100281
6/22/10

MEMORANDUM

TO: Environmental Concerns Committee

THROUGH: Carl Goldsmith, Director of Public Works CJ

FROM: David Gorman, Assistant Director of Public Works DRL

SUBJECT: **Possible Electric & Reel Mower Incentive Program**

DATE: June 10, 2010

Per discussion at the Committee's May 25th meeting, Staff has investigated discounts from a leading battery-powered mower company, Neuton (www.myneuton.com). The Committee is contemplating a possible grant program to incentivize zero-emission mowers for the purpose of local air quality and noise reduction.

As was done for the 2007 Recycling Extravaganza, Neuton will offer Lombard residents special discount coupons for mail orders. Information on their models is attached. The discounted pricing, including shipping, would be $379 for the CE6 (19"), $289 for the CE5 (14") and $89 for their reel mower. The regular prices, including shipping, would be $449, $359 and $115. Thus, the savings would be $70, $70 and $26, respectively.

The USEPA states that a gasoline-powered mower emits as much air pollution as a car driven 200 miles. The average electric mower operates at 75 db (e.g. a washing machine) while a gas-powered mower is about 95 db (e.g. a motorcycle). A 2003 USEPA report found that 5% of all smog-forming emissions are from lawn & garden equipment.

Funding at a level yet to be decided would come from a reallocation of existing grant monies and/or reimbursement amounts. The FY 2010-2011 budget allocates $5,000 for rain barrels ($80 each, up to 2 barrels/property), $5,000 for compost bins ($80 each, 1 per property), $3,000 for multi-family recycling (service fees for months 7-12) and $10,000 for educational recycling.

For the purpose of initiating discussion, Staff suggests that the rain barrel grant program might be revised in FY 2011-2012 to reimburse only one barrel at $40 per barrel, and then move $2,000 of those allocated funds to reimburse $40 per mower (either electric or reel type). The mower grant program would imitate the others so that residents could purchase any qualifying mower from any source and submit a reimbursement request along with the receipt and proof of purchase.

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attachments: USEPA website pages

Outdoor Air - Transportation: Lawn Equipment - Additional Information

This information will help you gain a better understanding of questions homeowners may have about air pollution from lawn equipment. The sections below provide more information on this topic.

Return to Lawn Equipment Main Page

What is lawn equipment?

Lawn equipment consists of small equipment that members of the community (excluding commercial landscaping companies) may use to maintain their property.
Pre-1997 lawn and garden equipment accounts for as much as 5% of the total man-made hydrocarbons that contribute to ozone formation.
The exchange of 1,000 gasoline-powered lawn mowers for electric mowers has the potential of reducing volatile organic compound (VOC) emissions by 9.8 tons per year, which is equivalent to removing 230 cars from the highways.
The equipment includes

- Push lawn mowers
- Self-propelled lawn mowers
- Leaf blowers/vacuums
- Weed eaters

Lawn equipment comes in two different types of engines: 2-stroke and 4-stroke.

- A 2-stroke engine is found in lawn mowers as well as smaller equipment such as leaf blowers and weedeaters.
- A 4-stroke engine is often used when the lawn mower requires a transmission such as self-propelled mowers.
- The type of engine installed in a lawn mower often depends on the manufacturer that makes the engine used in the mower. For example, Manufacturer A only makes 2-stroke engines for lawn mowers while Manufacturer B only makes 4-stroke engines for lawn mowers.
- Operating a typical gasoline-powered lawn mower for one hour produces the same amount of smog-forming hydrocarbons as driving an average care almost 200 miles under typical driving conditions.

What are the health effects of pollutants emitted from lawn equipment?

Lawn equipment emits pollutants such as hazardous air pollutants (HAPs), particle pollution (dust), and VOC. These pollutants can contribute to health problems that may affect homeowners, their families, and the community and include:

Particle Pollution, also known as Particulate Matter

- Particle pollution is released from yard equipment during the combustion of gasoline.
- Particle pollution can lodge deep in the lungs and cause respiratory problems, cardiac arrhythmia (heartbeat irregularities), and heart attacks
- Particle pollution can also impact the young, the elderly, and people with existing conditions such as emphysema, bronchitis, and asthma.
- Particle pollution can also contain other harmful pollutants such as heavy metals.
- EPA has developed an extensive Web site related to particle pollution.
- The Iowa Department of Natural Resources (IDNR) has developed information related to particle pollution. EXIT Disclaimer

