

Edmonton Tests new Low Floor Trolley Bus

Following a 2004 directive of City Council, Edmonton's Mobile Equipment Services (MES)—the City's fleet maintenance division—has begun the testing of a new low floor trolley bus. The vehicle is being leased from Vancouver for a one-year period, and arrived in Edmonton on June 19th. It was officially placed into service on Route



The latest addition to ETS' electric fleet, a 21st Century low floor trolley bus, invites passengers at Coliseum Transit Centre. [Photo: J. Paull]

5—operating between Westmount Transit Centre and Coliseum LRT Station—on September 4th. The vehicle is assembled in Winnipeg and is powered by state-of-the-art electrical equipment by world-renowned manufacturer Vossloh-Kiepe of Germany. So far, the vehicle has met with favourable reviews from both operators and passengers alike.

The vehicle originally bore Vancouver Translink fleet number 2242 when that agency took delivery, but was renumbered 6000 shortly after its arrival in Edmonton.

The trolley boasts many features new to Edmonton. Most notable is the battery auxiliary propulsion system that allows it to operate away from the overhead wires in an emergency. This feature safeguards against the interruption of transit service if the trolley's path should become blocked by a motor vehicle accident or if a temporary power outage should occur. While commonplace in most cities using trolley buses today, no Edmonton trolleys have been equipped with this feature since the first English-built vehicles appeared in 1939.

The electronic equipment onboard the vehicle is very sophisticated. It records and stores a complete set of operational data, including its own power usage. During braking mode, power is fed back into the lines for use by other trolleys. A new design of power collection equipment significantly reduces the incidence of the poles losing contact with the overhead lines. The vehicle is estimated to experience perhaps 1/10th the number of dewirements of the older trolleys, according to a Mobile Equipment Services spokesperson. In the rare event of a dewirement, the poles are lowered automatically to avoid damage to the overhead wires.

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Lots of Local, North American and International News Inside . . .

News Bulletin of the Edmonton Trolley Coalition
Sustainable Transit for Liveable Communities
www.trolleycoalition.org

Edited by Robert R. Clark, retired supervisor of transit planning

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Edmonton Tests New Trolley (con't from cover page)

Edmonton passengers will have noticed the new trolley has less seats than they are used to, as its interior was designed to Vancouver specifications where more room is required for standing passengers. The seating layout, heating and other features would be ordered to Edmonton specifications if City Council goes ahead with new trolleys.

Also undergoing testing are six diesel hybrid buses—two from the Eastern Canada-based Orion Industries, and four from the same firm that built the new trolley bus. These are not being leased, but rather all six were purchased by the City and could therefore be tailored more to Edmonton specifications.

Professor David Checkel from the University of Alberta, known for his research work with internal combustion engines and hybrid systems, has been engaged by Mobile Equipment Services to conduct an evaluation of all of the test vehicles. The consulting firm of Booz, Allen and Hamilton will also be producing an updated version of their much criticized 2004 report. Edmonton City Council is due to make a decision on the future of the trolley bus system sometime during the latter half of 2008.

Trolley buses operate in about 360 cities worldwide. Motivated by quality of life factors, pressures to reduce pollution and greenhouse gases, and the need to transition away from petroleum fuels, a number of cities have recently built trolley bus systems or have them in the planning stages. [Source: ETC]



ETS 6000, nicknamed "Vanna" after her Vancouver origins, demonstrates off-wire capability near City Hall. [M. Marriott]

Victoria dumps Hybrid Bus "No business case" – Ron Drolet, BC Transit

BC Transit plans to upgrade its fleet in 2008-09 and may be purchasing between 85 and 90 new buses. But there won't likely be any hybrids in the fleet.

Over a year ago, BC Transit unveiled three hybrid diesel buses for Victoria as part of a trial to gauge their reliability and measure their fuel efficiency. The buses utilize an electric battery power source for acceleration and low speeds and switch to a diesel engine for higher speeds. Officials thought the technology would set the standard for fuel efficient, environmentally friendly bus fleets in Canada.

The buses were initially found well suited to Victoria's busy stop and go urban environment. In fact, fuel savings targets that were set at 20% over the fleet's 1992-2003 generation of buses, were exceeded by the new buses. In some cases, the savings ran as high as 28%. However, compared to the newest Cummins equipped Nova buses, the hybrids achieved only 8% better fuel efficiency.

