Canada

Fuel Cells Canada™

BRITISH COLUMBIA

Ford

TEAM TechTalks
Globe 2006

The Vancouver Fuel Cell Vehicle Program

The Program

- Five Ford Focus fuel cell vehicles, “real world” conditions
- Demonstrate Canadian leadership in sustainable transportation
- Test, evaluate and refine Canadian-made technologies
- Vancouver and Victoria, British Columbia

Partners

- Government of Canada – NRCan, NRC, TEAM
- Province of British Columbia
- Ford Motor Company
- Fuel Cells Canada

VFCVP Objectives

Communications

- increase public awareness and understanding of hydrogen fuel cells

Technology

- assess vehicle and systems performance, required technology improvements

Fueling Infrastructure

- address infrastructure issues for fuel cell vehicles

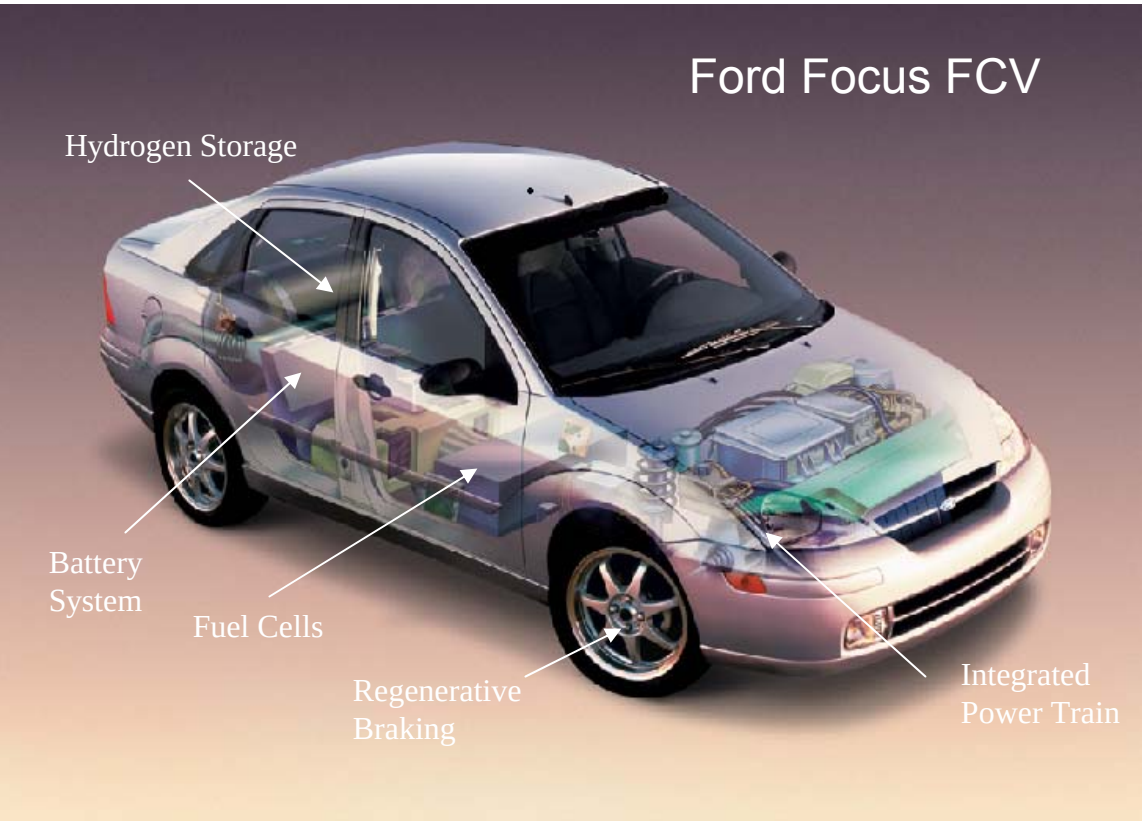
Environment

- demonstrate zero-emission transportation
- evaluate potential reduction in levels of greenhouse gases and regulated emissions

