

**PSCAA Diesel Fleet Facility Registration Program  
Draft Program Design Paper for Meeting 2  
Draft (3/9/09)**

**Introduction**

This draft paper describes key issues and design considerations for developing a Diesel Fleet Facility Registration Program. It also outlines the initial thinking by the Puget Sound Clean Air Agency (the Agency) and Ross & Associates about the “logic” of the program’s design. The paper is intended as background for the second meeting of the registration program stakeholder group on March 16, 2009. Much of this meeting will be devoted to a discussion of the program’s scope, size, and incentive structure.

**Program Design Challenges**

A well-designed registration program should:

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

However, there are a number of challenges to designing the program. These include:

- The number of facilities that own, operate, or host vehicles in the four-county area is large (over 100,000 facilities). As the number of facilities in the program increases, so does the complexity (and cost) of program administration, enforcement, and outreach.
- Many of the facilities potentially in the program have only limited control over (and knowledge about) the on-road vehicles potentially assigned to them. This is mainly an issue for facilities that “host” vehicles.
- Some of the dirtiest vehicles are the older trucks that are in smaller fleets.
- Only those facilities that are registered under the program can receive services from the program.
- Publicly-available information on the characteristics of on-road and non-road diesel vehicles and equipment is limited.

**Intended Outcomes: Encourage Facilities to Upgrade the Region’s Fleet**

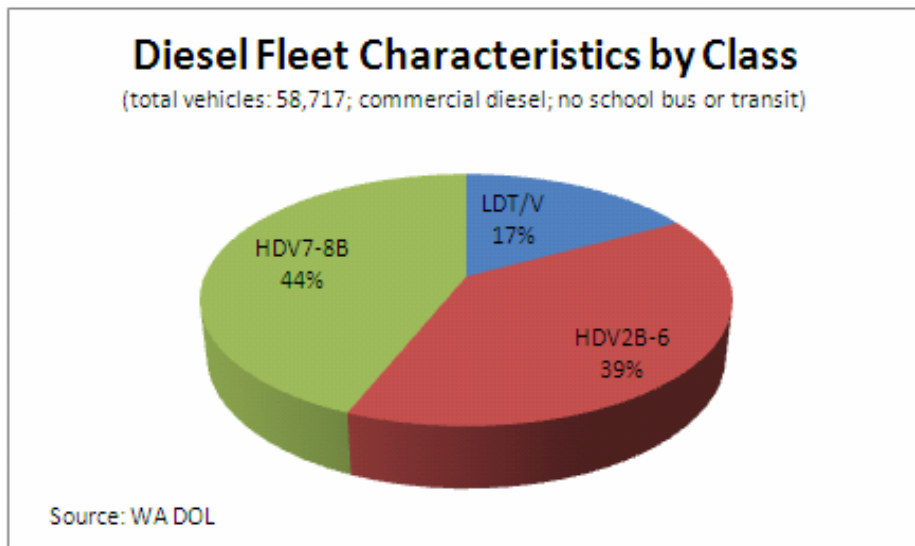
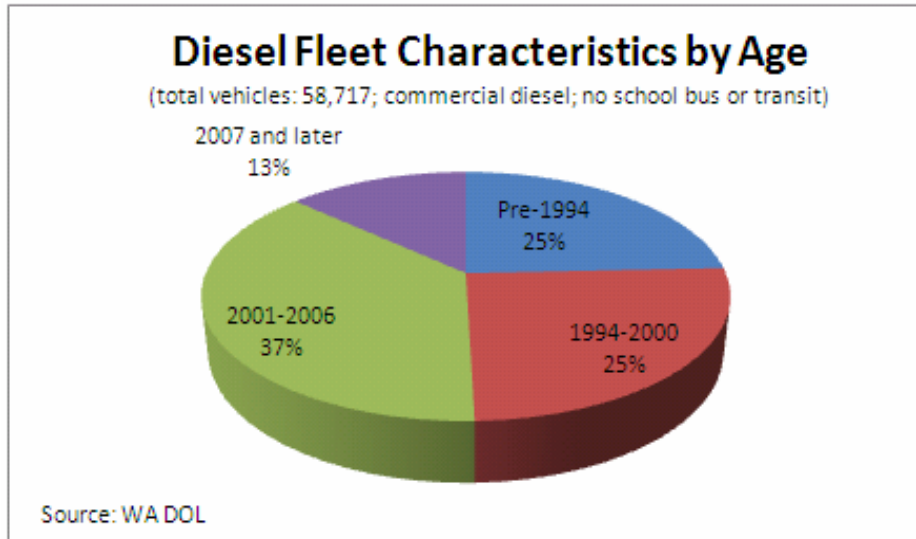
The ultimate goal of the registration program is to provide incentives for facilities to upgrade the existing on-road and non-road commercial fleet in the four-county area.

