



Puget Sound Clean Air Agency Diesel Fleet Facility Registration Program

Stakeholder Group Meeting 2

Puget Sound Clean Air Agency

March 16, 2009

Overview

- **Program Design Objectives and Challenges**
- **Description of Region's On-Road Fleet**
- **On-Road Vehicles Program Design Alternatives**
 - Ownership or Hosting
 - Focused or Broad Scope
 - Hybrid Approach
- **Non-Road Vehicles**
- **Program Components and Services**
- **Dynamic Fee System**

Program Design Objectives and Challenges

A well-designed program should:

- **Be relatively easy to administer for the Agency and facilities**
- **Provide a meaningful incentive for facilities to upgrade fleets**
- **Include as many diesel on-road and non-road vehicles as is practical**

There are a number of design challenges:

- **Over 100,000 facilities own, operate, or host vehicles in the four-county area**
 - Program complexity and costs increase as the number of facilities in the program increases
- **Many facilities have only limited control over—and knowledge about—the vehicles they host**
- **Some of the dirtiest vehicles are older trucks in smaller fleets**
- **Only registered facilities can receive program services paid for by registration fees**
- **Publicly available information on the characteristics of on-road and non-road diesel vehicles and equipment is limited**

Characteristics of Region's On-Road Diesel Fleet

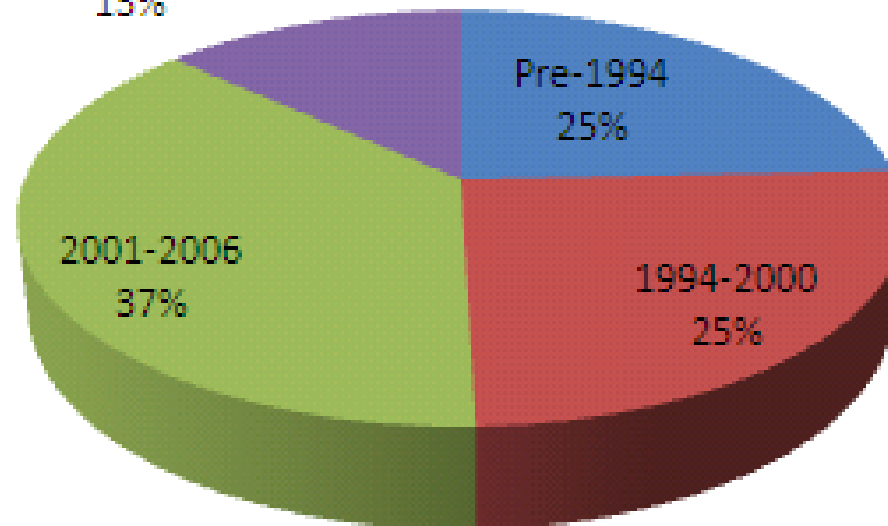
The program's ultimate goal is a cleaner fleet

- **There are 59,000 commercial diesel vehicles registered with the Dept. of Licensing in the four-county area**
 - 25% are pre-1994, the year of the first engine emissions standards
 - 13% are 2007 or newer (the year of the most-recent standards)
 - Does not include school buses or transit vehicles
- **The age distribution differs by vehicle class**
- **Publicly available Information on the retrofit status of the on-road vehicle fleets is nearly non-existent**
 - The exception is school buses and municipal fleets retrofitted under agency programs
 - Privately owned vehicles, especially in small fleets, are unlikely to have been retrofitted with exhaust control equipment to reduce emissions

Diesel Fleet Characteristics by Age

(total vehicles: 58,717; commercial diesel; no school bus or transit)

