

Presentation for Public Meeting May 11 & 12, 2004  
Tony Kernahan, Edmonton Trolley Coalition

NOISE

Every time a diesel bus accelerates it is in breach of City By-Law 7255. Thus, an exemption is required.

Trolleybuses are inherently much quieter than diesels because they are electrically powered.

In its final report, the "*114 St. Transportation Management Study*" Stated (para. 2.3.3) "The LRT mode is electrically driven and is therefore an inherently quiet technology....In comparison to diesel buses, LRT vehicles are much quieter as they do not produce engine noise.."

Trolleybuses are even quieter than LRT!

With regard to community impact it is interesting to note that the lay-over time at the Belgravia terminus for the #7 route is only one minute, whereas at the Jasper Place terminus it is more than twenty minutes. Why the discrepancy? The route has been dieselised so often that ETS is most likely aware of community objections to an idling diesel bus (in Belgravia) whereas at Jasper Place it doesn't matter.

## EMISSIONS

Some years ago ETS realised that as far as image was concerned they had an environmental asset by virtue of having a trolleybus fleet. They even went as far as to paint a trolleybus in an overall “green” theme, and it ran on the various routes round the city to proclaim the “clean” message.

How times have changed. Recently ETS has been trying to discredit the fleet of trolleybuses by claiming that they are more polluting than diesel buses(!) because the generation of the electricity to run them produces harmful emissions. It doesn't seem to matter that these emissions are produced for the most part far from urban centres, yet diesel buses produce their emissions at street level. Even the Consultant's report doesn't differentiate between “regional” and “on-street” emissions. (In penalising the trolleys because of emissions due to power generation, no mention is made of the additional emissions associated with the production and refining of oil to produce diesel fuel, nor indeed with its delivery.) The logical extension of all of this is to replace the LRT cars when they reach the end of their life cycle with diesel rail cars.

**DIESEL EXHAUST IS DIRTY AND WILL REMAIN SO EVEN IF THE SO-CALLED “CLEAN DIESEL” TECHNOLOGY ACTUALLY TURNS OUT TO MEET THE STANDARDS THAT ARE AT PRESENT ONLY LEGISLATED.**

**TROLLEYBUSES, BEING ELECTRICALLY POWERED, PRODUCE NO ON-STREET EMISSIONS.**

**THE ALBERTA GOVERNMENT HAS INDICATED IT IS KEEN TO FUND “CLEAN COAL” TECHNOLOGY.**

## ACCESSIBILITY

When the BBC trolleybuses were obtained in 1981/82 a low-floor option was not available (for either trolley or diesel).

In 1992 a survey conducted for ETS which asked the question "Which type of vehicle would you like to see purchased by 2000?" the response was: More LRT 45% More trolleys 18% More diesel 3 % More alternative fuel 17%

"If the option preferred was more expensive would you still support your choice?" the response was:

Would still support it 65% Would not support it 15% Undecided/maybe support it 20%

Now, with low-floor (diesel) buses becoming more and more common, some patrons (even on trolley routes) are indicating a preference for low-floor. Transit see this as justification for the elimination of trolleybuses.

### ANY NEW TROLLEYBUSES PURCHASED WOULD BE

LO~-FLOOR. The fact that the present fleet of trolleys is not low-floor is simply a matter of timing of the original purchase. Obviously ETS was not in a position to consider low-floor trolleys when the fleet was only 10 years old.

~

Let's compare "apples to apples" and satisfy more patrons by introducing low-floor trolleybuses -the best of both worlds.

## OPERATING COSTS

**FUEL:** At present fuel costs per km. are comparable for trolleys and diesels.

**MAINTENANCE:** The costs presented by the Consultant's report would appear to slightly favour diesel over trolley. However a closer look at their Table is revealing.