As shown in the pie charts below, 25% of on-road commercial diesel vehicles in the 4-county area are pre-1994, when the first engine emission standards were imposed.<sup>1</sup> Only 13% of the diesel vehicles in the 4-county area are 2007 or newer. (2007 is the year of the most-recent engine emissions standards). This distribution of ages is spread across all on-road vehicle classes. Publicly available Information on

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<sup>1</sup> Note that the data described in this paragraph and accompanying graphics do not include approximately 6,500 school and transit buses.

the retrofit status of the on-road vehicle fleets is nearly non-existent, except for school buses and municipal fleets retrofitted under agency programs.



Information on non-road vehicles is even more difficult to come by than information on the on-road fleet. However, a recently published emissions inventory for the region estimated that non-road diesel vehicles and equipment account for about the same share of total emissions in the area as on-road diesel vehicles.

#### Approaches for Assigning Responsibility for On-Road Vehicles to Facilities

For on-road vehicles, the two main ways we have of assigning responsibility for diesel vehicle emissions under the registration program is to facilities that own the vehicles or to facilities that “host” the vehicles. For ownership, there is commercially available data on the number of diesel vehicles

registered to all facilities in the 4-county area. This data does not, however, include any information about engine characteristics or retrofit status.

For a “hosting” approach, we have data from the Puget Sound Regional Council that can be used to estimate the number of visits by diesel vehicles to certain types of facilities each day. These estimates are based on the type of business and the number of employees. As with ownership data, this data does not indicate the age or retrofit status of the vehicles making these trips. Ownership and hosting summary data are provided as attachments to this paper.

### **Determining the Scope and Size of the Program**

For both an ownership approach and a hosting approach, we have considered the advantages and disadvantages of:

1. Focusing the program on a sub-set of key facilities or
2. Including as many facilities as possible.

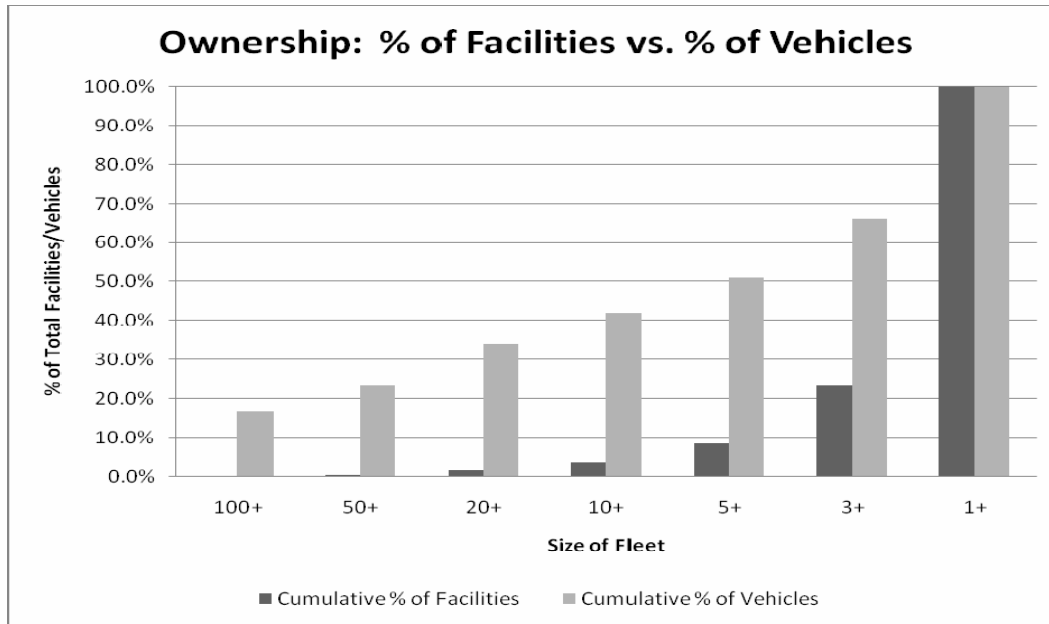
Focusing on a sub-set of key facilities would lead to a smaller program, which would cost less to administer but would spread the costs over fewer facilities. Including as many facilities as possible would lead to a bigger program, which would cost more but spread the cost over more facilities.

#### *Applying the “More/Less” Rule*

One way to focus on a sub-set of facilities would be to seek a point at which the program would achieve a relatively large amount of its objective by including a relatively small share of facilities (a “more/less” rule).