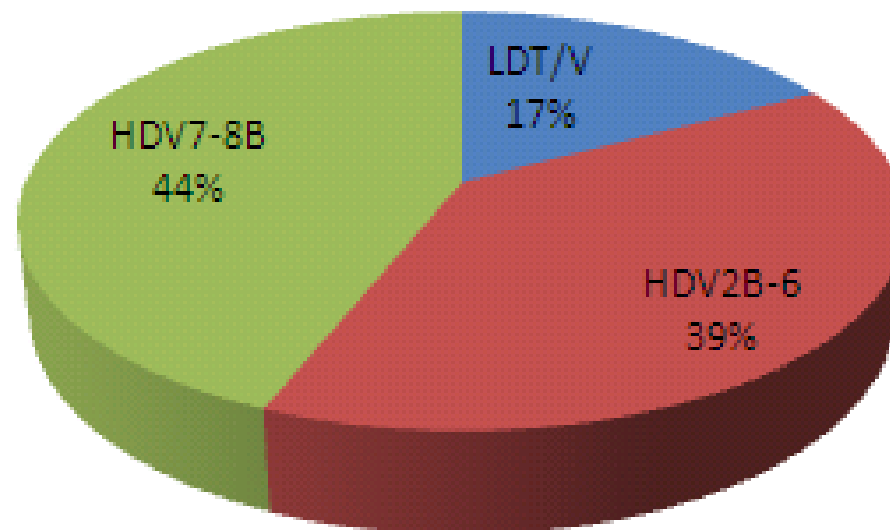
2007 and later
13%



Source: WA DOL

Diesel Fleet Characteristics by Class

(total vehicles: 58,717; commercial diesel; no school bus or transit)



Source: WA DOL

Age Category	Age Category, by Vehicle Class			
	LDT/V	HDV2B-6	HDV7-8B	All Classes
Pre-1994	40%	16%	26%	24%
1994-2000	12%	27%	29%	25%
2001-2006	43%	40%	32%	37%
2007 and later	6%	16%	13%	13%

Program Design Alternatives (On-Road)

Key design questions are:

1. **How to assign responsibility for on-road vehicles:**
 - To facilities that own the vehicles, or to
 - To facilities that “host” the vehicles
2. **Whether to focus on a sub-set of key facilities or include as many facilities as possible**

Ownership Data

- **Data on vehicles registered to facilities in the 4-county area is commercially available**
 - **A mid-range estimate is that around 21,500 facilities own around 73,500 on-road commercial diesel vehicles (Class 1C-8; includes school buses and transit)**
- **Data does not include information about vehicle age or retrofit status**

Summary of Facility Ownership Data

Fleet Size	Number of Facilities in Fleet Size Category	Number of Vehicles in Fleet Size Category
100+	50	12,287
50-100	72	4,964
20-50	263	7,903
10-20	431	5,866
5-10	1,025	6,551
3-4 (estimated)	3,200	11,200
1-2 (estimated)	16,600	24,900
Sum:	21,641	73,671

Hosting Data

- **“Hosting” is based on the number of visits by on-road diesel vehicles to a facility**
- **Factors from the Puget Sound Regional Council can be used to estimate the number of visits by diesel vehicles to facilities each day (based on the type of business and the number of employees)**
 - **We estimate that over 100,000 facilities host nearly 275,000 visits per day**
- **This data does not indicate the age or retrofit status of the vehicles making these trips**

Summary of Facility Hosting Data

Employment Size	Number of Facilities in Employment Category	Number of Trips in Category
1000 or more	80	8,387
500-999	122	13,557
250-499	404	26,565
100-249	1,717	55,791
50-99	2,909	40,063
20-49	8,685	52,249
10-19	12,847	32,418
5-9	19,214	22,765
1-4	58,373	23,067
Sum	104,351	274,862

Program Size and Scope

- **For both ownership and hosting approaches, we considered the advantages and disadvantages of:**
 - 1. Focusing the program on a sub-set of key facilities and achieving a large amount of the program's objective by including a relatively small share of facilities (a "more/less" rule), or**
 - 2. Including as many facilities as possible.**

