



NEW FLYER



**ZBUS Workshop – Sep 17, 2013
Panel 1 – Battery Electric Buses
Glen Naylor**

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New Flyer Headlines 2013

January - Marco Polo Acquires 19.9% of New Flyer for \$116 Million

March – New Flyer acquires Orion parts business from Daimler and assumes two key contracts for New York City and King County

**June – New Flyer acquires North American Bus Industries
Manufacturing in Anniston AL
Service Center in Jurupa CA
NABI PARTS in Delaware OH**



The #1 Heavy-Duty Transit Bus company in Canada & US

Founded and Headquartered in Winnipeg, MB.

- 'Buy America' compliant with facilities on both sides of border
- Bus manufacturing plants in Manitoba, Minnesota and Alabama. Fabrication plant in Elkhart, IN
- Parts Distribution Centers in Manitoba, Ontario, Kentucky, Delaware and California
- Service Center: Arnprior, ON and Jurupa CA
- New Product Development Center (Winnipeg, MB)



Market Leader in Technology and Innovation

- Over 40,000 buses delivered. Over 31,000 still in operation.
- Bus lengths range from 31', 35', 40', to 60' articulating buses
- Diverse propulsion options: Clean Diesel, Electric Hybrid, Electric Trolley, CNG, and Hydrogen Fuel Cells. Now All-Electric Battery ZEV.



Focused on being an Employer of Choice

- Publicly Traded on TSX: NFI, NFI.BU.U
- Over 3,000 employees
- Renewed labor contracts: CAW (MB) and CWA (MN)



New Flyer Parts are closest to the Customers Quality, Price, Availability, Delivery.

WESTERN PDC
WINNIPEG, MANITOBA
Opened 1998



SOUTHWEST PDC
FRESNO, CALIFORNIA
Opened 2009



ONTARIO PDC
BRAMPTON, ONTARIO
Opened 2011



NABI PDC
DELAWARE, OH
Acquired in 2013



MIDWEST PDC
ERLANGER, KENTUCKY
Opened 2008



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Committed to Propulsion & Technology leadership

Xcelsior Electric – Trolley; Battery; Fuel Cell

Diesel

Gas

Trolley
NF eTrolley Bus
First delivered in 1993

Natural Gas
NF CNG Propulsion
First delivered in 1994

Hybrid
NF Hybrid Bus
First delivered in 2000

Fuel Cells
NF Hydrogen FC Fleet
Delivered fleet to BC Transit
Jan 2010

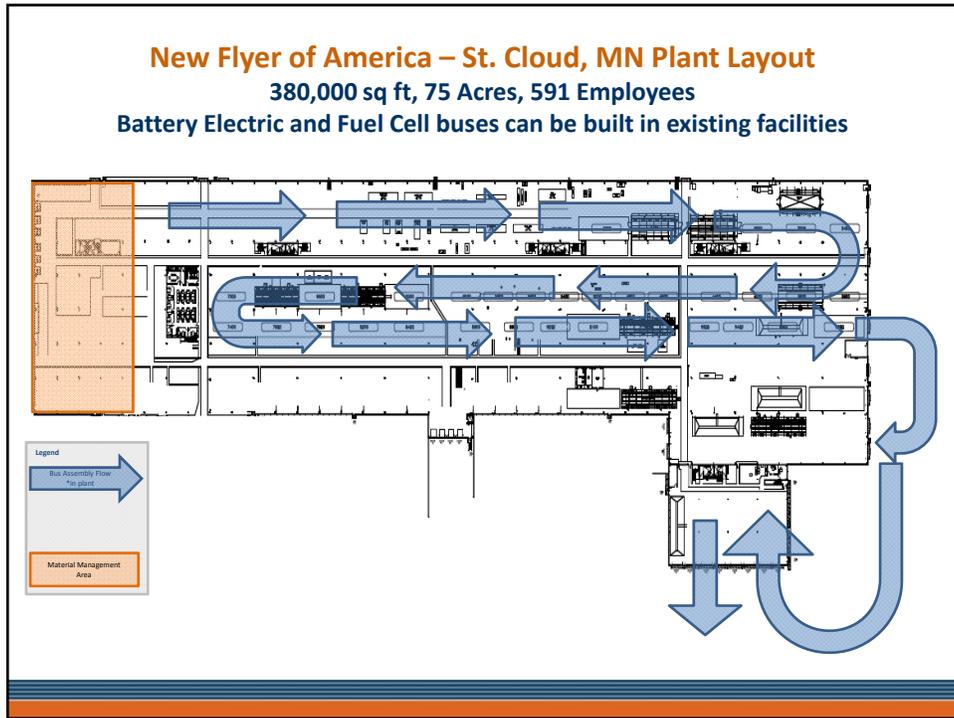
eAccessories
NF eAccessory Bus
Delivered to MN Metro
July 2012

Xcelsior-Electric
NF XE40
Battery Electric
Trolley
Fuel Cell

NEW FLYER

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- **Reduced Weight: 7 to 10% (model dependant)**
- **Durability Tested - Altoona**
- **Durability Tested - Exova Shaker table test = 6 Altoona tests**
- **7:1 Best-in-class Wheelchair ramp**
- **Industry First LED headlights**
- **Increased Seating Capacity 40**
- **Increased Total Passenger Capacity 80**
- **Many Common Parts regardless of Powertrain**



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Partnering to be the Best

+

With all-electric Accessories

Siemens Electric Drive	+	Dow Kokam Batteries	+	Eaton Rapid Charger
Buy America Compliant		Buy America Compliant		Buy America Compliant

Meeting Customer Requirement

APTA 10% Gradability Exceeded

APTA Accelerations Exceeded

Seating Capacity 40

Total Capacity 80

Battery Pack Options: 100 kWh/200kWh/300kWh

Range on CBD cycle: 35 miles/70 miles/105 miles (less in severe climates)

Optional Fuel Cabin Heater for extreme cold climates

Contract Lead Time: 12 to 24 months

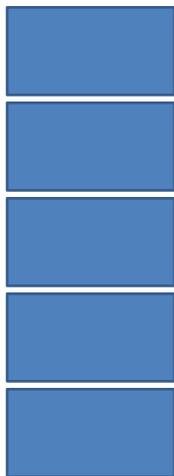
Rapid En-Route charge Time after 1 hour/12 mile operation: 6 to 8 minutes

Shop Chargers for overnight charge and maintenance available

Technology Enhancements 2-5 years

- **Lesson will be learned from small fleet field experience – we don't know what we don't know. We need more small fleet trials; 5 -10 buses**
- **Battery Reliability and Consistency of Manufacture will Increase**
- **Battery Life will Improve significantly due to Technology and manufacturing quality**
- **Lithium Battery Manufacturers will start to make a profit and we will have a more reliable supply and assurance they are still around to support the warranty**
- **Battery Cost will be < \$500 kWh**
- **Industry will adopt standard Rapid En-route Charging Format(s)**

Capital Cost Elements – Volume Sensitivity at 10 to 40 buses



- Bus Body
 - Electric Drive
 - Batteries
 - NRE (non recurring engineering)
 - Risk Pricing (we don't know what we don't know)
- Body costs at New Flyer are already efficient - 40,000 built
 - 40 power trains is still low volume so not volume sensitive
 - Some price sensitivity at volumes of 40 buses
 - Engineering Cost- very volume sensitive
 - Warranty Provision: This is not volume sensitive, it is experience sensitive. We need to get more small 10+ bus fleets into service

Thank You



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