

E3 Fleet: Tools for Fleet Greening and Rating

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Today

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1. Overview of E3 Fleet Program
2. E3 Review
 - Setting a Baseline
3. E3 Rating
 - Examples of Best Practices



E3 Overview

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- **E3: Energy Environment & Excellence**
- **Objective:** to assist fleet managers to improve the energy use, emissions, and financial performance of their fleet.
- **Background:**
 - Began in 2006 as North America's first green rating system for vehicle fleets.
 - Collaboration: input from fleet managers to design services and resources for private and public fleets





Who's on board?

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- **Charter Members:**

Auto-Gas Propane, BC Ministry of Environment, City of Coquitlam, City of Hamilton, City of Kelowna, City of North Vancouver, City of Vancouver, Corp of Delta Municipality of Whistler, District of Maple Ridge, District of Saanich, Enbridge, Township of Langley, University of BC, BC Hydro, Novex Couriers , Hydro One , Prince George

- **Fleet participants**

- Municipal/public fleets (~85)
- Private fleets (~25)

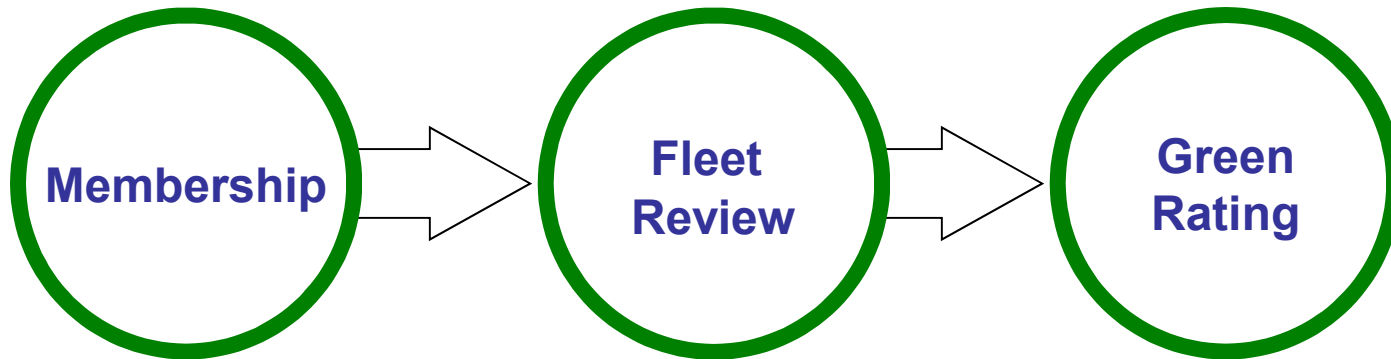
- **Partner Organizations**

- Fleet Challenge Ontario / Canadian Energy Efficiency Alliance
- Climate Change Central (Alberta)



Main Features

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- e-Newsletter
- Calculators
- BMPs
- Green Fuels Map
- Info. Resources
- Networking

- Fleet Assessment
- Sector Benchmarking
- Modeling / Scenarios
- Advisory Services

- Site Audit
- Bronze
- Silver
- Gold
- Platinum



E3 Fleet Review

You can't manage what you don't measure!

Three report levels:

I: Operational Review

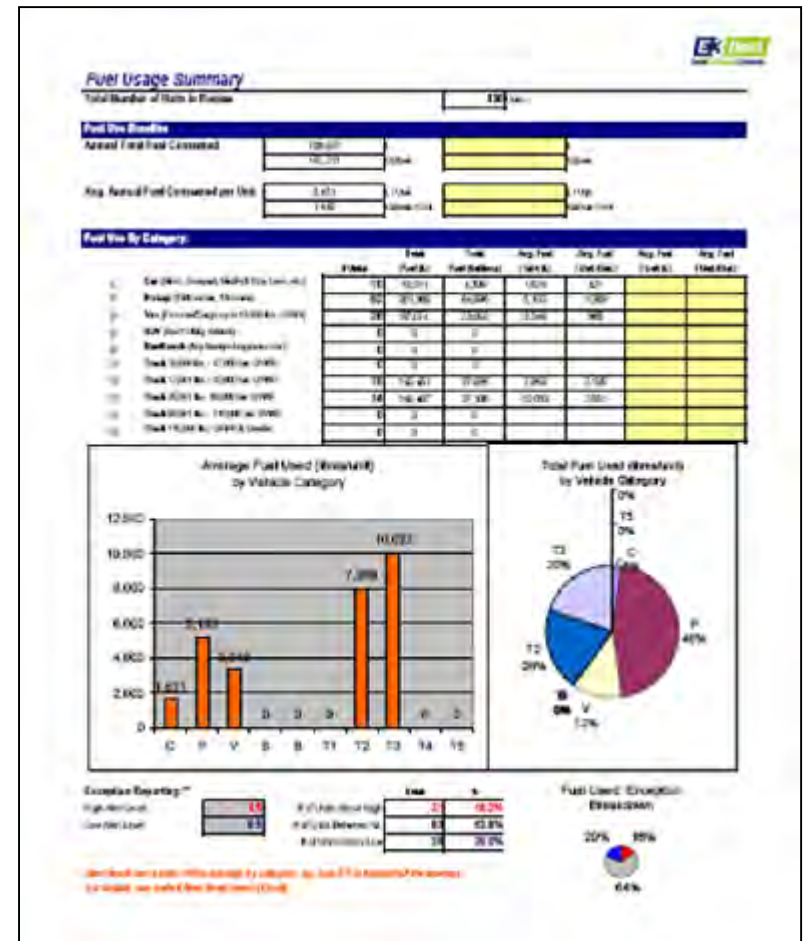
Fuel & emissions performance

II: Fleet Asset Profile

Total value, vehicles up for replacement

III: Asset Management

Operating costs, downtime, veh. operating cost by age



Fleet Review: Report Outline

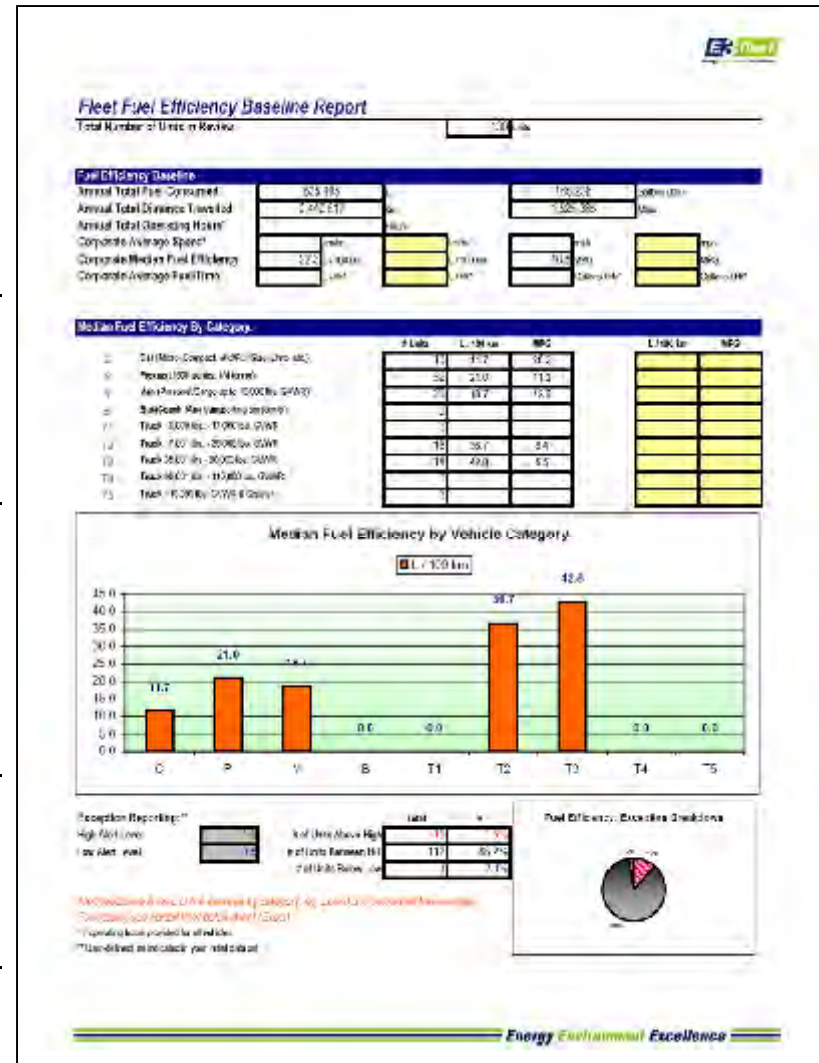
Avg. & Total for Fleet →

Avg. and Total by Veh. Category →

Bar Charts by Category →

Exception Reporting →

- Avg., above avg. & below avg.