Regulations

- address codes and standards, regulatory requirements

Ford Focus FCV Features



- Limited production vehicles
- Ballard Mk 902 Fuel Cells
- Ballard Integrated Power Train
- Dynetek H2 Storage System
- Hybrid Battery System
- Regenerative Braking
- Weight – 1600 kg
- Peak Power – 67 kW (87 hp)
- Fuel – 350 bar H2 gas
- Max. Speed – 128+ km/h
- Driving Range – 260-320 km
- Emissions - Zero

Vehicle Operations

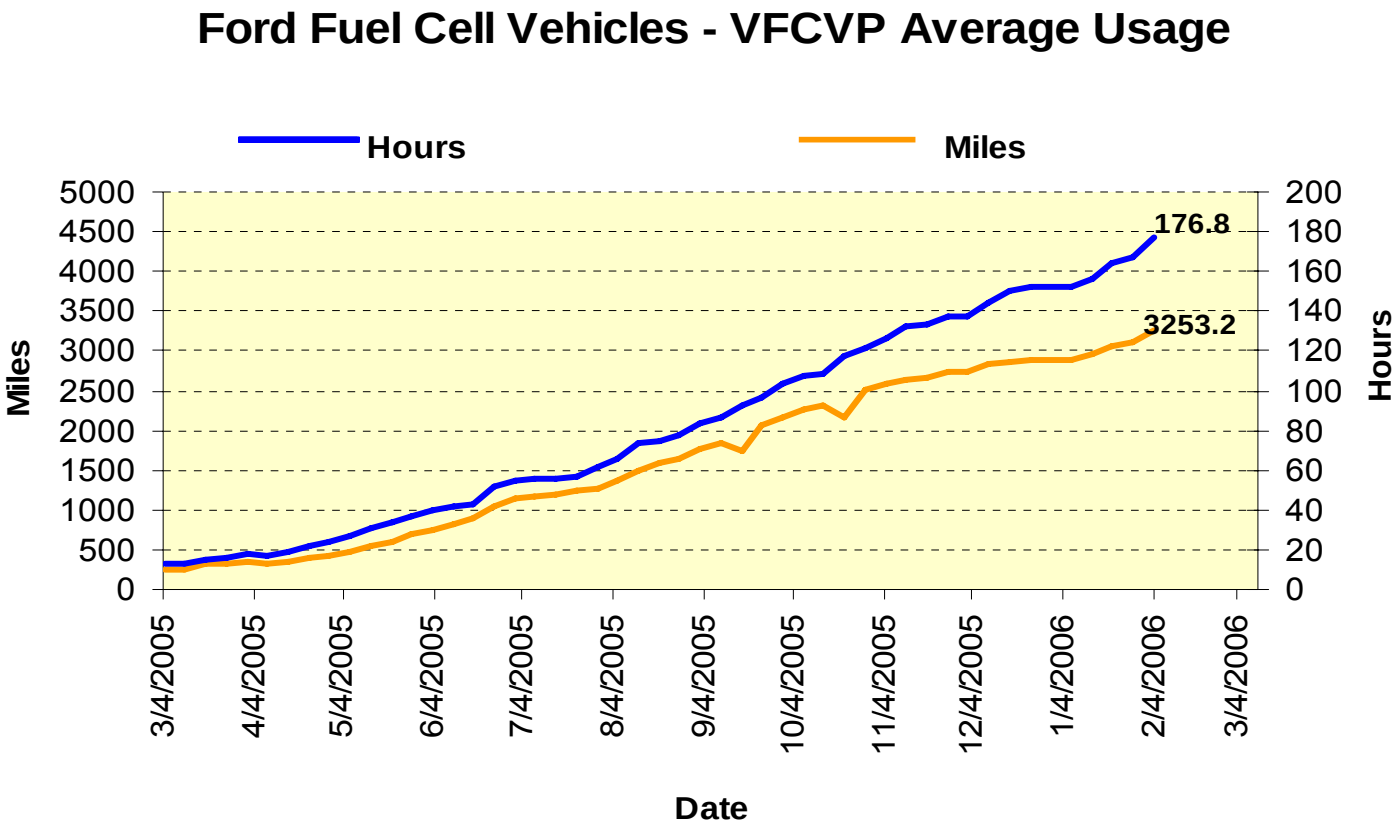
Vehicle Operators

- 3 years operation April 2005 to March 2008
  - Fuel Cells Canada/Province of BC
  - BC Hydro
  - BC Transit
  - Ballard
  - City of Vancouver
- Vehicles driven by employees

