

April 28, 2011

To: Parry Sound Town Council

Copy: R. Mens, P. Brown

From: J. Bossart

Subject: Solar PV Installation Proposal – Comments and Questions

*Personal Background:*

*I have no formal experience with solar photovoltaic energy installations. I do have a strong scientific and technical background. My professional career has involved analyzing, forecasting, negotiating and approving business opportunities and investments that have ranged from millions to over a billion dollars; not all of which proved to be as profitable as expected.*

*Disclaimer:*

*I have no financial interest in, or association with, any energy related company or supplier. I do serve on the Stockey Centre Advisory Committee. My comments are offered as a Parry Sound resident with an interest in ensuring the effective and efficient use of town resources.*

After reviewing the public documents presented to Council on April 19<sup>th</sup> 2011, the presentation to Council by the Steenhof Building Services Group on April 5<sup>th</sup>, 2011, and about three dozen technical, scientific, governmental and commercial documents on Solar PV installations I have the following suggestions and questions:

Suggestions:

1. Council considers only the lease option. Managing and ensuring the performance of a Solar PV installation is both challenging and difficult. Installing PV panels on at least some of the proposed buildings can provide, at best, less than ideal performance based on the existing orientation of the buildings. This is not a factor that can be remedied by altering the installation. The Town would best ensure a 'profitable' outcome by leasing the space to a company that is willing to take the risk of performance. I have not been provided access to the estimates of solar efficiency and production for the proposed systems and cannot assess whether the projected energy yields and income are optimistic, pessimistic or a best estimate average.
2. Council requests more detail on additional costs that may be involved with each of the options. The proposal presented to Council suggests there are no additional costs involved beyond an assessment of whether the roofs can hold the PV installation. I would think that for at least the Stockey Centre and Town Hall there

would be interest in having an architect develop plans for how the installation would look. I have estimated that each of these buildings would each require about 5,000 square feet of paneling to deliver the projected electricity. This is equal to about 1/3 the size of a professional hockey rink. This can significantly impact the appearance of these buildings.

3. Council foregoes the addition of PV panels to the Stockey Centre, or considers installation only after consultation with the community and the Stockey Centre stakeholders. The Stockey Centre has a unique style that could be compromised by the addition of solar panels with the intent of maximizing profitability and foregoing concerns about design and aesthetics. The Stockey Centre roof might also need to have improvements made to ensure it does not need to be reroofed in less than 20 years. The cost of reroofing within the 20 year lease period, with 5,000 square feet of paneling and wires installed, would far exceed the cost of a simple reroofing. Council may wish to request an estimate of these costs.

The income from leasing space for a PV panel installation on the Stockey Centre is minimal. The income estimate of \$6,000 per year is fixed for the full twenty years. Using a discount rate of only 4% suggests that the effective income by the twentieth year would be equivalent to about \$2,500 in 2011 dollars. This seems a pittance to take on the potential cost of upgrading the building's roof, and the cost of investigating architecturally sympathetic options for panel installation.

If the Town wants to make a public solar statement it might want consider a ground based installation on Bob's Point adjacent to the Stockey Centre. This would be a much lower cost installation, it could be even larger, and would send a message to the many boaters that visit Parry Sound.

4. The financial figures included in the proposal to Council are easy to misread. Because the rate paid for solar electricity will not be increased going forward, the potential for future income is less than it appears. Only the net present value figures, not the annual income figures, provide a reasonable estimate of the profitability of the proposal. But these figures present a single profitable model, they do not model a range of outcomes (the real world), nor identify and quantify what could go wrong. These analyses may have been conducted but they were not provided in the materials presented to Council at its last meeting. A Monte Carlo type income forecast would be revealing, at least for the purchase option.
5. The costs of ownership seem to be underestimated. The panels will need to be cleaned at least annually to optimize performance. And there is snow removal. How much would it cost to get people on the roof of the Stockey Centre to clean 5,000 square feet of paneling? What about the 25,000 square feet for the Bobby Orr Community Centre? Do we forego electricity production in the winter months, or do we hope the design of the panel installation will shed the snow?

Questions that should be answered prior to a final decision:

1. In the case of the Town owned option, what is the range of potential incomes? What are the upside and downside figures? How does this impact the projected income flow and the net present value of the opportunity? Is there a Monte Carlo type projection/forecast?
2. What happens after twenty years? Solar PV panels slowly lose efficiency with time irrespective of dirt collection and would in 20 years at best have about 80% of their 2011 efficiency, more likely 50-60%. It would seem that panel technology will have advanced to the point that these panels will perform much like 1991 personal computers perform in 2011. Who is responsible for removing and disposing of the panels at that point if they are replaced? What is the additional cost of reroofing the Stockey Centre and other buildings if they are left in place at that point?
3. Is there a reason Bob's Point was not considered as a solar collection site?
4. Has there been an estimate of the CO<sub>2</sub> savings the installation will provide including the production, shipping, installation and maintenance of the panels?

Overall the prospect of installing solar photovoltaic panels to provide green energy is exciting. It is not obvious it is particularly profitable. Even with the various programs in place to subsidize PV installations the potential profit to Parry Sound with the ownership is rather low and carries a high risk. The lease option is far more attractive, in terms of a risk adjusted assessment, but it should not be allowed to compromise the appearance of the Town's major public buildings.