Key Performance Indicators

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Fleet Median Fuel Efficiency

Fleet Average Age

Fleet Annual Fuel Usage (estimate)

Units due for Replacement

Fleet GHG Intensity (tailpipe)

Projected Total Budget (based on current retention practices)

Annual GHG Emissions (tailpipe)

Projected annual cost of R&M, fuel, capital & downtime

Fleet GHG Intensity (lifecycle)

Annual GHG Emissions (lifecycle)

Fleet Availability

Corporate Average Utilization (hr)

Fleet Average Downtime

Corporate Average Utilization (km)

Maintenance Ratio

E3 Green Rating

Fleets can be recognized for management practices & performance



GOLD



SILVER



BRONZE

Point-Based System:

100 Points Total

46 Required Points

54 Optional Points





E3 Fleet Rating

Points achievable in the following areas:

1. Green Fleet Action Plan
2. Training & Awareness
3. Idling Reduction
4. Vehicle Purchasing
5. Fuel Data Management
6. Operations & Maintenance
7. Trip & Route Planning
8. Utilisation Management
9. Fuel Efficiency
10. Emissions Performance

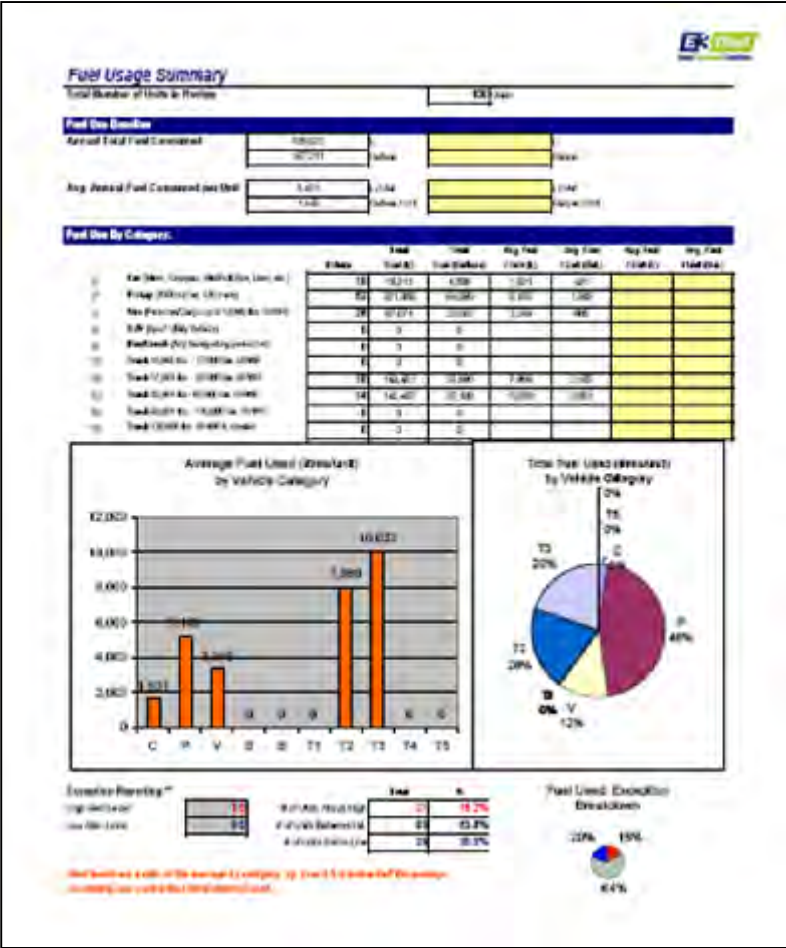
E3 fleet Rating Checklist		Overall Rating	Overall Score	Overall Points
Fleet Name: _____				
Date: _____				
6.0 Operations & Maintenance		XX Points Available (X Required, X Optional)		
Code	AO	Points	Includes in Table Below From Table of Credits	
6.1 Preventative Maintenance Program	Required	5		
6.2 Vehicle Fuel Efficiency Operating Procedures	Optional	7		
6.3 On-board Vehicle Data Analysis & Reporting	Optional	7		
6.4 Vehicle Emissions Testing	Optional	7		
6.5 Predictive Maintenance Program	Optional	5		
6.6 Recycle, Reuse, Recover, Reduce Program	Required	3		
6.7 Innovation in Equipment Operations*	Optional	1		
6.8 Innovation in Equipment Maintenance*	Optional	1		
7.0 Trip & Route Planning		XX Points Available (X Required, X Optional)		
Code	AO	Points	Includes in Table Below From Table of Credits	
7.1 Route Planning	Optional	5		
7.2 Load Optimization	Optional	5		
7.3 Minimize Empty Trips	Optional	5		
7.4 Logistics / Dispatch	Optional	5		
7.5 Innovation in Trip Planning*	Optional	5		
7.6 Innovation in Route Planning*	Optional	5		
8.0 Utilisation Management		XX Points Available (X Required, X Optional)		
Code	AO	Points	Includes in Table Below From Table of Credits	
8.1 Utilization Benchmarks & Exception Reporting	Required	5		
8.2 Vehicle Utilization Targets	Optional	10		
8.3 Utilization Monitoring Program	Optional	5		
8.4 Innovation in Utilisation Management*	Optional	5		
9.0 Fuel Efficiency Improvements		XX Points Available (X Required, X Optional)		
Code	AO	Points	Includes in Table Below From Table of Credits	
9.1 Demonstrated Improvements in Fuel Efficiency	Required	8		
10.0 Greenhouse Gas Reductions		XX Points Available (X Required, X Optional)		
Code	AO	Points	Includes in Table Below From Table of Credits	
10.1 Demonstrated Improvements in GHG Emissions	Optional	3		
10.2 Carbon Neutral Fleet	Optional	10		