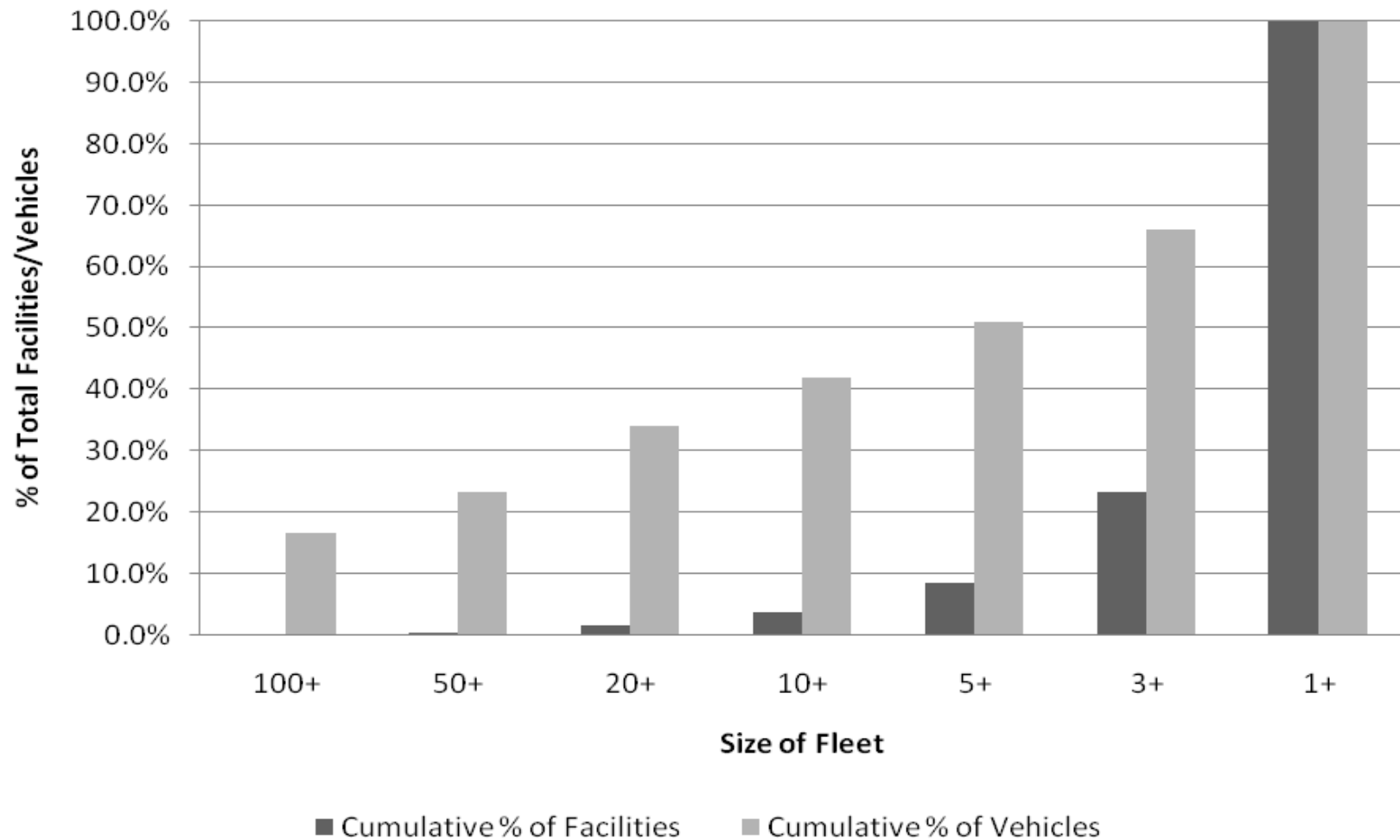
Program Size and Scope: Cost Implications

- **Focusing on a sub-set of key facilities would lead to a smaller, less expensive program**
 - But, costs would be spread over fewer facilities.
- **Including as many facilities as possible would lead to a bigger, more costly program**
 - But costs would be spread over more facilities.

