



Letter to the editor: Re recent letters to the editor on windmills and solar.

Among the various forms of renewable energy, geothermal energy is uniquely reliable. Geothermal energy in Ontario stands on the brink of greatness. It is clearly the best renewable energy source and the least expensive choice for heating and air conditioning the homes and work places in Ontario.

Unlike wind and solar energy, which tap intermittent sources above the earth, geothermal energy is literally “heat from the earth”. 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. 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. Fluids are 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.

Several challenges with the solar and wind energy initiatives have emerged over the past year, and have been often addressed in this publication:

- 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.

Most new schools, social housing apartments and government buildings, and many new livestock facilities are currently being equipped with geothermal energy systems. 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.

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.

In conclusion, 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.

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 the conversation when we discuss Ontario's green energy portfolio.

There is a need to develop knowledge, cultivate public awareness and advance the implementation of geothermal energy systems throughout the Province.

Earl Morwood is the Executive Director of the Ontario Geothermal Association. The OGA represents the geothermal industry in the Province of Ontario. Our goal is to partner with others to promote the development of the geothermal resources in the Province.