Year/Ave	0-5	6-10	11-15	Total
High Floor 40 ft	0.30	0.47		\$0.77
Low Floor 6V-92	0.44	0.79		\$1.23
Low Floor Cummins	0.14	0.25		\$0.39
<b>Total Diesel</b>	<b>0.23</b>	<b>0.39</b>		<b>\$0.62</b>
<b>Trolleys</b>	<b>0.25</b>	<b>0.41</b>		<b>\$0.66</b>
<b>Average</b>	<b>0.23</b>	<b>0.39</b>		<b>\$0.62</b>

The bus fleet at present is made up as follows:

High floor (old style GM): 294 units (21 to 27 years old)  
 1<sup>st</sup> series of low-floor: 59 units (10 years old)  
 Current low-floor: 361 units (0 to 5 years old)  
 Trolleybuses (high floor) 59 units (22 years old)

One would certainly expect that maintenance costs for new (0 to 5 years) buses would be the lowest of the fleet. But by giving a weighted "average" figure for the whole diesel fleet, this is clearly going to be heavily biased downwards since over half the diesel fleet is less than 5 years old.

In comparing a 22 year old trolley with a ~ 22 year old diesel we find that the trolley maintenance cost is 86% of the diesel's.  
 In comparing a 22 year old trolley with a 10 year old low-floor diesel we see that the trolley's cost is 54% of the diesel's.

**LET'S COMPARE APPLES WITH APPLES** and be glad that ETS didn't purchase more of the 1<sup>st</sup> series low-floor diesels!

## OPERATING COSTS (continued)

Overhead wire maintenance: The present cost is around \$1.2 m per year. (The cost per bus km. would drop if the trolley fleet was used more consistently.) It is worth noting that in the City's "2003 – *Municipal Revenues by Source*" published recently in the "Journal" the City received \$110.5 m as "*Dividends – EPCOR Utilities Inc.*" THIS MEANS THAT THE OVERHEAD MAINTENANCE COSTS AMOUNT TO ~ 1% OF THE EPCOR DIVIDEND.

The electrical distribution system throughout the City is owned and maintained by Epcor. If a transformer burns out at a sub-station, then Epcor fixes it. If a street light burns out, Epcor replaces it.

I would argue that the power distribution network for the trolleybus and LRT systems and the upkeep and maintenance should not be charged to ETS.

## CAPITAL COSTS

Over the course of several decades the trolleybus system in Edmonton has expanded to the point where there are about 140 route km. under wire. This represents a replacement cost of around \$75 ffi. In recent years there have been upgrades to the system (new running wire, new sub~station, new special work etc.) of about \$12 million. At present the wires to Southgate and Highlands are virtually unused although they are maintained.

In 1981/82 one hundred new trolleybuses were purchased to replace the Flyer trolleys (that were not a successful model). At the same time extensions were put in along 107 Avenue and 118 A venue to Jasper Place tenninus. As well, "express" wires were installed along several kilometres of 102 Avenue for a proposed line to West Edmonton Mall. However, after this not inconsiderable investment, these "express" wires were NEVER USED IN REVENUE SERVICE. As well, new power poles were erected on 97 Street, north of 118 Avenue all the way to Northgate again with an extension of the #9 in mind. Once again a "cold feet" attitude prevailed and wires were never strung to Northgate.

Presently we have miles of unused overhead and 39 trolleybuses sitting idle in permanent storage.

There is no doubt that to..day new state.of-the-art trolleybuses are considerably more expensive to buy than cuent diesel buses. However, the trolleybus typically does more work (carries higher loads) and hence generates more revenue if used to its full potential on the busiest rout~s. As well, industry standards clearly recognise that a trolleybus has a longer working "life" than a diesel.

In all the recent discussion no mention has been made of the performance of a modern trolleybus. Typically it is low-floor or low-floor articulated with an auxiliary power unit for off-wire movement. Thus, road disruptions which seem to be the norm during Edmonton summers, would not require substitution of diesels on trolley routes. As well, the propulsion system is AC which typically results in lower maintenance costs, and the control systems are state-of-the-art.

Higher capital costs are certainly the case at present, but in general electrified transit lines (trolleybus, LRT or heavy rail) attract higher ridership than diesel. Why should this be so? Diesel buses have an image problem whereas electric vehicles are perceived to be "clean". The consultants who did the recent report for Edmonton, some years ago did a report on the merits (or otherwise) of electrifying bus routes. They cited examples in Seattle and San Francisco to show that ridership increases if a diesel line is electrified while ridership decreases if an electric line is dieselised.