VOC

VOC is released during the combustion of gasoline while using yard equipment.
The chemicals in VOC can form ground-level ozone (smog) which can cause breathing difficulties, especially with those who are young, elderly, or have existing respiratory problems such as asthma.
EPA has an extensive Web site devoted to ground-level ozone.
In 1991, EPA produced a nonroad engine and vehicle emission study(PDF) (141 pp, 1.8 MB) that contains information related to emissions from lawn equipment. The appendices (PDF) (415 pp, 7.5 MB) of this study are also available for download.
The California Air Resources Board (CARB) produced a study related to the health and environmental impacts of leaf blowers (PDF) (68 pp, 423 KB). EXIT Disclaimer

How can I reduce pollution from lawn equipment?

Maintain your equipment
- Always follow the manufacturer's guidelines for maintenance.
- Change the oil and clean or replace air filters regularly.
- Use the proper fuel/oil mixture in two-stroke equipment.
- Periodically tune up your equipment.
- Maintain sharp lawn mower blades.
- Keep the underside of the lawn mower deck clean.
- Winterize your equipment each fall.

Reduce your mowing time
- Use low-maintenance turf grasses or grass/flower seed mixtures that grow slowly and require less mowing.
- Decrease your lawn area by planting additional trees and shrubs. Not only will you reduce your lawn maintenance time, but you will also reduce your heating and cooling bills due to additional shade.

Consider cleaner options
- The CARB has required lower-emitting gas-powered lawn equipment in their state. Such certified equipment may also be sold outside of California. Check with local lawn equipment dealer for equipment availability.
- Consider purchasing electric equipment such as lawn mowers, weed eaters, and leaf blowers/vacuums.

Use manual tools.
- Consider purchasing manual equipment such as push reel mowers, rakes, and brooms.
- Use hand-held equipment for smaller jobs.

Avoid spilling gasoline.
- Minimizing gasoline spills while fueling yard equipment is a way to reduce air pollution.
- See the Web page on gas cans for more information.

Recycle old equipment.
- Take your old lawn equipment to a recycling center where they can be converted into raw materials for use in cleaner equipment and other products.

EPA has developed an information sheet related to reducing lawn equipment emissions (PDF) (2 pp, 17 KB).

Regulatory Announcement

EPA Finalizes Emission Standards for New Nonroad Spark-Ignition Engines, Equipment, and Vessels

The U.S. Environmental Protection Agency (EPA) is adopting new exhaust emission standards for marine spark-ignition engines and small land-based nonroad engines. EPA is also adopting evaporative emission standards for equipment and vessels using these engines. These standards apply only to newly manufactured products. The standards will reduce the harmful health effects of ozone and carbon monoxide from these engines, equipment, and vessels.

Which engines and vehicles are affected?

We are adopting new standards for emissions of hydrocarbons (HC), nitrogen oxides (NOx), and carbon monoxide (CO) from a variety of nonroad engines, equipment, and vessels that cause or contribute to air pollution. The controls for these products have been combined into one rulemaking because these engines and vehicles share many common characteristics. Differences in their design and use led us to adopt separate emission standards for each group.

- Small Nonroad Spark-Ignition Engines and Equipment: Spark-ignition (SI) nonroad engines rated below 25 horsepower (19 kW) used in household and commercial applications, including lawn and garden equipment, utility vehicles, generators, and a variety of other construction, farm, and industrial equipment.
- Marine Spark-Ignition Engines and Vessels: Spark-ignition engines used in marine vessels, including outboard engines, personal watercraft, and sterndrive/inboard engines.

EPA United States Environmental Protection Agency

Office of Transportation and Air Quality
EPA420-F-08-013
September 2008

Regulatory Announcement

What are the differences between the final rule and the proposed rule?

Several minor changes from the proposed rule are being adopted in the final rule. These changes reflect important cooperative efforts between EPA and the regulated industries to implement cleaner technology as early as possible while still providing communities across the United States with needed emissions reductions.

