

*Citizens for Better Transit* has reviewed recent reports relating to trolley buses in Edmonton, including the administrative summary and recommendations. Our detailed analysis/comments—which take the administrative report as a starting point—are found in the document entitled *Side by Side Analysis*, downloadable from the *Citizens for Better Transit* Web site.

Our review was conducted in cooperation with the *Edmonton Trolley Coalition*, a non-profit citizens' group. As well, we have engaged the assistance of Irvine Bell, a certified Mechanical Engineer, in this process. His letter can also be viewed as a pdf file downloadable from the *Citizens for Better Transit* Web site.

### **SUMMARY:**

Our review concluded there is no sound basis to support the recommendation to scrap Edmonton's trolley system and replace it with hybrid buses given the material presented in the Checkel, Booz Allen reports and administrative reports.

***Citizens for Better Transit* urges City Council not to accept the administrative recommendation, but rather to move forward with the acquisition of new low floor trolley buses. We also ask that Council look at purchasing green energy for the trolley system to maximize its benefits, as well as develop plans for expansion/improvement of the trolley network that could be implemented in future.**

In summary, our findings are as follows:

### **Emissions:**

- 1) Because of the strong growth in electricity demand in Alberta, it is unlikely that the removal of trolleys would result in a significant or lasting decrease in power generation or emissions at Edmonton-area power plants. (Trolleys represented 0.006% of total electricity demand in Alberta in 2006; annual growth in electricity demand is about 5%.) But rather, the replacement of trolleys with diesel hybrids would simply add more emissions at street level. The biggest determinant of the health impacts of emissions is proximity to exposure. According to Health Canada, no safe levels of exposure to diesel exhaust particulate can be considered safe..
- 2) The administrative report states the City, as a Federation of Canadian Municipalities Partners in Climate Protection member, must account for greenhouse gas emissions resulting from its activities. However, the report's conclusion that hybrids offer the "best overall emission reduction opportunity" for achieving this is in error. In fact, the best opportunities to reduce greenhouse emissions associated with the City's transit operations, as well as total emissions result: (1) if green power is purchased for trolleys, with increasing benefits if trolley use is expanded, and (2) if green-powered trolley buses and hybrid buses are used to replace diesel buses. The reduction in the City's emissions inventory that can be attained with green-powered trolley buses is, in fact, so great that it would take 240 hybrid buses at a purchase cost of \$156 million (i.e. not including lifetime maintenance, fuel, etc.) to equal the CO2 reduction achievable with 47 trolleys operating according to 2008 transit schedules. Green power is available to Edmonton: Epcor offers an ENVEST program to commercial power users; green power is also available through private companies like Bullfrog Power. The cost is a nominal 0.02 per kWh.

**Financial:**

- 1) The Booz Allen analysis is based on a diesel price of 0.76 per litre to 2027, the Checkel report on 0.82 per litre to 2027. Published projections show oil prices at \$200 a barrel in 12-24 months (Goldman Sachs, May 7, 2008), \$300 a barrel within five years (Matthew Simmons, Feb. 28, 2008) and \$400 a barrel in ten years (R. Gilbert/A. Pearl, Jan. 2008). High petroleum prices are bound to initiate movement towards proven technologies that minimize energy consumption and do not use petroleum fuels. Electric trolley buses are such a technology.

Hybrid buses are a petroleum-based technology that represent a 'transition to fully electric vehicles' like trolley buses. Real world experience shows nominal gains in fuel economy with hybrids on the order of 10-15% over regular diesel buses. There is no reduction in energy use by using hybrids to replace trolleys, but rather an increase in energy use.

Other North American cities are tending to renew trolley fleets with trolleys, and to purchase hybrids to replace diesel buses. Citing large numbers of hybrid purchases in North America without mention of recent trolley purchases, as all the reports do, is misleading.

- 2) In both the Booz Allen and Checkel reports, trolley costs appear inflated by (a) using an unrealistically low number of vehicle kms, (b) overestimating the work needed to maintain and upgrade the trolley system, and (c) underestimating costs without trolleys. In addition, the capital investments in the trolley system are presented as being written off over the life of only one generation of vehicles, when these investments ought to have a life cycle of 30 to 50 years, according to available information.
- 3) The Checkel report identifies 60% of the trolley's lifetime costs as capital related. These expenditures can be covered by provincial/federal infrastructure funds, which would include the purchase of new trolley vehicles. The choice of vehicle, therefore, need not have a significant impact on local taxes.
- 4) The administrative report identifies trolleys as 'unfunded'. Scrapping the system therefore does not result in 'savings' that could be transferred to other projects. Curiously, the administrative report indicates funds can be identified to purchase hybrids. If this is the case, then it ought to be equally possible to identify funds for the purchase of trolleys.
- 5) The maintenance of the trolley system is carried out by Epcor. Removal of the system results in a loss in income to Epcor which may translate either into a reduction in annual dividends to the City, or an increase in the cost of other services that Epcor provides to the City. This would potentially negate some or all of the claimed 'avoided costs'.

At a quoted cost of \$2.4 million per km to build trolley infrastructure (City of Edmonton, 2006), it would be *very* expensive to put back our 127 km of trolley infrastructure if this should be desirable or necessary in the future.

The public consultations that took place was meaningless in view of the fact that 45 of the 46 communities served by trolley buses were not consulted.

**We conclude that the financial case for eliminating trolleys is, at best, questionable, and that the trolley, without doubt, offers the best opportunities to reduce emissions. Because of the 'fuel flexibility' that trolleys offer, no other technology comes even close to the trolley's ability to reduce greenhouse gases in the City's inventory or improve overall emissions.**

**Trolley buses offer an excellent opportunity for Council to show leadership in a direction in keeping with the City's excellent environmental reputation; such leadership would prove commendable.**