## FUEL: FUTURE COSTS AND AVAILABILITY

# Oil hits \$40US a barrel

### COSTS:

Recently the cost of oil has increased dramatically, and so has the cost of diesel. The Consultants suggested a rise of only 2 cents a litre (for the low sulphur diesel) but in the last few months fuel costs have risen by around 30% (not 4%)! Some analysts believe prices may fall back somewhat, but not to the levels we have seen for the past few years. Others say that high prices are here to stay, and in fact could increase further, given the uncertainties in the world. It is important to note that the price of oil is determined by the world market which is very volatile at present

Electricity prices in Alberta will remain stable according to Epcor

### SUPPLIES:

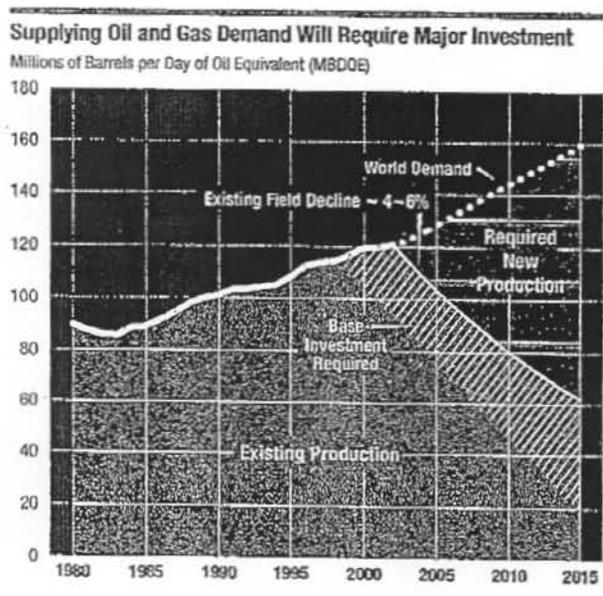
With economies booming in countries like China, India and Russia the world demand for oil is increasing dramatically. (China is now a net importer of oil.) As well, uncertainty in the Middle East has raised the possibility of oil supplies being reduced. While Alberta has (declining) conventional and tar sands reserves, this will provide only limited protection from increasing world demand. In fact "new" sources of oil are not keeping up with demand.

There are vast reserves of coal in Alberta for the production of electricity. (The question of harmful emissions is a separate issue.)

ETS would do well to think seriously about putting all its eggs in the one basket, namely diesel fuel, in the next decade. Electricity is used for the LRT and should continue to be used for trolleybus routes which pass through the downtown.

13

EXXON/MOBIL REPORT



# Shell forced to restate oil reserves — again

The Associated Press  
LONDON

Suffering another blow to its reputation, the Royal Dutch/Shell Group announced Thursday additional cuts to its estimated reserves of oil and natural gas, and suggested that more reductions might follow.

Shell downgraded 250 million barrels in reserves to less certain categories. It also decided not to book 220 million barrels it had earlier considered worthy of classifying as reserves.

The company postponed its annual report by two months to give auditors time to complete a review.

The reclassifications follow Shell's stunning announcement in January that it was downgrading 3.9 billion barrels in reserves, or about 20 per cent of its total holdings. That disclosure caused a shareholder uproar that led to the resignations of Shell's chairman, Sir Philip Watts, and its head of exploration and production.

## SOME THOUGHTS

In order to fully investigate the potential of a modern trolleybus I would suggest that a “demonstrator”, either from a manufacturer or a city which operates such vehicles, be brought to Edmonton for a fair assessment.

Recently there has been considerable discussion of “High Speed Bus” as a parallel mode or precursor to LRT expansion. If any such lines are put in place, they should be operated with electric vehicles – these present a clean, modern and efficient image to the riding public. The conventional diesel mode is soon going to be seen as passé.

One obvious candidate to kick-start “High Speed Bus” would be the route to Northgate where bus-only lanes can easily be put in place and electrification would be very straightforward, given that the traction poles are already in place.

It is time to be pro-active with regard to the trolleybus mode, rather than treating it as the poor cousin of the diesel mode, as has been the case since 1985.