More/Less Rule for Ownership

- Applying the “more/less” rule under an ownership approach could mean registering only facilities that own fleets of 3 or more vehicles
 - This would cover 66% (50,000) of the vehicles owned in the four-county area by registering 23% (5,000) of the facilities

Ownership: % of Facilities vs. % of Vehicles



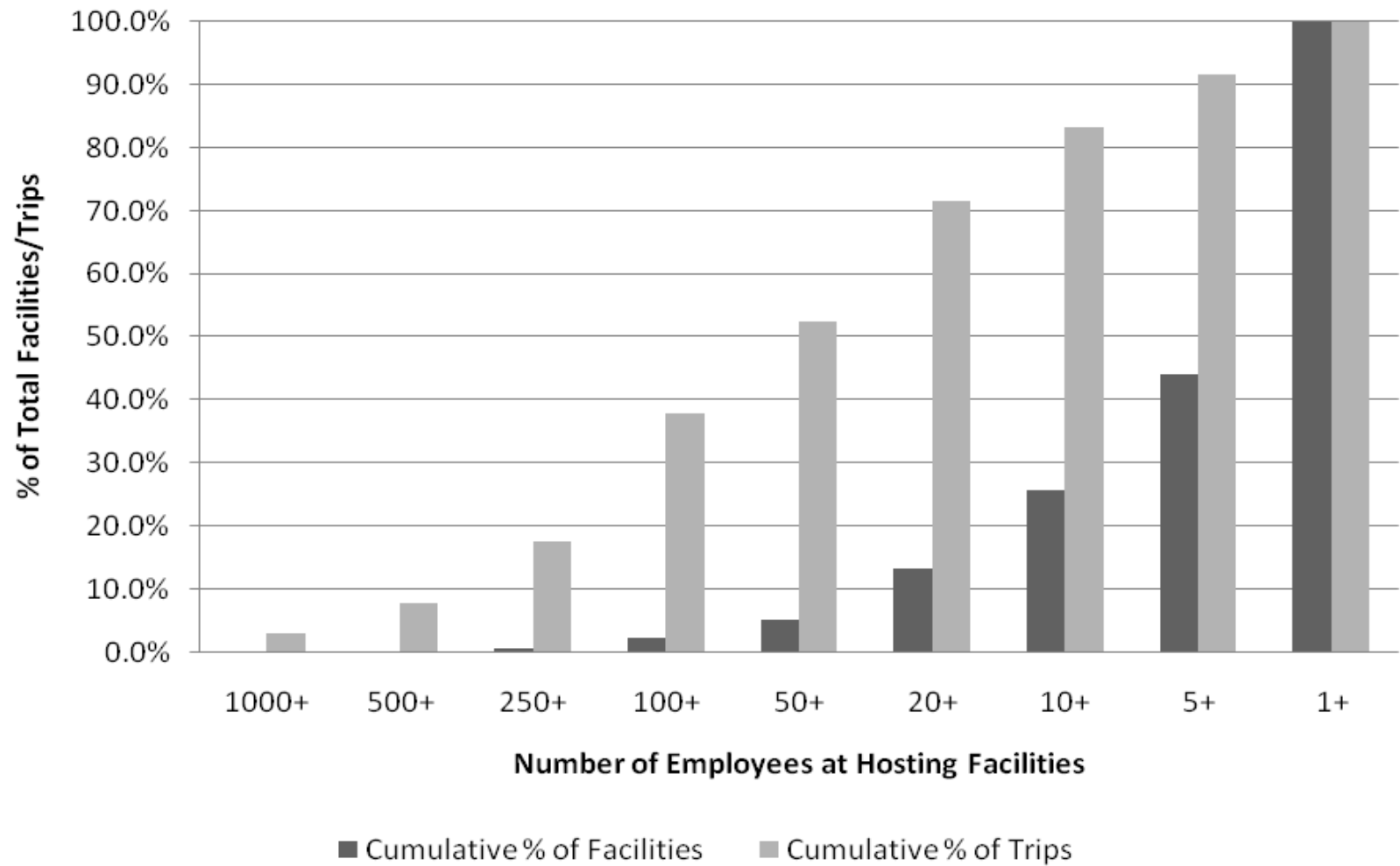
More/Less Rule for Ownership

- **Advantages:**
 - **Focuses on a manageable number of facilities**
 - **Owners know the characteristics of their fleets and have the most direct control over decisions to upgrade their vehicles**
- **Disadvantages:**
 - **The smallest fleets would not be registered**
 - **These smaller fleets are likely to include many older, higher emissions vehicles; thus this scenario may fail to achieve the programmatic goal of cleaning up the fleet**

More/Less Rule for Hosting

- **Applying the “more/less” rule under a “hosting” approach, could mean focusing just on facilities (in certain sectors) with 20 or more employees**
 - **Would cover 71% of daily trips by registering 13% of “host” facilities**
 - **This equates to covering 200,000 daily trips by registering around 14,000 facilities**

Hosting: % of Facilities vs. % of Vehicle Trips



More/Less Rule for Hosting

- **Advantages:**

- Can reach smaller fleets by working with the facilities that host them
- Focuses on local exposure around facilities that attract truck visits

- **Disadvantage:**

