Utility Fleet Perspective

The Rubber on the Road
GREENING THE FLEET

Alternative Fuels and Vehicles in Manitoba Hydro
The Line Up

- Ethanol
- Hybrids
- Plug-in Hybrids
- Hydrogen – I/C
- Hydrogen Fuel Cell
- Battery all electric
- Biodiesel
- Solar
- Natural Gas
- Propane
- Auxiliary power units
- Additives
INFRASTRUCTURE!!!!!
Utility Fleet Advantage

- Direct stake as part of utility
- Variety of vehicles, conditions
- Control over test conditions, monitoring
- Real world results
Utility Fleet Advantage

- Ability to invest? – (Business case)
- In House Technicians
Aerial Devices

- 6 identical units
  - 4 Non-hybrid
  - 2 Hybrid
- Same Duty Cycle
- Same Conditions
Financing

- Operating versus capital
- Leases
- Tax Credits – limited value
- Grants/Rebates
PHEV vs PHET

- **Vehicle mass**
  - Prius – 3 000 lbs x 9 kW-h = 30 miles
  - PHET – 19 000 to 33 000 lbs x 9 kW-h = ?

- **Energy Densities critical**

- **Big battery packs = dead weight**

- **PTO’s, lights, tools**

- **Right applications**
Vehicle to Grid

- Utility issue
- Public acceptance
- Place in integrating renewable energies into grid
- Utility fleet advantages
  - Utility facilities
  - In-house expertise
  - Control over all aspects of testing and demonstration
The Winner Is!!

- Technology feasible/replicable
- Nearing economic viability
- Can utilize existing infrastructure
- Gaining critical mass of public acceptance
- Will be around for awhile