21 Wolseley Parade
Kensington Vic 3031
26th December 2002

Lord Mayor Councillor John So
City of Melbourne, Towh Hall
Swanston Street Melbourne Vic 3000

Dear Lord Mayor,

Re: Holland Park Swimming Pool Energy Wastage

Last summer I took the liberty of recording the gas meter readings for the Holland Park Community Centre on several occasions from 1 December 2001 to 5 January 2002. Over that period the gas consumption averaged 272 cubic metres per day. The pool was in normal operation as an open air facility at that time. The gas meter is easily readable from public land adjacent to the west side of the Centre.

Now that phase two of the pool redevelopment has occurred, I again took some readings and was frankly shocked to see that the gas consumption is very similar over a nine day period from 17th to 26th December, averaging 260 cubic metres per day.

On 17th December I chatted informally with a number of YMCA staff about the building and pool infrastructure performance, and the following facts emerged:

- When the pool water was first heated during start-up, the pool area became very steamy, with condensation on all the windows and possibly also in the ceiling insulation. A foul mouldy smell was in evidence for a time.

- The builder and/or building consultant advised staff that the pool hall design air temperature was 31 degrees Celcius day and night: this was deemed necessary to prevent condensation in the mineral fibre insulation below the roof steel deck.

- Staff and visitors found that the specified 31 degree temperature caused oppressive humidity and discomfort. Visitor and staff comfort was restored by slightly dropping the pool temperature and increasing the ventilation rate (air exchange rate) in the main pool hall (e.g by opening the sliding doors on the east and west sides to allow cross-flow ventilation).

- I suspect that overnight, the condensation problem is currently being addressed by turning down the pool heating, and increasing the fan-forced ventilation through the hall by use of electric blower fans. Any increase in ventilation (without heat exchanger recovery technology) will result in significant heat loss from the main body of warm pool water.

- I see no evidence that the old pool covers have been retained. These could have been deployed for continued use during indoor operation to drastically reduce heat loss, evaporation and condensation problems within the pool hall.

- On 26th December, a bright sunny day, there were twenty-four halogen uplights in operation between 2pm and 3pm EADT, as staff had apparently decided that the hall was too dull, given the complete absence of skylights; and the obstruction of good daylight because of tinting in the glass wall panels. If each luminaire has a 300 watt lamp, then the lighting is consuming around 8000 watts of electric power at considerable financial cost to ratepayers, and causing added greenhouse gas emissions at a rate of 11 kg CO2 per hour.

- In January 2002, I estimated the Centre had 1200 square metres of flat roof space where solar water heaters could have been installed. Now that the pool hall is complete, Council has another 60 x 30 metre flat area where solar water heaters could have been installed. This gives a total area of around 3000 square metres; a very valuable potential resource for “do-able” renewable energy utilization. What a pity that Council has seen fit to burn fossil fuels instead.

Assuming that the data collected on gas consumption is both accurate and typical of the pool’s performance, Council can expect that there will be a threefold increase in greenhouse gas emissions attributable to the operation of this Council infrastructure. This is because the pool will now operate year-round instead of for five months (240% increase in time) and the gas consumption mid-winter is likely to be much higher than recently observed in December 2002. If gas consumption reaches an average of 392 cubic metres per day for the seven months April to October inclusive then my “threefold increase” prediction will be borne out. This is only 50% more gas consumption on a daily basis than that observed during December/January.

When a limited analysis of one small Council development reveals greehouse gas emissions blowouts of this magnitude, I confess to being very sceptical of the spin and gloss surrounding Council’s environment and sustainability pronouncements.

Perhaps Council is “outsourcing” these greenhouse emissions on the basis that YMCA will have to assume the greenhouse emissions into their reckoning of their own environmental impact. I suggest that such an accounting process would be highly irregular and not reflect the responsibility of Council in setting up the fossil burning infrastructure, and funding the combustion of all that gas by YMCA.

Please assure me that all Council-funded fossil fuel combustion will be included in your Cool Communities greenhouse gas inventory, even when services are being provided by an outside agency or contractor, such as YMCA pool management.

It leaves me quite flabbergasted to recall that only 12 months ago you wrote to all ratepayers urging us to put solar water heaters on our homes. Now Council is shown to be increasing local greenhouse emissions by perhaps 80,000 cubic metres of natural gas annually. Rough calculations of 0.07 kg CO2 per MJ of gas burned indicate that this equates to an extra 216 tonnes of CO2 emissions each year.

To offset these emissions would require the replacement of at least fifty domestic electric hot water services by gas-boosted solar units costing around $5,000 each: why should ratepayers even consider spending our money on such laudable technologies when local government is pulling so hard in the opposite direction?

Options that Council should urgently explore to address this unfortunate situation include:

- Use a pool blanket every night, allowing you to drastically reduce ventilation flow rates in the pool hall.

- Install skylights sufficient that no electric lighting is necessary in the pool hall, even on a cloudy day.

- Install a 'suspended ceiling' consisting of an impermeable vapour barrier, such as transparent polyethylene greenhouse plastic (e.g. "Grow Tuff"). It would be designed to allow any condensation to fall harmlessly back into the pool each night.

- Install large solar water heaters to reduce gas consumption. Payback time should be around 3 years.

- Install a heat pump driven by a natural-gas-fired diesel engine. This will halve gas consumption for pool heating without any other measures being taken.

- Scavenge all heat outputs from the air-conditioners elsewhere in the building to route "waste heat" to the main pool. Heat pump air conditioners are presently discharging large quantities of hot air above the roof, when that free heat could be transferred to the pool.

- Use heat recovery technology to re-capture heat presently being lost through the ventilation exhaust system. This will be extremely beneficial in winter time.

.....there are probably other cost-effective interventions that an energy efficiency expert could quickly identify on doing a close inspection of the Centre's operation.

I urge Council to take these issues on board, before we see another 200 tonnes of CO_2 released into the atmosphere.

Yours sincerely,

Michael Gunter
Owner/operator of the Breamlea Wind Generator

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