Operations

- Target annual 12,000-15,000 km per vehicle
- Maintenance by local technicians trained by Ford

Operational Data



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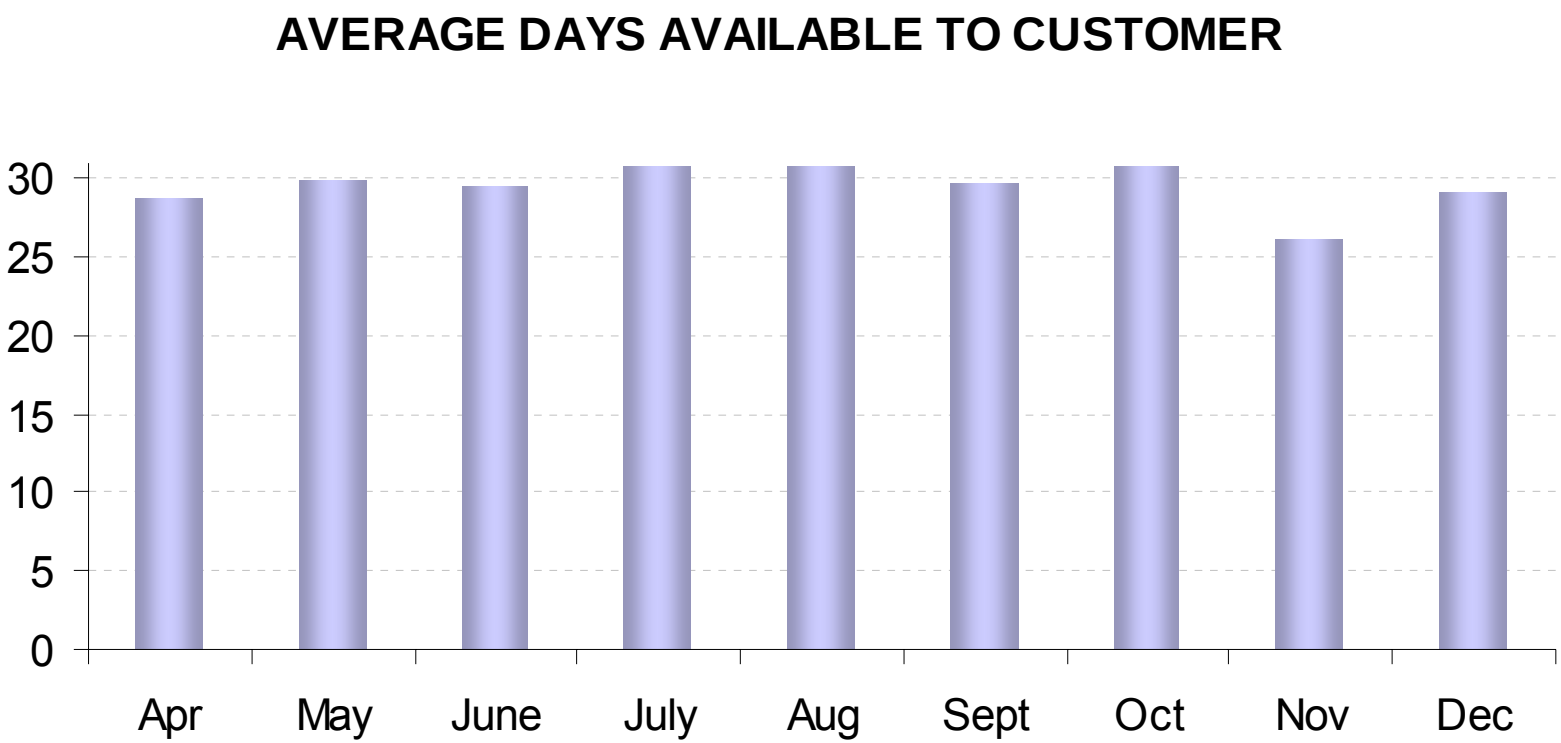