- Many registered facility “hosts” may have only limited leverage over the fleets that they attract and limited knowledge of the vehicles that visit the facility

“Include Everyone” Rule for Ownership

- **This approach would bring in the small fleets**
- **But, it has some disadvantages:**
 - **Would increase the administrative costs of the program by quadrupling the number of registered facilities to more than 21,000**
 - **Would require more expenditure on outreach to communicate with small fleet facilities, such as individual owner-operators**
 - **Would likely be more non-compliance from the small fleet facilities, at least in the first years of the program**

“Include Everyone” Rule for Hosting

- **Could result in more than 100,000 facilities in the program**
 - **This would only increase the problem that many registered hosting facilities would have little knowledge of, and control over, the vehicles that they host**

A Hybrid Approach

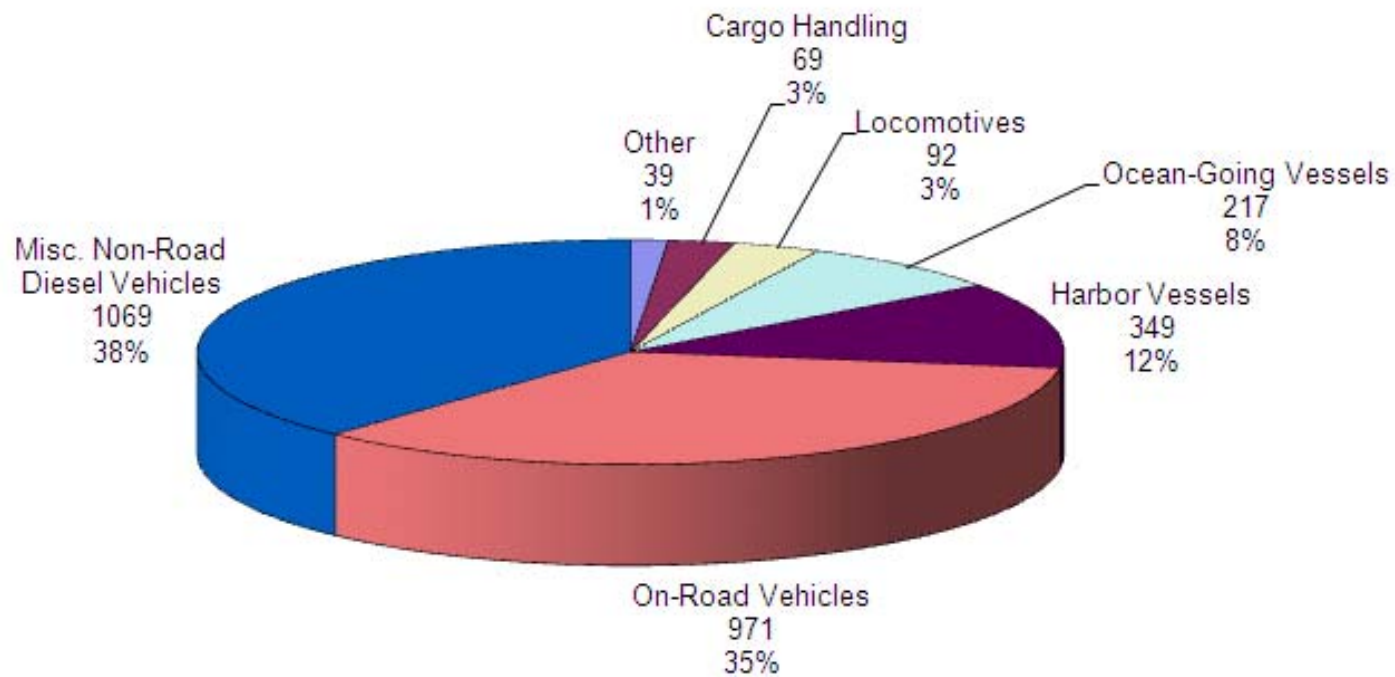
- **Require registration of all facilities that own diesel trucks in certain truck classes, including the smallest fleets**
- **Allow owners to self-register and pay fees electronically to lower administration costs**
 - **Up-front cost of online system would lower administrative costs over time**
 - **Random audits would encourage compliance**
 - **Smaller facilities may not comply in early years**
- **Register the largest host facilities and channel program services and access to retrofit funds through these facilities to help retrofit smaller fleets**

