



Public Involvement Research Hybrid-Trolley-Diesel Evaluation



June 2008

Background & Introduction

- ▶ Public involvement research consisted of:
 - ▶ User (intercept) survey
 - ▶ *408 interviews with ETS customers on Routes 5 and 135*
 - ▶ General public (telephone) survey
 - ▶ *400 interviews with Edmonton residents aged 18+ years*
 - ▶ Employee (paper) survey, conducted internally by ETS
 - ▶ *411 surveys returned to Leger for data entry & analysis*
 - ▶ Stakeholder workshop
 - ▶ *18 participants attended, representing 17 organizations*

Key Findings

- ▶ User (intercept) survey
 - ▶ *Preferred HYBRID over other technologies*
- ▶ General public (telephone) survey
 - ▶ *Preferred HYBRID over other technologies*
- ▶ Employee (paper) survey, conducted by ETS
 - ▶ *Preferred DIESEL over other technologies*
- ▶ Stakeholder workshop
 - ▶ *Preferred a mix of technologies*
 - TROLLEY and HYBRID in short term
 - HYBRID in long term

Overall Preferences

Edmonton

Toronto

Calgary

Montreal

Philadelphia

New York

Overall Preferences

% of Respondents Who Ranked the Technology as **Most Preferred**

| Rank | Technology | ETS Users (n=408) | Gen. Public (n=400) | ETS Operators (n=355) | MES Maintenance (n=56) |
|-----------------|------------|----------------------|------------------------|--------------------------|------------------------------|
| 1 | Hybrid | 62% | 63% | 28% | 25% |
| 2 | Diesel | 27% | 25% | 66% | 59% |
| 3 | Trolley | 11% | 7% | 2% | 11% |
| Does not matter | - | - | - | 2% | 4% |



Detailed Survey Findings

Edmonton

Toronto

Calgary

Montreal

Philadelphia

New York

Rating Importance of Specific Aspects

% of Respondents Who Ranked the Aspect as **Most Important**

| Rank | Aspect | ETS Users (n=408) | Gen. Public (n=400) | ETS Operators (n=355) | MES Maintenance (n=56) |
|------|----------------------|----------------------|------------------------|-----------------------------|------------------------------|
| 1 | Dependability | 42% | 28% | N/A | N/A |
| 2 | Emissions | 29% | 30% | N/A | N/A |
| 3 | Cost to Taxpayers | 20% | 36% | N/A | N/A |
| 4 | Noise levels | 9% | 5% | N/A | N/A |

Rating Technologies on Specific Aspects

% of Respondents Who Ranked the Technology as **Most Dependable**

| Rank | Technology | ETS Users (n=408) | Gen. Public (n=400) | ETS Operators (n=355) | MES Maintenance (n=56) |
|------------|------------|----------------------|------------------------|--------------------------|------------------------------|
| 1 | Diesel | 47% | 39% | N/A | N/A |
| 2 | Hybrid | 43% | 30% | N/A | N/A |
| 3 | Trolley | 10% | 12% | N/A | N/A |
| Don't know | - | - | 19% | N/A | N/A |

Rating Technologies on Specific Aspects

% of Respondents Who Ranked the Technology as Having **Least Emissions***

| Rank | Technology | ETS Users (n=408) | Gen. Public (n=400) | ETS Operators (n=355) | MES Maintenance (n=56) |
|------------|------------|----------------------|------------------------|--------------------------|------------------------------|
| 1 | Trolley | 52% | 51% | 18% | N/A |
| 2 | Hybrid | 39% | 36% | 59% | N/A |
| 3 | Diesel | 9% | 2% | 18% | N/A |
| Don't know | - | - | 12% | - | N/A |

* Operators were asked which technology has the "least negative impact on the environment"

Rating Technologies on Specific Aspects

% of Respondents Who Ranked the Technology as **Most Quiet**

| Rank | Technology | ETS Users (n=408) | Gen. Public (n=400) | ETS Operators (n=355) | MES Maintenance (n=56) |
|---------------|------------|----------------------|------------------------|--------------------------|------------------------------|
| 1 | Hybrid | 54% | 36% | 29% | N/A |
| 2 | Trolley | 31% | 43% | 43% | N/A |
| 3 | Diesel | 15% | 5% | 23% | N/A |
| Don't know | - | - | 16% | - | N/A |

Rating Technologies on Specific Aspects

% of Respondents Who Ranked the Technology as **Most Preferred Ride**

| Rank | Technology | ETS Users (n=408) | Gen. Public (n=400) | ETS Operators (n=355) | MES Maintenance (n=56) |
|------------|------------|----------------------|------------------------|--------------------------|------------------------------|
| 1 | Hybrid | 51% | 48% | N/A | N/A |
| 2 | Diesel | 30% | 12% | N/A | N/A |
| 3 | Trolley | 19% | 17% | N/A | N/A |
| Don't know | - | - | 22% | N/A | N/A |

Rating Technologies on Specific Aspects

% of Respondents Who Ranked the Technology as **Most Preferred to Drive**

| Rank | Technology | ETS Users (n=408) | Gen. Public (n=400) | ETS Operators (n=355) | MES Maintenance (n=56) |
|------|------------|----------------------|------------------------|--------------------------|------------------------------|
| 1 | Diesel | N/A | N/A | 73% | N/A |
| 2 | Hybrid | N/A | N/A | 20% | N/A |
| 3 | Trolley | N/A | N/A | 3% | N/A |