Officials determined that the fuel savings realized by the hybrids, calculated over the 18-20 year expected life of the vehicle, did not offset the more expensive purchase price. Hybrids cost about \$800,000, whereas a new Nova diesel bus costs \$500,000. "There is no business case for buying hybrids," summarized Ron Drolet, Vice-President of Customer Service for BC Transit. [Source: Victoria News, July 11, 2007]

First New Trolley Bus Arrives in Philadelphia

The first of an order of new trolley buses for Philadelphia arrived in the home of the Liberty Bell on June 5th. The 'pilot' trolley will be tested on the system and returned to the manufacturer for any necessary modifications before the remainder of the order is built. The vehicles are to be of the same basic design as Vancouver's new trolleys, but will feature a small diesel-powered generator set to provide emergency back up power rather than a battery. The electrical equipment is by Vossloh-Kiepe. [International Trolleybus News/R. Seferian, June 7, 2007]

Seattle Transit News Update



After a two-year closure and \$94 million worth of construction to prepare for Sound Transit's light rail line, the bus tunnel in Seattle was ready to re-open to bus traffic by late September. The city's articulated hybrid buses are used in battery mode to operate the short stretch of service through the tunnel, returning to a combination of diesel and electric propulsion after reaching street level. The tunnel will be used by both light rail and hybrid buses when the light rail line to the Seattle-Tacoma International Airport opens in 2009. Testing of light rail trains in the tunnel is scheduled to start this October.

King County Metro is hoping to have extensions to its trolley bus system in place to serve stations on the light rail line when it begins operation. Two trolley extensions are to be completed in 2008: An extension of Route 14 to connect with the McClellan Street Station and an extension of Route 36 to Othello Street Station. Plans are for a transit centre to be built near the McClellan Street Station to allow several diesel bus routes to serve the station as well as Route 14 trolleys, but the outcome of land disputes must be awaited before this can go ahead. A third extension is planned for some time in the future to allow trolley Route 7 to serve the Henderson Street Station.

In the South Lake Union area, a red streetcar arrived by truck on September 17th. This is the first of three streetcars purchased to provide service on the newly constructed Lake Union Line, scheduled to open this December. Each streetcar will be painted a different color—one red, one orange and one purple. The 1.3 mile long streetcar line will cost \$50.5 million by the time construction is complete and will move commuters between Westlake Centre and the Fred Hutchinson Cancer Research Centre. Seattle is reportedly considering more streetcar lines.

[Sources: S. Gilmore, *Seattle Times*, September 20, 2007; King County Metro online news, www.transit.metrokc.gov accessed September 17, 2007; International Trolleybus News /R. C. DeArmond.]

Edmonton appoints new General Manager of Transportation

Effective July 23rd 2007, Robert Boutilier took over the post of General Manager of Transportation for the City of Edmonton. Like his predecessor Rick Ducharme, Boutilier comes to Edmonton from the Toronto Transit Commission (TTC). He has extensive experience in senior management. Boutilier previously held the post of Deputy General Manager of Surface Operations, where he managed over 5,000 staff and a budget of \$350 million. [Source: City of Edmonton News Release, Office of the City Manager, June 18, 2007]

San Francisco introduces new Trolley Bus Route

On Monday, July 2, 2007, many commuters in San Francisco began taking a new trolley bus route to their destinations. The 20 Columbus began operation that day using existing overhead wire, to provide 15-minute service. It operates between Van Ness and North Point and Howard and Main from 9 am to 4 pm weekdays. Service hours may be expanded in future if there is demand. This brings the total number of trolley bus routes operating in San Francisco to 16.

[Source: International Trolleybus News/R. C. DeArmond, June 7, 2007]

Diesel Fumes linked to Heart Disease – New Study



New research suggests that diesel fumes react with cholesterol to clog up arteries. Scientists found that soot particles found in diesel exhaust interact with fat in the blood to trigger the changes that lead to heart disease.

According to study leader Dr. Andre Nel from the David Geffen School of Medicine at the University of California, adding diesel particles to cholesterol fats “creates a dangerous synergy that wreaks cardiovascular havoc far beyond what is caused by the diesel or cholesterol alone”. Laboratory tests showed that the diesel particles and fats worked in tandem to activate genes that promote cellular inflammation. Inflammation in blood vessels is a major risk factor for atherosclerosis, the build-up of hard deposits that block arteries.

[Source: PA News/Channel 4 News, July 26, 2007 (<http://tinyurl.com/3xbm2w>)]



Leeds, England to reintroduce Trolley Buses

Yorkshire and Humber Assembly backs Trolleys

Trolley buses are to return to Leeds after a 35-year absence in an attempt to rid the city of diesel fumes and attract drivers out of their cars with smoother, faster journeys. Other benefits will include route permanence, reducing dependence on fossil fuels, high performance and low noise.

The city's 25-year transport plan, called *New Generation Transport*, envisions a 20 km trolley bus network with a total capital cost of £300 million. The network is to have three principal branches, one serving Headingley in the north, one service Stourton in the south, and an eastern route which will serve new housing developments. The routes will operate 50-60% of the time on dedicated lanes to reduce journey times.