Hybrid Approach, continued

- **Advantages:**
 - **Focuses on registering facilities that have the most direct knowledge of and control over their fleets (i.e., the owners)**
 - **Includes small owner-operators with a strategy for reaching them via a small set of the largest hosts**
 - **Streamlines data reporting and compliance**
- **Potential disadvantage:**
 - **Wouldn't include trucks owned by facilities outside of the 4-county area, which may raise competitiveness or relocation concerns**

Program Design for Non-Road

2005 emissions inventory estimates that non-road diesel accounts for about the same share of emissions as on-road diesel



Data on Non-Road Diesel Vehicles

- **Inventory information on non-road vehicle vehicles is not readily available**
- **What we know:**
 - **Can identify types of facilities that are likely to own or host non-road (e.g., equipment rental, large construction, port terminals)**
 - **Inventory of diesel cargo-handling equipment at Ports of Seattle and Tacoma**
 - ▲ **18% of equipment is older than 1996**

Non-Road Program Design

- **Options for including non-road fleet facilities in the registration program:**
 - Proportionate share of emissions from the beginning, or
 - Tiered approach with phase-in and proportionate share over time
- **Could include facilities that own or host non-road vehicles, or a hybrid approach**
- **Program design may be less complicated because off-road vehicles are less likely to “visit” other facilities than on-road vehicles**
 - One exception is rental

Program Components and Services

Current Program Components and Services

- **Information Services**
- **Communications**
- **Finance**
- **Human Resources**
- **Operations**
- **Air Resources Staff (e.g., grant and program administration)**
- **Executive Staff**
- **Legal Services**

Potential Additional Program Components and Services

- **Registration system development and maintenance**
- **Auditing/inspection**
- **Fee administration**
- **Enhanced outreach**
- **Enhanced grant writing support**

Cost and funding profile will change as the program matures

- 1. Initial period with up-front costs (e.g., registration system development; outreach)**
- 2. Stable period of program service delivery**
- 3. “Ramp down” as region’s fleet is upgraded**

Program Cost and Funding Issues

- **The amount of funding from fees depends on:**
 - **Number of registered facilities and the size of their fleets at a given time**
 - **How “clean” registered facilities’ fleets are at a given time**
 - **Fee differential between “clean” and “dirty”**
- **Potential phase in of smaller facilities and non-road as larger facilities clean up fleets**