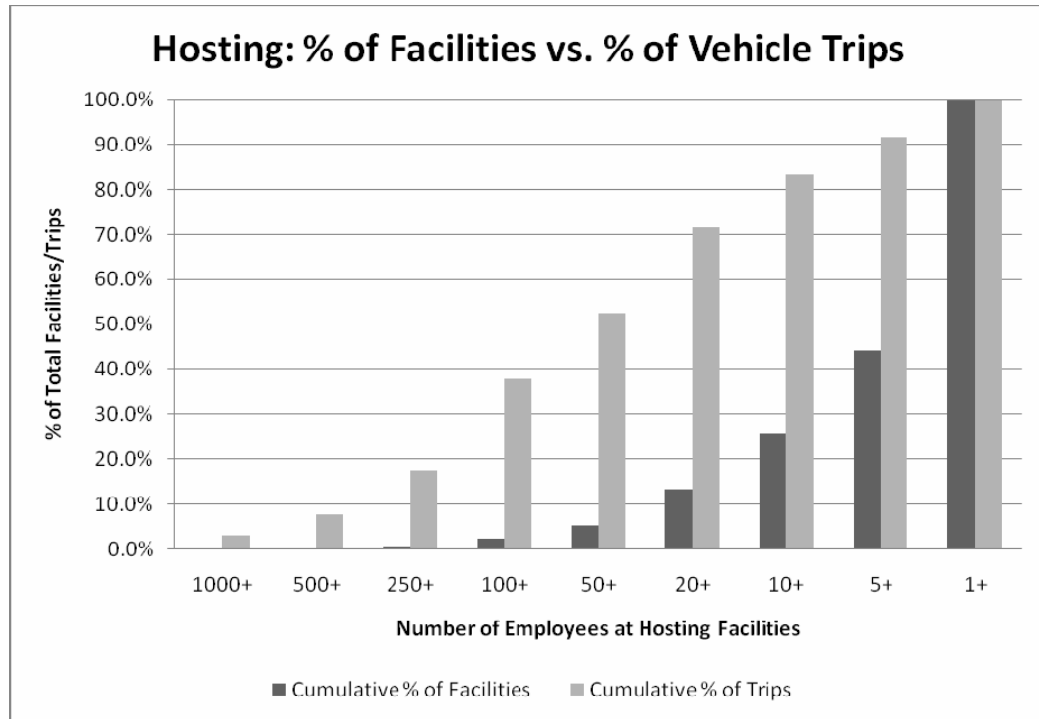
This rule could be applied under an ownership approach by only registering facilities that own fleets of more than a certain number of vehicles. For example, a program that focused on fleets of 3 or more vehicles would cover 66% of the vehicles owned in the four-county area by registering 23% of the facilities in the area. (See the “3+” vehicles columns in the graphic below). This is equivalent to covering roughly 50,000 vehicles by registering around 5,000 facilities (see attached summary data tables).

- This approach has the advantage of focusing on a manageable number of facilities that know the characteristics of their fleets and that have the most direct control over decisions to upgrade their vehicles.
- The disadvantage of this approach is that the smallest fleets would not be registered, and these small fleets are likely to include a lot of the older, higher emissions vehicles in the 4-county area.



Under a “hosting” approach, the “more/less” rule could be applied by registering only those businesses large enough to attract more than a certain number of diesel vehicle visits each day. For example, an approach that focused just on facilities that have 20 or more employees (and that are in sectors that typically attract truck visits) would cover 71% of daily trips by registering 13% of possible “host” facilities in the area. (See the “20+” employees columns in the graphic below). This equates to covering 200,000 daily trips by registering around 14,000 facilities (see attached summary data table).

- This approach has the advantage of allowing the program to reach smaller fleets by working with the facilities that host them. It would also more directly address issues of local exposure to diesel emissions around facilities that attract truck visits.
- However, even under a “more/less” approach that focused on larger facilities, 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 (i.e., they wouldn’t necessarily know which visiting vehicles are “clean” or “dirty;” the exception is facilities that mainly “host” their own fleet).



### Applying the “Include All Facilities” Rule

Instead of using a “more/less” rule to focus on a sub-set of facilities, we could seek to include as many facilities as is practical.

Under an ownership approach, the program could view **all owners** of diesel vehicles as facilities to be registered under the program.

- This approach would bring in the small fleets, but it would also increase the administrative costs of the program by quadrupling the number of registered facilities (compared to the “more/less” approach above). It would also require more expenditure on outreach to communicate with small fleet facilities, such as individual owner-operators.
- There would also likely be more non-compliance from the small fleet facilities, at least in the first years of the program.

Under a hosting approach, the program could include **all facilities** that host diesel vehicles.

