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Mr. Michael Goldman
Manager, Engineering Division
Santa Barbara APCD
260 N San Antonio Rd
Santa Barbara, CA 93110

Subject: Emission Reduction Credit Assessment.

Dear Mike:

You requested an initial assessment of incentive funding programs to see if any might be capable of generating reasonably cost-effective NOx, ROC and PM emission reduction credits.

The initial listing of program types included:

- Replacement of gasoline powered lawn and garden equipment (e.g., lawn mowers, leaf blowers, etc) with electric powered equipment.
- Replacement of diesel agricultural pump engines with electric motors.
- Replacement of mobile diesel agricultural equipment with lower emission (Tier 4) equipment.
- Replacement of construction equipment with lower emission (Tier 4) equipment.
- Repower of commercial boats with lower emission (Tier 3) engines.
- Repower of mobile agricultural equipment with lower emission (Tier 4) engines.
- Repower of mobile construction type of equipment with lower emission (Tier 4) engines.
- Low rolling resistance tire replacement program.
- Voluntary old vehicle retirement program.

You asked that the assessment identify or estimate:

- Cost-effectiveness: The total cost to generate a 30 year ERC credit in tons/year.
- Total emission inventory: The total emissions from each program type.
- Incentive funding: Incentive funding structure and engine owner contribution.
- Emission reductions per average project.
- District cost per average project: The average amount of the incentive funding per project type.
- Project Life: The life of the emission reduction credit per project life. For example, ARB says commercial lawn and garden equipment has a life of one year. So to maintain that one year credit over 30 years 30 successive commercial equipment replacements would have to be implemented.

An initial review of the program types resulted in the elimination of several project types:

- Replacement of construction equipment with lower emission (Tier 4) equipment: This equipment is subject to ARB's Off-Road Regulation which presents two problems: (a) In the near-term (next 10 years or so) identifying surplus emission reductions would require a

company-by-company assessment, which is beyond the scope of this initial assessment. (b) In the longer term the Off-Road Regulation requires off-road equipment meet progressively lower fleet average emission rates, which greatly reduces the emission reduction potential for this category.

- Repower of mobile construction and farm equipment with lower emission (Tier 4) engines. This program type was eliminated because engine OEMs will not sell Tier 4 engines for repowering.

- Low rolling resistance tire replacement program. This program was run by the Ventura County APCD. That district is abandoning this program because of limited participation.

The results of the assessment are given in the Excel Final Report file. This file also contains links to other files that provide documentation to the data given in the report.

Please be advised that the results should be interpreted as an initial survey of project types that *ma*y warrant further investigation as a potential source of emission reduction credits. Generating the estimates required a number of assumptions which would need to be verified should a project type warrant additional consideration as a source of ERCs. For example:

- Is the amount of the incentive sufficient to obtain the desired level of participation? Is it too high?
- Is the project life reasonable? For example, ARB data concludes that commercial lawn and garden equipment has a life of one year. Simply doubling the project life would reduce (improve) the cost-effectiveness by 50%.

Questions/comments are welcomed.

Cheers,

Larry Rennacker