First, the implementation dates for Marine Outboard/Personal Watercraft (OB/PWC) and Sterndrive/Inboard (SD/I) exhaust emissions standards are being delayed one year to allow sufficient time for manufacturers to convert their entire product line-ups to lower emissions simultaneously while adopting to supplier changes. Second, modifications are being made to the Marine SD/I High Performance (>373 kW) exhaust emissions requirements to reflect the limitations of catalyst technology on these engines. Lastly, we are adopting provisions for cold weather evaporative emission standards to reflect the capability of fuel line materials and adding a phase-in for marine diurnal standards. Both of these changes will enhance the safety of the new requirements.

Why is EPA regulating these engines, equipment, and vessels?

The engines and vehicles covered by this rule are significant sources of air pollution. They account for about 26 percent of mobile source VOC emissions and 23 percent of mobile source carbon monoxide emissions. With the new controls, VOC pollutants will be further reduced by 34 percent for Small SI engines and 70 percent for Marine SI engines by 2030. With the new controls, CO pollutants will be further reduced by 9 percent for Small SI engines and 19 percent for Marine SI engines by 2030.

The new standards continue the process of establishing nonroad standards as required by the Clean Air Act. We are required to study emissions from nonroad engines and vehicles and to set emissions standards if the level of pollutants from these sources cause or significantly contribute to air pollution and, more specifically, if the emissions of CO, NOx or hydrocarbons contribute significantly to the formation of ozone and carbon monoxide in more than one area of the country currently not meeting ozone and carbon monoxide standards. We completed the Nonroad Engine and Vehicle Emission Study in 1991, and in 1994 determined that these sources contribute significantly to ozone or CO nonattainment. We have already set emission standards for most nonroad engines, including farm and construction equipment, locomotives, commercial marine, and recreational vehicles.

What are the New Requirements?

The new requirements vary depending on the kind of engine or vehicle. In developing these requirements, we considered specific factors for each type. Among the factors considered were the environmental impacts, the number of hours each year that the engine is used, the need for high-performance operation, and the costs. The new requirements for each type of engine and vehicle are:

Small Nonroad Engines

We are adopting HC+NOx exhaust emission standards of 10 g/kW-hr for Class I engines starting in the 2012 model year and 8 g/kW-hr for Class II engines starting in the 2011 model year. We expect manufacturers to meet these standards by improving fuel systems, engine combustion and in some cases adding catalysts. These standards are consistent with the requirements recently adopted by the California Air Resources Board (ARB). We are not adopting new exhaust emission standards for handheld emissions.

For spark-ignition engines used in marine generators, we are adopting a more stringent Phase 3 CO emission standard of 5 g/kW-hr. This applies equally to all sizes of small SI engines used in marine generators.

We are adopting new evaporative emission standards for both handheld and nonhandheld equipment. The new standards include requirements to control fuel tank permeation, fuel line permeation, and diffusion emissions. For nonhandheld engines we also require control of running losses.

When fully implemented, the new standards will result in a 35 percent reduction in HC+NOx emissions from new engines' exhaust. The new standards will reduce evaporative emissions by 45 percent.

Marine spark-ignition engines and vessels

We are adopting a more stringent level of emission standards for outboard and personal watercraft engines starting with the 2010 model year. The HC+NOx standard for engines producing less than or equal to 4.3 kW maximum power is 30 g/kWh and for engines producing greater than 4.3 kW have a standard that gradually increases based on the engine's maximum power. The CO standard for engines producing less than or equal to 40 kW gradually increases based on the engine's maximum power. The CO standard for engines with maximum power greater than 40 kW is 300 g/kWh. We expect manufacturers to meet these standards with improved fueling systems and other in-cylinder controls. The federal levels of the HC+NOx standards are consistent with the requirements recently adopted by California ARB with the addition of a first-ever CO standard for this category of nonroad engines.

We are adopting new exhaust emission standards for sterndrive and inboard marine engines. The standards are 5 g/kW-hr for HC+NOx and 75 g/kW-hr for CO starting with the 2010 model year. We expect manufacturers to meet these standards with three-way catalysts and closed-loop fuel injection. To ensure proper functioning of these emission control systems in use, we will require manufacturers to diagnose engines for failure in the emission control system.

