

# ASSEMBLY, No. 2482

## STATE OF NEW JERSEY 211th LEGISLATURE

INTRODUCED MARCH 11, 2004

**Sponsored by:**

**Assemblyman JOHN J. BURZICHELLI**

**District 3 (Salem, Cumberland and Gloucester)**

**Assemblyman REED GUSCIORA**

**District 15 (Mercer)**

**Assemblyman JOHN F. MCKEON**

**District 27 (Essex)**

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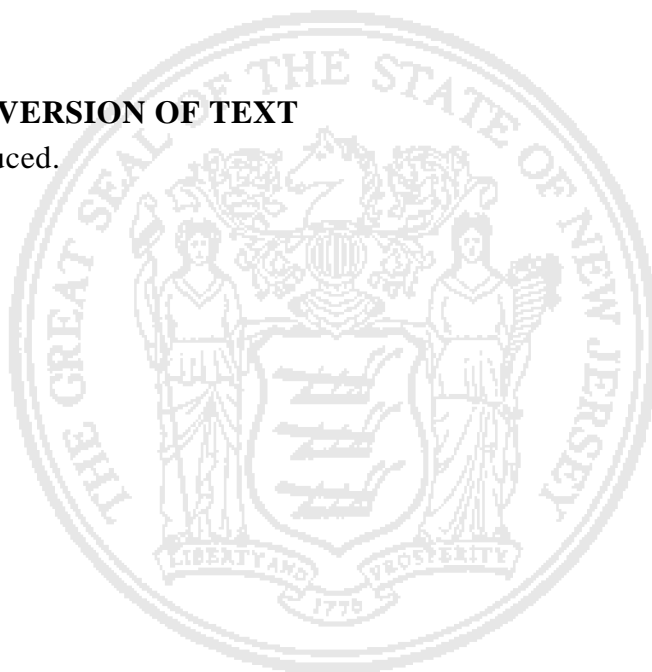
**Assemblywoman Weinberg**

**SYNOPSIS**

Establishes program for removal of mercury switches from scrapped vehicles.

**CURRENT VERSION OF TEXT**

As introduced.



**(Sponsorship Updated As Of: 5/4/2004)**

1 AN ACT concerning mercury in certain vehicles, and supplementing  
2 Title 13 of the Revised Statutes.

3  
4 **BE IT ENACTED** *by the Senate and General Assembly of the State*  
5 *of New Jersey:*

6  
7 1. This act shall be known and may be cited as the "Mercury  
8 Switch Removal Act of 2004."

9  
10 2. The Legislature finds and declares that mercury is a persistent  
11 and toxic pollutant that bioaccumulates in the environment and that 41  
12 states, including New Jersey, have issued fish advisories that warn  
13 certain individuals to restrict or avoid consuming fish from bodies of  
14 water contaminated with mercury.

15 The Legislature further finds and declares that the United States  
16 Food and Drug Administration has advised pregnant women and  
17 women of childbearing age who may become pregnant not to eat  
18 shark, swordfish, king mackerel, and tilefish due to methyl mercury  
19 contamination, and that according to estimates of the United States  
20 Environmental Protection Agency, over 600,000 babies are born  
21 annually at risk for adverse neuro-developmental effects from in-utero  
22 exposure to methyl mercury resulting from the consumption of  
23 mercury contaminated fish.

24 The Legislature further finds and declares that recent findings show  
25 that historic and current use of mercury in vehicles can cause the  
26 release of as much as 10 tons of mercury to the nation's environment  
27 each year.

28 The Legislature further finds and declares that the vehicle recycling  
29 industry, consisting primarily of small business operators, is a vital  
30 component of the State's overall recycling efforts; that iron and steel  
31 manufacturers provide a valuable scrap metal recycling service; that  
32 reliable estimates indicate that iron and steel manufacturing plants are  
33 the largest in-State source of mercury emissions; that the main feed  
34 stock for these plants is scrap metal which includes shredded  
35 end-of-life vehicles, some of which contain mercury in switches that  
36 can be emitted to the atmosphere when the scrap metal is melted in  
37 high-temperature processes to convert it into new iron and steel  
38 products; that mercury provides no benefit to iron and steel  
39 manufacturing plants and has no role in the manufacture of iron and  
40 steel; and that the federal Environmental Protection Agency recently  
41 finalized regulations that would require certain iron and steel foundries  
42 to implement work practice standards to exclude mercury switches  
43 from the scrap metal feed materials of these foundries.

44 The Legislature further finds and declares that, with regard to  
45 mercury emissions, pollution prevention is more desirable than waste  
46 management and pollution control; and that removing mercury

1 switches from end-of-life vehicles before they are crushed or shredded  
2 and preventing mercury from entering high temperature processes is  
3 an effective way to reduce mercury emissions into the environment.

4 The Legislature further finds and declares that a majority of vehicle  
5 manufacturers have responsibly ceased using mercury switches in  
6 currently-manufactured vehicles; that over the next decade and beyond  
7 millions of vehicles containing mercury switches will be recycled; that  
8 vehicle mercury switch collection programs are being established  
9 across the country to protect human health and the environment; and  
10 that iron and steel foundries, vehicle recyclers and the residents of this  
11 State would benefit from a Statewide program that removes mercury  
12 switches from end-of-life vehicles.