E3 Fleet Rating

Points achievable in the following areas:

1. **Green Fleet Action Plan** ←
2. Training & Awareness
3. Idling Reduction
4. Vehicle Purchasing
5. **Fuel Data Management** →
6. Operations & Maintenance
7. Trip & Route Planning
8. Utilisation Management
9. Fuel Efficiency
10. Emissions Performance



2. Training & Awareness

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- Training provides great bang for buck
- Most effective in person, if possible on-road
- e.g. Corporation of Delta invested in an in-house employee to deliver comprehensive fuel-efficient driver training to all staff
- Use exception reporting to target effort



KPIs

√ Fuel efficiency

√ GHG Intensity

√ Vehicle Downtime

3. Idling Reduction

- Measure current idling and set goal for reductions (GPS/telematics)
- Idle reduction technologies
 - Vehicle shut-down (ECM)
- Training and awareness
 - Define unnecessary idling
 - Use visible reminders (signs, decals, bumper stickers)
 - Be creative!



KPIs

- ✓ Fuel efficiency
- ✓ GHG Emissions
- ✓ GHG Intensity

Idling Reduction

Use data to support initiatives

- E.g. Corporation of Delta
- March 2008 corporate vehicles no longer permitted to idle for more than 1 minute
- Compare fuel efficiency between departments



✓ Fuel and GHG savings

- *Overall fuel efficiency improved by 7%*
- *Roads Maintenance and Utilities improved 17%*
- *Utilities' emissions decreased by > 30%*

4. Vehicle Purchasing

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- Every purchase matters
- Develop purchasing policy
- Eg. Metro Vancouver lifecycle costing
 - Right-size to user needs
 - Use existing data to inform
 - Lifecycle costs, carbon cost





Use data to inform purchasing strategy

- Example BIC: 31 units due for replacement
 - Reduce ave. age of fleet to 3.5 yrs
- GHGs reduced: 225 tonnes (14%)
- Capital investment of \$1.4 million

✓ **Potential Annual Cost savings: \$88k (~8%)**

- *Annual cost of capital:* **-\$57k**
- *Fuel savings:* **+\$54k**
- *Reduced cost of downtime:* **+\$5k**
- *Reduced repair costs:* **+\$78k**
- *Reduced PM costs:* **+\$8k**

6. Operations and Maintenance

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- Preventative Maintenance program based on each vehicle's mileage or time period, whichever comes first.
- PM specific to vehicle class
- Frequent reporting on unit performance to identify problem vehicles



KPIs

- ✓ **Fleet Availability**
- ✓ **Fleet Average Downtime**
- ✓ **Preventative/ Repair Ratio**
- ✓ **Fuel Efficiency**

7. Trip & Route Planning

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Load optimization to minimize empty trips

- stock pile at transfer sites
- station equipment geographically to save fuel

e.g. City of Vancouver:

- Kent Yard for excavation materials



KPIs

✓ **GHG Emissions**

✓ **Total Fuel Consumed**





8. Utilization Management

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- More km per vehicle, fewer vehicles needed
- Frees up capital for green investments



Innovations:

City of Vancouver: Contract with Car Co-op for fleet pool

KPIs

✓ **Projected Capital Budget**

✓ **Average Utilization**





9. Fuel Efficiency

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- ✓ Required improvements

10. Emissions Performance

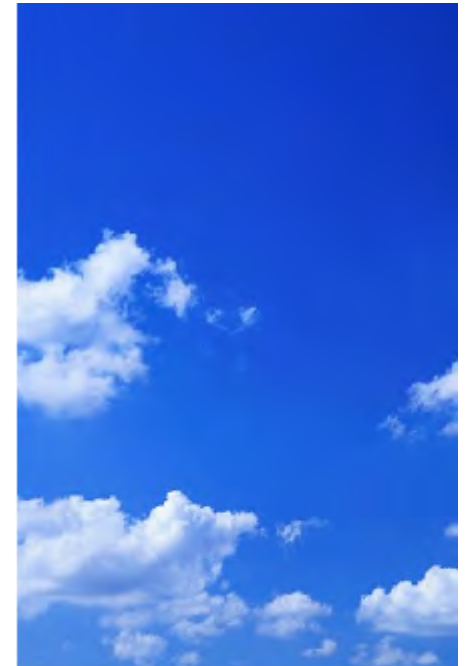
- ✓ Reduce before offset



Summary

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- Manage data, set targets
- Do what makes sense for your fleet
- Continuous improvement = moving target
- Learn from peers



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