For sterndrive and inboard marine engines above 373 kW with high-performance characteristics (generally referred to as "SD/I high-performance engines"), we are adopting a CO standard of 350 g/kW-hr. We are adopting a HC+NOx standard of 20 g/kWh for high-performance engines producing between 373 and 485 kW in 2010 followed by a tightened standard of 16 g/kWh in 2011. For high-performance engines producing greater than 485 kW, we are adopting a HC+NOx standard of 25 g/kWh in 2010 and 22 g/kWh in 2011. We are also adopting a variety of other special provisions for high-performance engines to reflect unique operating characteristics.

Regulatory Announcement

The emission standards described above relate to engine operation over a prescribed duty cycle for testing in the laboratory. We are also adopting "not-to-exceed" standards that require manufacturers to maintain a certain level of emission control when engines operate under normal speed-load combinations that are not included in the certification duty cycle.

We are also adopting new standards to control evaporative emissions for all vessels using marine spark-ignition engines. The new standards include requirements to control fuel tank permeation, fuel line permeation, and diurnal fuel tank vapor emissions, including provisions to ensure that refueling emissions do not increase.

When fully implemented, the new standards will result in an estimated 70 percent reduction in HC+NOx emissions and a 50 percent reduction in CO from new SD/I engines' exhaust. The standards will also result in a 60 percent reduction in HC+NOx emissions from OB/PWC engines. The new standards will reduce evaporative emissions by about 70 percent.

Health and Environmental Benefits

We estimate that by 2030, the new standards will result in significant annual reductions of pollutant emissions from regulated engine and equipment sources nationwide, including approximately 600,000 tons of volatile organic hydrocarbon emissions, 130,000 tons of NOx emissions, and 5,500 tons of direct particulate matter ($PM_{2.5}$) emissions. These reductions correspond to significant reductions in the formation of ground-level ozone and ambient $PM_{2.5}$. We also expect to see annual reductions of 1.5 million tons of carbon monoxide emissions, with the greatest reductions in situations where there have been problems with individual exposures. The final rule will result in substantial benefits to public health and welfare and the environment. We estimate that by 2030, on an annual basis, these emission reductions will prevent 230 PM-related premature deaths, between 77 and 350 ozone-related premature deaths, approximately 1,700 hospitalizations and emergency room visits, 23,000 work days lost, 180,000 lost school days, 590,000 acute respiratory symptoms, and other quantifiable benefits every year. The total estimated annual benefits of this rule in 2030 are approximately between $1.6 and $4.4 billion. Estimated costs in 2030 are many times less, at approximately $190 million.

Costs

The estimated annualized cost of the new exhaust and evaporative emissions standards is $391 million, assuming a seven percent discount rate over 30 years. The corresponding annualized fuel savings due to more efficient controls is $155 million. As a result, the net annualized cost of the program is $236 million.

The results of the economic impact modeling performed for the Small SI and Marine SI engines and equipment control programs suggest that the social costs of those programs are expected to be about $459 million in 2030 with consumers of these products expected to bear about 86 percent of these costs. We estimate fuel savings of about $273 million in 2030 that will accrue to consumers.

BATTERY-POWERED TOOLS

Battery Lawn Mower

Models and Prices

Accessories

Specs

Features

Gallery

Battery Lawn Mower

Garden Cart

Accessories

Reel Mower

Battery Hand Tools

Lawn and Garden Tools

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Neuton CE6 Battery-Powered Mower

EMAIL TO A FRIEND

Cut a 19" path with our larger model

The Neuton CE6 Mower gives you the powerful performance of a gas mower with convenience of DURACELL® battery technology. There is no gas or oil to spill and no engine emissions to pollute the air.

Neuton is the only mower powered by DURACELL®. With 360 watt-hours of battery energy, it has plenty of power to mow through even tall, wet grass.

The Neuton CE6 mower is ideal for lawns up to 1/3 acre (about 15,000 sq. ft.) on a single charge. If you need more time, just drop in an optional spare battery and keep mowing!

Choose Products

	PRICE	QTY
# CEM6X4X CE6 Battery Mower	~~$499.00~~ Sale $449.00	

This Item has free shipping.