Dynamic Fee Structure

Fee System Goals

- **Cover program operating costs**
- **Facilities that require more effort from the agency in order to administer the program pay a higher fee**
- **Create incentives to encourage emission reduction by charging fees related to emissions levels**
 - “Dirtier” facilities pay more than “cleaner” ones
 - Larger facilities pay more than smaller ones
- **Fees are transparent and predictable**

Fee System Key Inputs

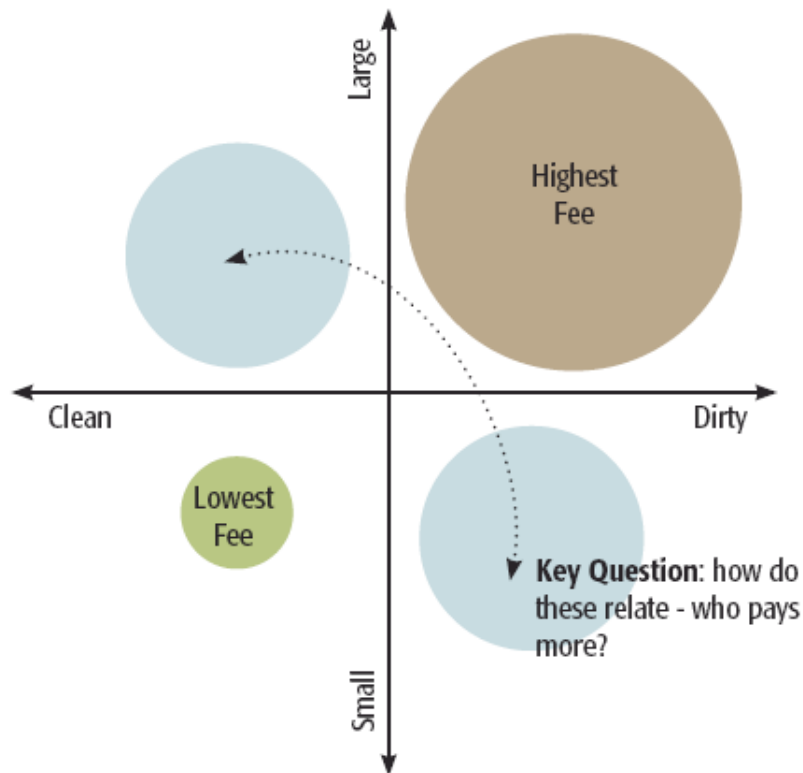
- **Expected program operating costs**
- **Facility inventory**
 - How many facilities?
 - How “clean” are the facilities?
 - Will certain types of facilities (e.g., non-road and very small) be phased in over time (either on purpose or through expected initial noncompliance)?
- **Baseline Metrics & Key assumptions**
 - Compliance levels
 - What is the distribution of “clean” and “dirty” facilities
 - At what rate will dirty facilities become “clean”

Question: What determines different fees?

- **Level of emissions**
 - **How do we identify “cleaner” facilities?**
 - ▲ **Vehicle age**
 - ▲ **Retrofit status**
 - ▲ **Participation in other programs (e.g. Evergreen Fleet, SmartWay)**
 - **How do we determine which facilities to include?**
 - ▲ **Based on number of vehicles**
 - ▲ **Based on number of trips**
- **How does this framework differ for non-road?**
- **Other factors to consider (e.g., location & aggregate ambient exposure)?**

Question: What level of complexity is appropriate?

- Start with the assumption that simpler is better
- What are the tradeoffs?



- What would the simplest structure look like?
 - “look-up” table with four boxes
- What are the cut-off points?
 - What defines a “clean” facility
 - How big is a “large” facility
- What are the main problems with this approach?

Question: What level of complexity is appropriate?

	Clean	Mixed	Dirty
Large	?	?	Highest Fee
Medium	?	?	?
Small	Lowest Fee	?	?