A June 15th, 2007 decision by the Yorkshire and Humber Assembly's regional transport board granted funding in the amount of £150 million for the first phase of the project. "We believe this is a major regional scheme to improve transport for business and commuters in one of our key cities, as well as a great opportunity to improve the city's environment," said Chris Glen, Chair of the transport board.

The West Yorkshire Passenger Transport Executive "Metro" welcomed the decision. Kieran Preston, Director General of Metro, said that car drivers were more likely to switch to a trolley bus than a conventional bus because the overhead lines give a sense of permanence. Bus companies can remove existing services with little notice. "People can see the system and have confidence that it is permanent. They will be more inclined to make life-changing decisions, such as where they live or work, based on good public transport rather than access by car." Preston expects 30% of riders on the proposed trolley bus system, or almost five million passengers, to be people who switched from using cars.

The Department for Transport has indicated it will approve the Leeds scheme, which is due to open in 2011.

[Sources: *The Times*, June 16, 2007; www.transportbriefing.co.uk report of June 26, 2007]

Wellington seals deal to renew trolley fleet

Greater Wellington Regional Council and operator New Zealand Bus finalized a contract for \$45 million NZ dollars on May 10th that will see a fleet of 61 new electric trolley buses running by 2010. The new trolley buses will be roomier, more comfortable and more reliable, but at the same time will recycle electrical components from the trolleys presently on the road.

The existing trolleys will be gradually withdrawn and sent to Ashburton, where they will be stripped of their propulsion components. The components to be reused will be rebuilt, combined with new electronics, and installed in new bodies. The new vehicles will have better heating, larger windows, lower doors, more standing room and ten more seats than the present ones. The current collection equipment on the roof has been redesigned, and the new poles are 50% less likely to lose contact with the overhead wires. The new trolleys will also feature a battery unit to power the bus if the overhead power should fail.

NZ Transport Minister Annette King says the signing of the contract was "a great boost for public transport and a fine example of 'environmental sustainability' in action; the smooth, electric-powered motors help make the inner city cleaner and quieter, and an even better place to live, work and play."

Every year, Wellington's fleet of 60 electric trolleys covers about 1.6 million kilometres and uses 4 million kWh of electricity. Green power is purchased for the fleet from TrustPower's Tararua Wind Farm, making the trolleys, in effect, emission-free. "Diesel buses covering the same distance would use 600,000 litres of fuel, producing 1600 tonnes of the greenhouse gas Carbon Dioxide", says King. "Anything we can do to reduce CO2 emissions and move toward renewable energy sources, and to increase the use of public transit is to be applauded," she added. "Wellington should be congratulated for its enterprise and initiative."

[Sources: Dominion Post, May 11, 2007 and beehive.govt.nz, Official Web site of the New Zealand Government.]

Merida Venezuela opens Trolley Bus BRT System

On Monday, June 18th, 2007, the city of Merida Venezuela officially inaugurated its new trolley bus rapid transit system, as the first 10.4 kms of Line 1 went into service. Minister of Energy and Infrastructure, Jose David Cabello, and Merida Governor Florencio Clubs were present for the inauguration ceremony. Clubs indicated that “the undertaking will bring important benefits to the inhabitants, particularly those who reside in the municipalities of Elias Field and Libertador, as it is a mass transit service that can use clean energy sources and is safe, fast and comfortable.” 100 diverse communities will benefit directly from the completed system, which uses exclusive right of way.



Photo: El Trolmerida

Funding is awaited for the completion of Line 1 and the start of work on Line 3. The completion of these lines will serve communities in the Sierra Nevada.

[Source: Venezuelan government Web site at: www.rnv.gov.ve, courtesy the TBus Group]

New Trolley Bus system with automatic steering for Pescara

The Italian city of Pescara on the Adriatic coast will be constructing a unique new trolley bus system that incorporates vehicles with automatic steering. In May of 2007, an order was placed with the Dutch company APTS and the German electrical equipment manufacturer Vossloh-Kiepe for six “Phileas” vehicles. The articulated trolleys have three axles, and all six wheels of the vehicle can be steered. Stations can be approached with complete accuracy, and it is also possible for the vehicles to operate closely behind one another without large safety margins. The vehicles will be equipped with an auxiliary diesel powered generator set for off-wire operation, as is common to most modern trolley buses in Western Europe.



The “Phileas” trolley bus design
Picture courtesy The TBus Group

[Source: Vossloh-Kiepe Corporation, May 29, 2007]

Modena, Italy plans expansion to trolley system, orders more trolleys

In order to provide service for a planned expansion of its trolley system, Modena has ordered three new 40-foot low floor trolleys. The vehicles will be built by Neoman Ltd and outfitted with electric drive technology from Vossloh-Kiepe. Delivery is to take place this November. A diesel generator set will provide emergency off-wire power. The city of Modena has been operating trolley bus services since the late 1990's. [Source: Vossloh-Kiepe Corporation, May 29, 2007]

Spain – New Trolley Bus System to open in Castellon de la Plana

Construction of a trolley bus system in the city of Castellon de la Plana, located in the eastern part of the Spanish Iberian Peninsula, is nearing completion. One 2.1 km route is due to open in January of 2008 and will be served by three two-axle CIVIS trolley buses manufactured in France. The vehicles will be equipped with a diesel generator set that will enable them to traverse short unwired sections in the depot as well as in the downtown.