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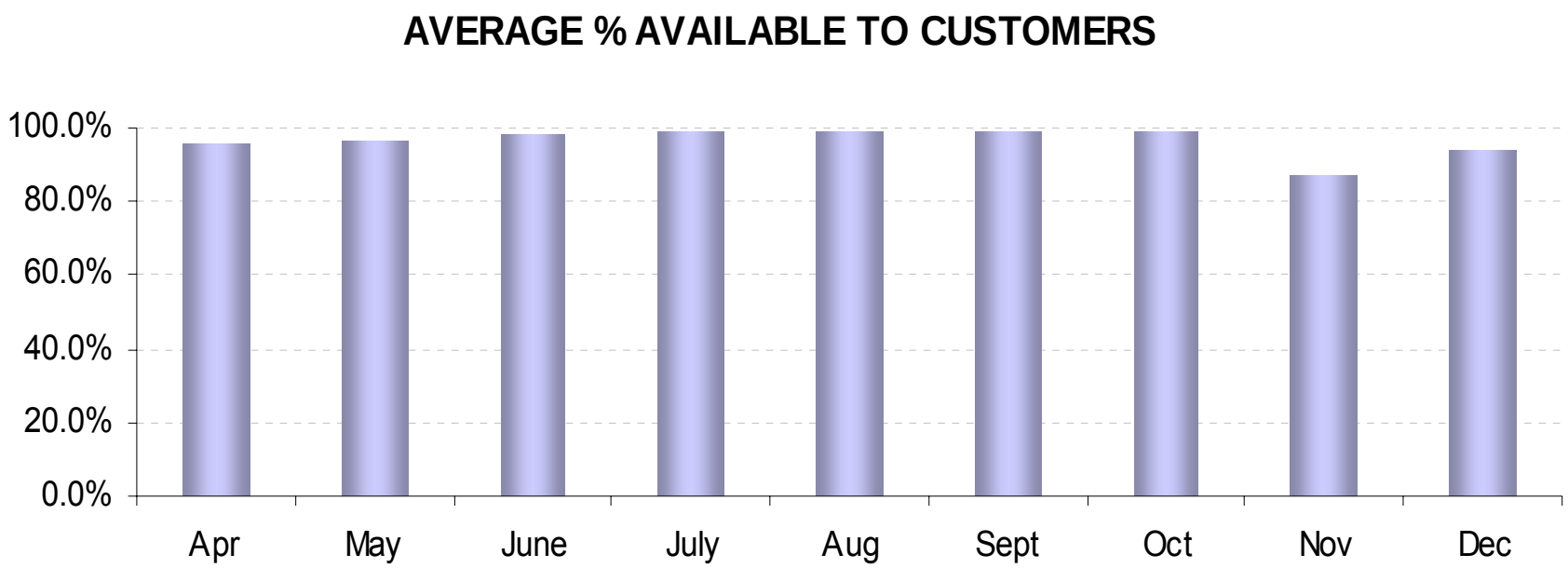


Maintenance

- Scheduled Maintenance
  - 90 day
    - Basic vehicle maintenance – inspect brakes, tires, fluids, wipers, check filters, check coolant conductivity
  - 6 month
    - Change filters

- Quantity Parts Replaced April 2005 – January 2006

Fuel Cell/Powertrain	3
Fuel System	5
HV Battery	5
Other Vehicle Components	8

Maintenance

- Level 2 software
  - General operating systems update
  - Cold weather operation
  - HV battery re-conditioning back to 90 days (SOC control)

- Cold Weather operation
  - Operate to -15C (previously +5C limit)
  - When vehicle warm (temperature gauge on panel), parking as follows:
    - Ambient above +3C — Indefinite
    - Ambient +3C to -5C — 6 hours
    - Ambient -5C to -15C — 3 hours
  - No fueling when ambient at -5C or below

