, schools and workplaces. Supplementary uses include supply of domestic hot water, floor warming, snow melting, pool heating and ice making in arenas.

A vast supply of geothermal energy is available in the earth beneath every building lot in Ontario. Our rich geothermal endowment has scarcely been tapped and is destined to become a major factor in solving Ontario's complex energy equation.

Geothermal energy has the advantage over other renewables in that it provides heating and air conditioning 24 hours a day, 365 days a year. It also has the ability to use electricity in off-peak hours, with none of the power transmission problems of the solar and wind renewables. Thermal energy storage is another unique feature, where excess summer heat can be stored in the earth for later use in the winter.

When the total life cycle costs for heating and cooling buildings are considered, the best choice is always geothermal energy. Also, the inherent reliability of a free energy source immediately beneath each building site, at any time of day, will make geothermal energy a major renewable supplier for Ontarians in the future.



The use of geothermal energy to heat and air condition a home or workplace is like driving a hybrid car. Electrical power from the grid is still required, but the need for fossil fuel heating is eliminated and the electricity required for cooling is significantly reduced. In the future, opportunities to power the geothermal heat pumps with combinations of solar, wind and hydro electricity will be developed.

### **Ontario Budget Considerations**

Geothermal energy in Ontario stands on the brink of greatness. It is clearly the best and least expensive choice for heating and air conditioning the homes and work places in Ontario.

The main barriers to broader acceptance of geothermal energy are the lack of knowledge and awareness of this unique resource. It is time to add geothermal energy to Ontario's green energy portfolio.

Government funding is required to develop knowledge, cultivate public awareness and advance the implementation of geothermal energy systems throughout the Province.

In closing, I would like to thank the role that the Ministry of Energy and Infrastructure has played in the current incentive programs for retrofitting residential homes with geothermal energy and facilitating geothermal energy installations in schools and social housing projects.

We look forward to working closely with the political parties in Ontario to develop a stronger, united voice for geothermal energy. It is sustainable and available around the clock beneath every property in the Province.