- However, this would result in a very large program with more than 100,000 facilities registered. The increased scope of the program would only exacerbate the problem that many registered hosting facilities would have little knowledge of, and control over, the vehicles that they host.

### A Hybrid Approach

One way to design the registration program to harness some of the benefits and resolve some of the difficulties presented above would through a hybrid approach that:

1. Requires registration of all facilities that own diesel trucks in certain truck classes, including the smallest fleets.

2. Lets facility owners self-register electronically to lower some of the costs of administering a larger program. Initial program development costs would have to include creating an online registration and payment system to support self-registration, but subsequent administration costs should decline greatly. Random audits would be used to encourage compliance, but not all registration would require verification. Especially in the first few years, non-compliance from smaller facilities may be an issue; this could provide a rationale for phasing in registration requirements for these smaller facilities.
3. Registers the largest “host” facilities and channel program services and access to retrofit funds through these facilities to help retrofit smaller fleets. This would probably include a relatively small number of hosts, such as terminal operators, ports, large warehouse/distribution centers, and large big box stores.

The advantages of this approach are that it:

- 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; and
- Streamlines data reporting and compliance.

A potential disadvantage of this approach is that it wouldn’t extend to trucks that are owned by facilities outside of the 4-county area. This may raise competitiveness concerns and possibly create an incentive to register vehicles with the state Department of Licensing outside of the 4-county area to avoid the agency’s fleet facility registration requirement. The fee structure would need to be calibrated to minimize these unintended effects – the large pool of trucks included under this design option makes this more feasible.

### **Non-Road Vehicles and Equipment**

Regardless of the option chosen for on-road vehicles, we need an approach for non-road vehicles. As with on-road vehicles, the program could be designed around facilities that own non-road vehicles, those that host them, or some hybrid as described above. The approach to non-road vehicles may be less complicated because off-road vehicles are less likely to “visit” other facilities than on-road vehicles (except for equipment owned by equipment rental companies). A hybrid approach for non-road vehicles could follow the same approach described above for on-road vehicles. In this case, facilities that own non-road vehicles would be registered along with large facilities that “host” non-road vehicles.

**Attachments**

**Summary of Facility Ownership Data**

<b>Fleet Size</b>	<b>Number of Facilities in Fleet Size Category</b>	<b>% of Total Facilities</b>	<b>Cumulative % of Facilities</b>	<b>Number of Trucks in Fleet Size Category</b>	<b>% of Total Vehicles</b>	<b>Cumulative % of Vehicles</b>
100+	50	0.2%	0.2%	12,287	16.7%	17%
50-100	72	0.3%	0.6%	4,964	6.7%	23%
20-50	263	1.2%	1.8%	7,903	10.7%	34%
10-20	431	2.0%	3.8%	5,866	8.0%	42%
5-10	1,025	4.7%	8.5%	6,551	8.9%	51%
3-4 (estimated)	3,200	14.8%	23.3%	11,200	15.2%	66%
1-2 (estimated)	16,600	76.7%	100.0%	24,900	33.8%	100%
<b>Sum:</b>	<b>21,641</b>	<b>100%</b>	<b>N/A</b>	<b>73,671</b>	<b>100%</b>	<b>N/A</b>

Notes:

- *The number of trucks is based on a mid-range estimate for smaller fleets; the possible range of total trucks based on this dataset is 63,771 to 83,571*
- *Includes school buses and transit*

Source: Polk

**Summary of Facility Hosting Data**

<b>Employment Size</b>	<b>Number of Facilities in Employment Category</b>	<b>% of Total Facilities</b>	<b>Cumulative % of Facilities</b>	<b>Number of Trips in Category</b>	<b>% of Total Trips</b>	<b>Cumulative % of Trips</b>
1000 or more	80	0.1%	0.1%	8,387	3.1%	3.1%
500-999	122	0.1%	0.2%	13,557	4.9%	8.0%
250-499	404	0.4%	0.6%	26,565	9.7%	17.6%
100-249	1,717	1.6%	2.2%	55,791	20.3%	37.9%
50-99	2,909	2.8%	5.0%	40,063	14.6%	52.5%
20-49	8,685	8.3%	13.3%	52,249	19.0%	71.5%
10-19	12,847	12.3%	25.6%	32,418	11.8%	83.3%
5-9	19,214	18.4%	44.1%	22,765	8.3%	91.6%
1-4	58,373	55.9%	100.0%	23,067	8.4%	100.0%
<b>Sum</b>	<b>104,351</b>	<b>100%</b>	<b>N/A</b>	<b>274,862</b>	<b>100%</b>	<b>N/A</b>

Sources: PSRC; U.S. Census; Ross & Associates calculations