

## Advisory Committee on the Environment Energy sub-committee - report

**Meeting date:** Friday, January 15, 2016

**In attendance:** Tom Arnos, Mike Bloxam, Lois Langdon, Diane Szoller

**Regrets:** Jamie Baxter, Ken Birchall

*The meeting commenced at about 14:00.*

### 1. Renewable energy (#3 on 2016 work plan)

#### a) Hydro-electric power in Thames River

Tom shared a study done by Ontario Waterpower Association using traditional turbine in Springbank Dam. The study proposed a standard turbine-style generator installed cost of \$4.7 million, generating about \$1 million per year. We may want to look at alternatives, such as an "Archimedes screw" to reduce impact on wildlife when combined with a fish pass to facilitate fish moving in both directions.

Another potential location for a similar hydro generation device is at the small falls where the migration of fish is limited at the sanitary sewer line just west of bridge where Richmond St. terminates. There are about 25 potential locations where a natural island exists in the river which may be more conducive to the creation of a fish pass. According to Google Earth, the river drops 50 metres from eastern boundary (Fanshawe Lake 264 m) to the western edge of the city (Gideon Dr. 214 m). Fifty metres is 164 ft: contrast the American side of Niagara Falls with a drop of about 75 feet and the Canadian Horseshoe Falls with a drop of 188 ft. The flow of water is much greater at Niagara Falls than our Thames, which has an approximate flow of 38 m<sup>3</sup>/s compared to 2400 m<sup>3</sup>/s for Niagara Falls.

When considering the carbon intensity related to the hierarchy of generation (see link below) and the current focus on reducing carbon emissions, the best incentives should be provided to lowest carbon intensity generator, which is hydro power. Although this generation is more expensive in dollars, it could benefit London for many years. Ontarians are very happy that the construction of the Sir Adam Beck Niagara generating station began at the turn of last century as it is still a significant contributor to Ontario's clean electricity generation capacity.

We could work with all stakeholders to review this idea. We could look to combine fish passes, portage/emergency rescue passes, walking

bridges, river aeration, model generation stations and maybe even a biodiversity centre to share with indigenous people and the conservation authority for the education of our youth. We plan to create a focus group on options, led by ACE: "work with stakeholders on high-level details." This could tie into the Back to the River project with the City.

Tom provided some links:

<http://shrinkthatfootprint.com/wp-content/uploads/2014/04/greenelectricity.gif>

<https://www.youtube.com/watch?v=VNOS4rUy58E>

<https://www.youtube.com/watch?v=VXSMwWfJ7hM>

<http://greenbugenergy.com/how-we-do-it/archimedes-screw-generators>

### **b) Solar energy for municipal buildings**

LDREC (London District Renewable Energy Co-operative) applied to FIT (Feed-In Tariff) for municipal buildings, with eventual success for 12 rooftops. Many municipal buildings have flat roofs.

### **c) Carbon footprint of co-generation**

In the future, burning fossil fuels will become more expensive with cap and trade. London Hydro has approximately 860 MW of capacity where the electricity is on 99.99% of the time. The city's average summer electricity demand peak is approximately 620 MW (2015) and our annual average demand is approximately 555 MW.

Currently London has the capacity to create 8.5% of the average electricity demand through burning natural gas. In the near future this could increase by 6.1% to approximately 14.6% through the introduction of more co-generation. In contrast the 2014 Ontario electricity supply mix included 8.7% Natural Gas. The previous co-generation strategy was to create electricity with waste heat but the current economic incentives model has facilitated a switch where electricity can be generated continuously with waste heat as a side benefit.

It is great that Ontario eliminated coal, which has an approximate emission value of 1000 g·CO<sub>2</sub>/kWh, but we need to remember that the burning of natural gas has a carbon intensity of approximately half

(470 g·CO<sub>2</sub>/kWh). It would be great if the need for the additional capacity and the carbon intensity of the proposed new capacity is carefully considered especially when considering that our grid's average 2013 carbon intensity was 77 g·CO<sub>2</sub>/kWh.

**d) Lights in dog parks**

Not discussed.

**2. Local improvement charges (#5 on 2016 work plan)**

**a) Status of LICs for a PACE-style program**

A good update received from presentation by Jay Stanford and Jamie Skimming at the December ACE meeting. Lois has an update from Jamie that she will share with the sub-committee.

**3. Community Energy Action Plan (#4 on 2016 work plan)**

**a) Review current plan and monitor progress**

Nothing to report.

*The meeting concluded at about 15:50.*