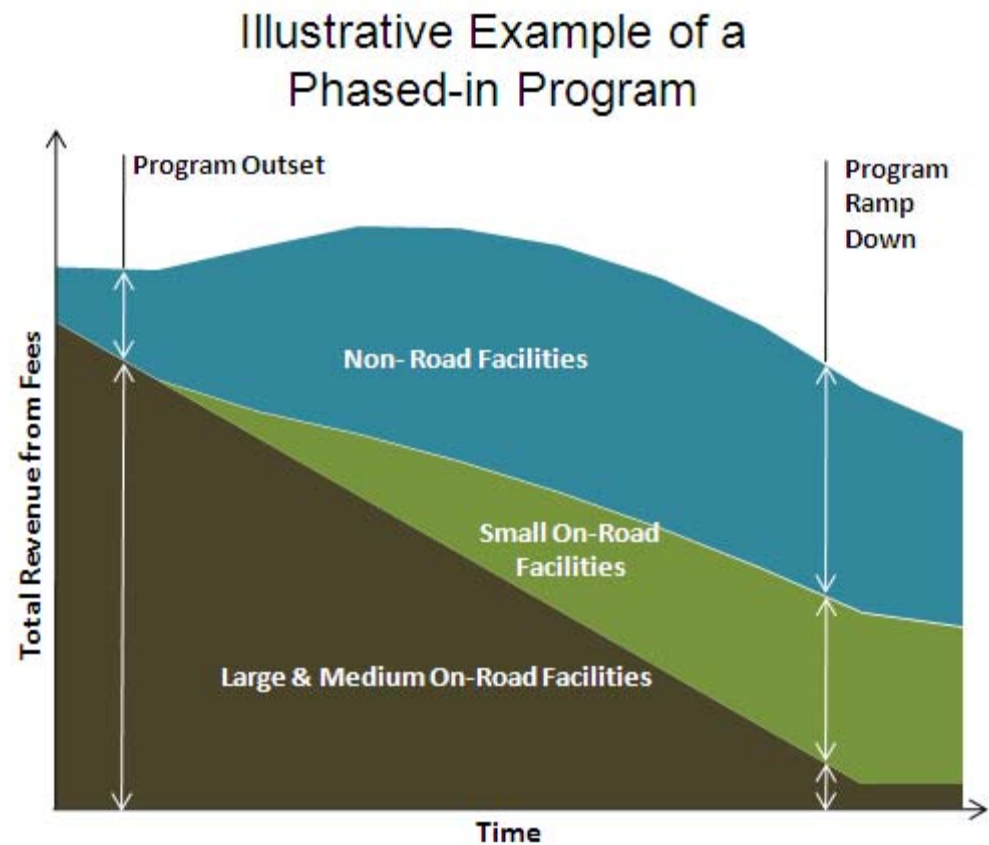
	Clean	Mixed	Dirty
Large	\$\$\$	\$\$\$\$	\$\$\$\$\$
Medium	\$\$	\$\$\$	\$\$\$\$
Small	\$	\$\$	\$\$\$

● Other Ideas

- More complex “look-up” tables
 - ▲ How many different fee levels should there be?
 - ▲ How do the categories relate to one another?
- Charge per vehicle (ownership model)
- Charge per trip (hosting model)
- Others?

Question: Should facilities be phased in?

- What types of facilities?
 - Non-Road
 - Small On-Road
- Over what timeframe?
- What are the revenue and fee implications?
- How do we make reasonable assumptions about the timing/pace of phase-ins?



Question: How do fees change over time?

- **What is the differential between the fee for a “clean” and “dirty” facility?**
- **Larger Spreads:**
 - Stronger emission reduction incentive
 - Less certainty on revenues
 - Fees may need to be adjusted to meet revenue targets
- **Smaller Spreads:**
 - Weaker emission reduction incentive
 - More certainty on revenues
 - Fees less likely to need adjusting

Other Questions

- **How do we mitigate for revenue fluctuations/ unknowns?**
- **What haven't we considered yet?**