ADD TO CART

YOU MIGHT ALSO LIKE:

CE6 - Premier Package
~~$259.80~~
Sale $179.95

CE6 - Trimmer/Edger
$84.95

CE6 - 36 Volt Spare Battery
$129.00

Additional Information

The Neuton CE6 Features:

- Removable, rechargeable DURACELL® battery
- Recharging costs about 10 cents
- Fully recharges in 12 hours
- Runs for up to an hour (depending on grass conditions)
- Battery lasts for five years (with proper care)
- Battery is over 95% recyclable

Comes with everything needed to start mowing:

- Rear grass collection bag
- Mulching plug
- 360 watt-hour battery
- Battery charger

Get more out of your Neuton with our accessories. Add an on-board string Trimmer / Edger , which is also included in the Premier Accessories Package. For that ballpark look, get the Lawn Striper.

BATTERY-POWERED TOOLS

Battery Lawn Mower

Battery Lawn Mower

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Garden Cart

Accessories

Reel Mower

Battery Hand Tools

Lawn and Garden Tools

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Neuton CE5 Battery-Powered Mower

EMAIL TO A FRIEND

The smart choice for small lawns

The Neuton CE5 DURACELL®-Powered Mower is welcome relief from the arm-yanking pull-starts, the fumes, noise, and vibration of a gas lawn mower. Start it with the push of a button and mow for up to 1 hour on a single charge.

Since it doesn't use gas or oil, it never needs a tune-up, and it runs clean. It produces no pollution or carbon emissions. Enjoy the ease and convenience of battery-powered mowing!

The regular Limited Warranty that comes with your Neuton Mower covers defects in materials and workmanship for 2 years.

With our Neuton Extended Warranty, you can get 1, 2 or 3 additional years of coverage on your Neuton Mower (including the motor) and bring your Warranty coverage up to a full 5 years!

YOU MIGHT ALSO LIKE:

CE5 - Accessories Premier Package
~~$227.75~~
Sale $154.95

CE5 - Trimmer / Edger
$84.95

CE5 - 24 Volt Spare Battery
$99.95

Choose Products

	PRICE	QTY
# CEM5X4X CE5 Battery Mower	~~$399.00~~ Sale $359.00	

This Item has free shipping.

ADD TO CART

Additional Information

This model is perfect for lawns up to ¼ acre on a single charge. If you need more time, just drop in an optional spare battery.

According a study conducted by the Noise Pollution Clearinghouse, this Neuton CE5 is the quietest rotary mower available.

Your Neuton CE 5 Mower comes with everything you need to start mowing:

- Rear grass collection bag
- Mulching plug
- 240 watt-hour Duracell battery
- Battery charger

Neuton mowers have attachments and accessories like no other mowers. The optional Trimmer/Edger attachment eliminates the need for a second piece of equipment and gives your yard and walkways a beautiful, clean finish.

BATTERY-POWERED TOOLS

Battery Lawn Mower

Battery Lawn Mower

Garden Cart

Accessories

Reel Mower

Battery Hand Tools

Lawn and Garden Tools

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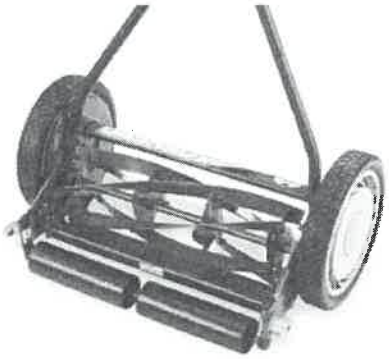
Neuton Reel Mower



Lighter. Quieter. Cleaner.

The Neuton Reel Mower is the only mower that's lighter,quieter, and cleaner than your Neuton Battery-Powered Mower!

Cuts very evenly so it's ideal for small spaces you want to look particularly good (around patios, pools, entrances). Lightweight design makes mowing slopes easy.

Features:

- Weighs only 25 lbs.
- Cutting height adjusts from 1/2" - 2-1/2"
- Five-blade tempered alloy reel.
- Cuts 15" wide.

EMAIL TO A FRIEND

Choose Products

	PRICE	QTY
# 27181 Neuton Reel Mower	$99.95	

ADD TO CART

(+ Shipping $15)

YOU MIGHT ALSO LIKE:

Neuton Blower
$44.95 - $99.95

Neuton Hedge Trimmer
$44.95 - $99.95

Neuton String Trimmer
$7.95 - $89.95

Looking for a little more power?

The Neuton CE5 DURACELL®-Powered Mower is the smart choice for small lawns. No more arm-yanking pull-starts, fumes, and noise of a gas lawn mower.

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