Since April of 2007, CIVIS trolley bus No. 1857 from Lyon, France has been on loan to Castellon for test purposes. [Source: International Trolleybus News/M. Simon, August 25, 2007]

Biofuel Perspectives - Are biofuels really a key to our energy future?

There has been much enthusiasm recently over biofuels, both as a means of reducing greenhouse gases as well as an alternative to oil. Governments are providing all manner of incentives for biofuel production and use. Not only have they made their way into the gas tanks of automobile drivers, but transit agencies have even jumped on the biodiesel bandwagon. The lure of biofuels is that they would allow us to continue our present transportation lifestyle, relying heavily on internal combustion engines, with the only change being in the fuel that we pour into the tank. But is this the whole story? Recent media reports on biofuels suggest that it is not.

Biofuels won't help Climate Change
Condensed from an article by Nick Louth,
MSN Money UK, February 27, 2007



The excitement of biofuels is in theory understandable. A bus in Brazil, running on ethanol derived from locally-grown sugar cane, produces 90% less CO₂ than a petroleum powered bus. The reason is that the carbon absorbed from the atmosphere by the growing cane offsets almost all the carbon returned to the atmosphere by burning the ethanol in the bus. By using local crops, rural incomes can be boosted, technology transferred to less developed countries, a useful export for poor agrarian countries emerges, and so on.

This is the holy grail of biofuel. Growing fuels to substitute for increasingly scarce oil supplies, and cutting reliance on energy from unstable regions like the Middle East.

So much for theory. The carbon gain isn't automatic. It hinges on growing crops for the fuel that would otherwise not be grown. If the crops are merely diverted from other uses, then there is no new crop growth, and no offset to the carbon produced when burning the fuel.

The International Energy Agency (IEA) says that demand for crops to produce biofuels will soar from 41.5 million tonnes of oil equivalent in 2010 to 92.4 million by 2030. With government subsidies, it may climb even faster to 146.7 million tonnes by 2030. Yet that is still a drop in the bucket compared to the 3,809 million tonnes of oil consumed annually worldwide. And oil consumption is set to grow every year by 3.2-3.6%, according to the IEA. A single year's growth would thus eat up the entire 2030 cumulative biofuel target. Plainly, we are hardly going to see much difference in fuel demand or in reliance on the Middle East because of biofuels.

Besides, the Organization for Economic Cooperation and Development (OECD) reckons it would take 70% of Europe's farmland devoted to biofuel crops to provide just 10% of road transport fuel. "Biofuels are therefore not any kind of answer to global warming," concludes Doug Parr of Greenpeace.

Now economics weighs in. The soaring cost of the crops needed to produce biofuels is already threatening to make them uneconomic and ensure they could not survive without subsidies. Prices of

corn, wheat, palm oil, canola and soy oil futures are all soaring, making the price of biofuels much more expensive than the fuels they are intended to displace in our fuel tanks. Corn prices have now reached a 10-year high.

Biofuels could have a role to play if they were grown only in the tropics, but the western world's farmers, of course, don't want to miss out on the subsidies. And to keep biofuels competitive will cost a lot more in taxpayer subsidies. Are we really prepared to do this when they aren't going to help us win the war on climate change?

[Source: MSN Money UK, Feb. 27, 2007]



Biofuel's Dirty Little Secret

Ethanol has been touted as a cure for our addiction to oil, but it has nasty side effects.

Pollution from gasoline engines accounts for 10,000 deaths in the U.S. each year, along with thousands of cases of respiratory disease and cancer. But the widely touted ethanol based fuel E85 could make matters worse.

Mark Jacobsen of Stanford University modelled emissions for cars expected to be in use by 2020. The model assumed carbon emissions would be about 60% less than 2002 levels, so overall deaths would be cut in half. However, according to his model, an E85 fuelled fleet would cause 185 more pollution deaths per year than a gasoline fuelled one.

The findings, to be published in *Environmental Science and Technology*, run counter to the idea that ethanol is a cleaner burning fuel. While E85 burning cars would emit less benzene and butadiene, they would spew out 20 times more acetaldehyde. Acetaldehyde can react with sunlight to form ozone, one of the main constituents of smog, thus increasing the risks to people's health.

"There have been many people barking pretty loud about biofuels," says Jacobsen. "They've been pushing things before the science is done."

[Source: *New Scientist*, April 21, 2007]

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