Driver Survey

Who participated

VFCVP	20	34%
Other Ford sites	39	66%
Total	59	

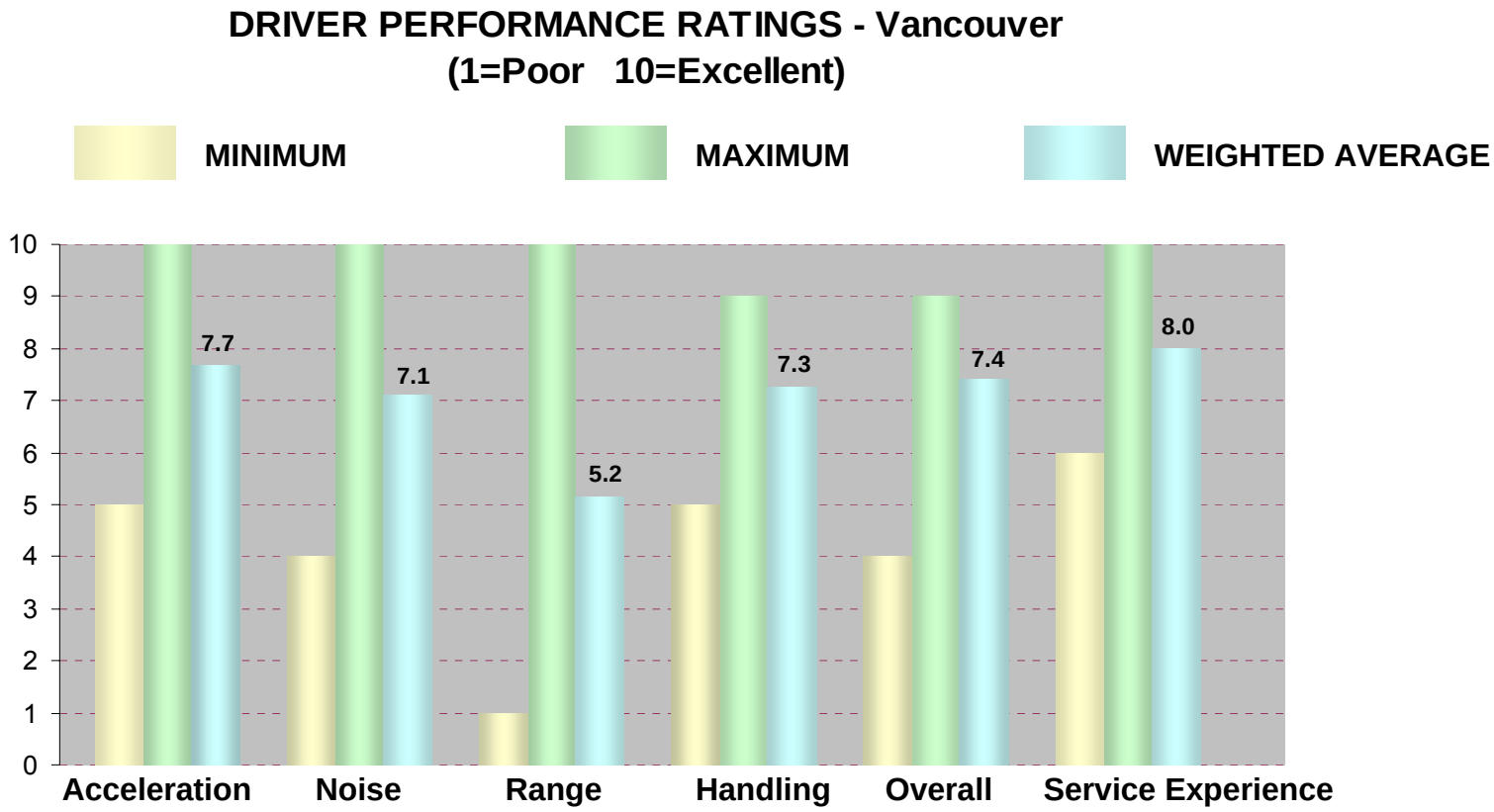
Driving frequency per week

< 1	38%
1	26%
2–3	10%
4-5	18%
>5	8%

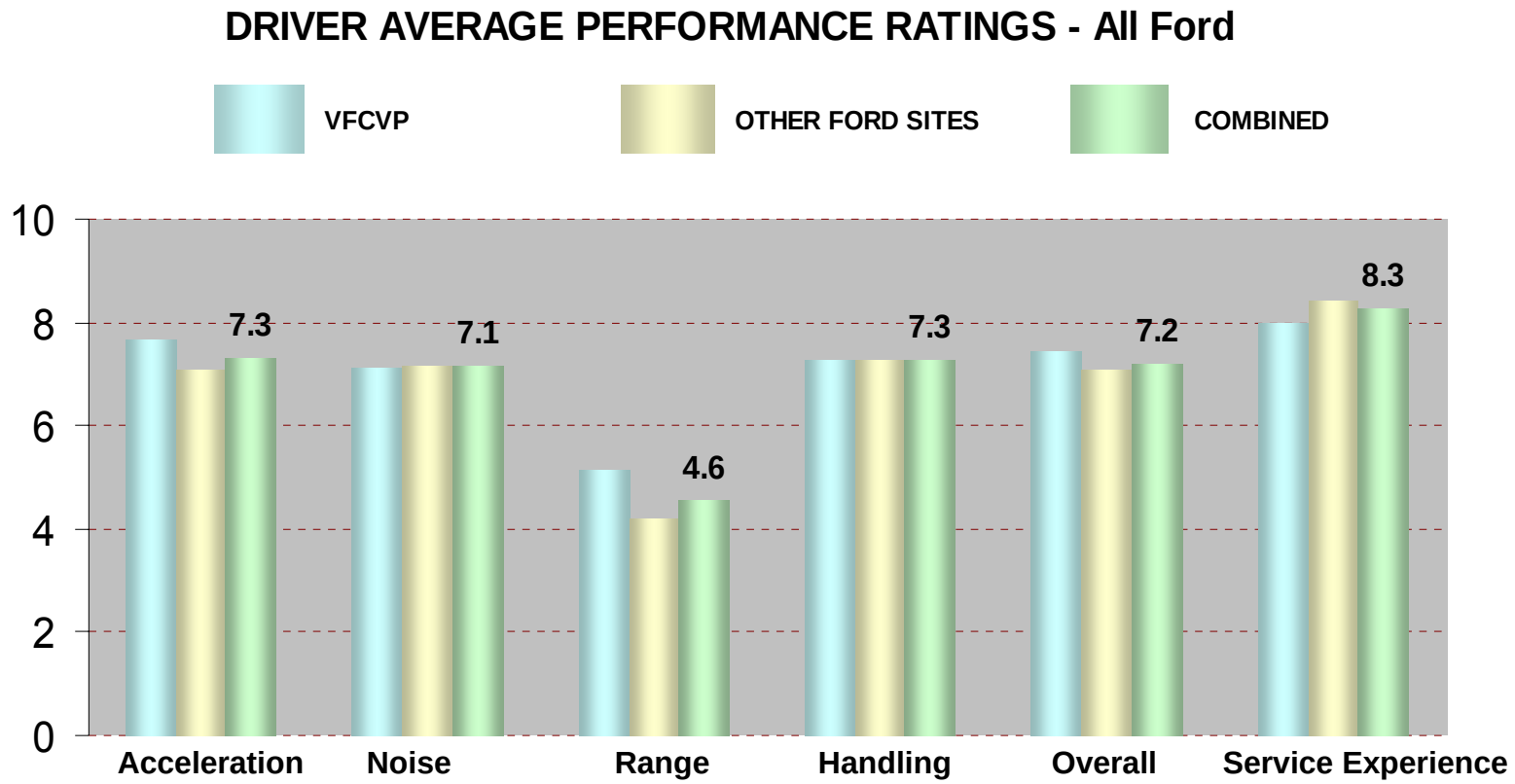
Any hesitations in driving?

No	90%
Yes	10% (mostly related to range and ambient temperature restrictions)

Driver Survey - Performance



Driver Survey - Performance



The Vancouver FCV Program

THANK YOU!

For additional information please visit our website
vfcvp.gc.ca

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