Rating Technologies on Specific Aspects

% of Respondents Who Ranked the Technology as **Easiest to Maintain**

| Rank | Technology | ETS Users (n=408) | Gen. Public (n=400) | ETS Operators (n=355) | MES Maintenance (n=56) |
|------|------------|----------------------|------------------------|--------------------------|------------------------------|
| 1 | Diesel | N/A | N/A | N/A | 77% |
| 2 | Hybrid | N/A | N/A | N/A | 7% |
| 3 | Trolley | N/A | N/A | N/A | 11% |

Diesel ranked least time-consuming (14%), hybrid ranked most time-consuming (54%) to maintain

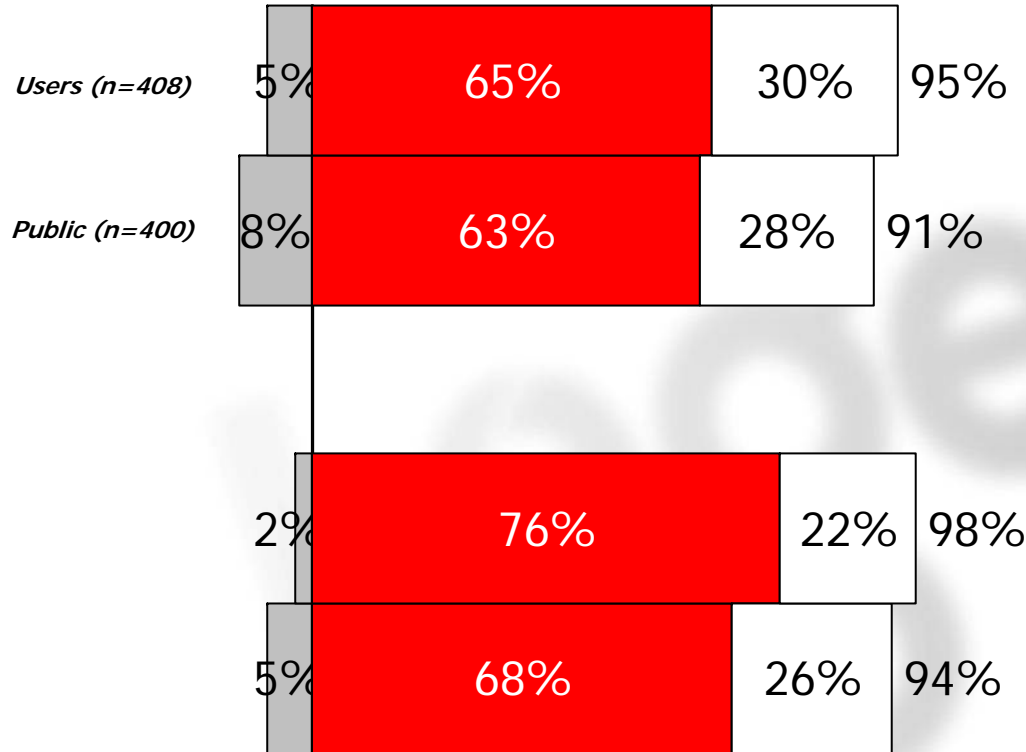
Perceptions of Bus Technology

Would use transit route regardless of type of bus used

It is important for Edmonton to adopt new technologies

Disagree

Agree



Do not agree (123)

Strongly agree (67) Moderately agree (45)



Stakeholder Workshop Findings

Edmonton

Toronto

Calgary

Montreal

Philadelphia

New York

Key Decision Factors

- ▶ Public image / Market play of investment
- ▶ Environment
 - ▶ Community / Local impacts – Noise, Emissions, Particulates
 - ▶ Greater environmental impacts – Emissions, Electricity generation
- ▶ Costs
 - ▶ Future energy scenarios (peak oil prices)
 - ▶ Existing investments in infrastructure
 - ▶ Location of use
- ▶ Vehicle reliability
- ▶ Route flexibility
- ▶ Aesthetics

Which Bus to Purchase

- ▶ It was generally agreed that ETS should consider purchasing a mix of buses.
- ▶ Preferences differed when considering current vs. future purchases:
 - ▶ **Short-term**, participants prefer to purchase more **trolley** buses than hybrid or diesel buses.
 - ▶ In the **future**, participants saw themselves purchasing more **hybrids** than other types of buses.
 - ▶ In both scenarios, diesel buses were least preferred, with very few indicating they would purchase this technology 10 years from now.

Considerations for Implementation

- ▶ Marketing the decision in a manner that encourages ridership among the general public.
- ▶ Cost, including externalities.
 - ▶ Ridership patterns, for example, diesel buses should go into new neighbourhoods because of the low infrastructure cost.
- ▶ Labour market for mechanics.
- ▶ Ensuring continuity of service and minimal disruptions.
- ▶ Building infrastructure, if purchasing trolley buses.
- ▶ Responsible disposal of old buses.
- ▶ Options for fuel (e.g., biodiesel).
- ▶ Tracking performance of hybrids in other markets, and using multiple examples rather than just one example.
- ▶ Continued public involvement:
 - ▶ Ensure maintenance staff are consulted and involved in the process.
 - ▶ Transparency and making information available to the public.
 - ▶ Additional public consultations.

Key Findings

- ▶ User (intercept) survey
 - ▶ *Preferred HYBRID over other technologies*
 - ▶ *Vehicle DEPENDABILITY most important*
- ▶ General public (telephone) survey
 - ▶ *Preferred HYBRID over other technologies*
 - ▶ *COST to taxpayers most important*
- ▶ Employee (paper) survey, conducted by ETS
 - ▶ *Preferred DIESEL over other technologies*
 - ▶ *Most Preferred to DRIVE*
 - ▶ *EASIEST to MAINTAIN*
- ▶ Stakeholder workshop
 - ▶ *Preferred a mix of technologies*
 - TROLLEY and HYBRID in short term
 - HYBRID in long term



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