13 The Legislative therefore determines that it is in the public interest  
14 of the residents of New Jersey to reduce the quantity of mercury in the  
15 environment by removing mercury switches from end-of-life vehicles  
16 in New Jersey, by creating a collection and recovery program for  
17 mercury switches removed from end-of-life vehicles in New Jersey,  
18 and by establishing a system to store the mercury collected and  
19 recovered from vehicle mercury switches in the event that  
20 environmentally appropriate management technologies are not  
21 available.

22

23 3. As used in this act:

24 "Capture rate" means the annual removal, collection, and recovery  
25 of mercury switches as a percentage of the total number of mercury  
26 switches available for removal from end-of-life vehicles;

27 "Commissioner" means the Commissioner of Environmental  
28 Protection;

29 "Department" means the Department of Environmental Protection;

30 "End-of-life vehicle" means a vehicle that is sold, given or  
31 otherwise conveyed to a vehicle recycler or scrap recycling facility for  
32 the purpose of recycling;

33 "Manufacturer" means a person, firm, association, partnership,  
34 corporation, governmental entity, organization, combination, or joint  
35 venture which is the last person in the production or assembly process  
36 of a new vehicle that utilizes mercury switches, or in the case of an  
37 imported vehicle, the importer or domestic distributor of the vehicle;

38 "Mercury minimization plan" means a plan for removing, collecting  
39 and recovering mercury switches from end-of-life vehicles and  
40 prepared pursuant to section 4 of this act;

41 "Mercury switch" means any light switch or an anti-lock braking  
42 system switch that contains mercury and that is installed by a  
43 manufacturer in a vehicle;

44 "Scrap recycling facility" means a fixed location where machinery  
45 and equipment are utilized for processing and manufacturing scrap  
46 metal into prepared grades and whose principal product is scrap iron,

1 scrap steel or nonferrous metallic scrap for sale for remelting  
2 purposes;

3 "Vehicle" means any passenger automobile or passenger automobile  
4 derivative capable of seating 15 or fewer passengers, or any motor  
5 vehicle rated at 6,000 pounds gross vehicle weight or less and a loaded  
6 vehicle weight of 5,750 pounds or less, which is designed primarily for  
7 purposes of transportation of property, or is a derivative of such motor  
8 vehicle including, but not limited to, pick-ups, vans, and window vans;  
9 and

10 "Vehicle recycler" means an individual or entity engaged in the  
11 business of acquiring, dismantling or destroying six or more end-of-life  
12 vehicles in a calendar year for the primary purpose of resale of their  
13 parts.

14

15 4. a. Within 90 days after the effective date of this act, every  
16 manufacturer of vehicles sold within the State, individually or as part  
17 of a group, shall develop, in consultation with the department, a  
18 mercury minimization plan prepared pursuant to this section and  
19 submit the mercury minimization plan to the commissioner for review  
20 and approval pursuant to section 5 of this act.

21 b. The mercury minimization plan prepared and submitted pursuant  
22 to this section shall include, at a minimum, the following:

23 (1) information identifying the make, model, and year of vehicles  
24 that may contain a mercury switch; a description of the mercury  
25 switch; the location of these mercury switches; and the safe and  
26 environmentally sound methods for their removal from end-of-life  
27 vehicles. To the extent a manufacturer is uncertain as to the content  
28 of a switch installed during the manufacture of a vehicle, the mercury  
29 minimization plan shall presume that the switch is a mercury switch;

30 (2) educational materials to assist a vehicle recycler or a scrap  
31 recycling facility in undertaking a safe and environmentally sound  
32 method for the removal of the mercury switches from end-of-life  
33 vehicles, including information on the hazards related to, and the  
34 proper handling of, mercury;

35 (3) a proposal for the method of storage or disposal of the mercury  
36 switches, including the method of packaging and shipping mercury  
37 switches to authorized recycling, storage, or disposal facilities; and

38 (4) a proposal for the storage of mercury switches collected and  
39 recovered from end-of-life vehicles in the event that environmentally  
40 appropriate management technologies are not available; and

41 (5) a plan for implementing and financing the system, in accordance  
42 with subsection d. of this section.

43 c. A mercury minimization plan shall, to the extent practicable,  
44 utilize the existing end-of-life vehicle recycling infrastructure. Where  
45 the existing end-of-life vehicle recycling infrastructure is not utilized,  
46 the mercury minimization plan shall include the reasons for establishing

1 a separate infrastructure.

2 d. A mercury minimization plan must provide for the financing of  
3 the removal, collection, and recovery system for mercury switches as  
4 provided in this subsection. These costs shall be borne by the  
5 manufacturers of vehicles sold in the State, and the manufacturers shall  
6 develop a method that ensures the prompt payment to vehicle  
7 recyclers, scrap recycling facilities and the department, for costs  
8 associated with mercury switch removal and disposal. Costs shall  
9 include, but not be limited to, the following:

10 (1) a minimum of \$1 for each mercury switch removed by a vehicle  
11 recycler pursuant to subsection a. of section 6 of this act as partial  
12 compensation for the labor and other costs incurred by a vehicle  
13 recycler in the removal of the mercury switch;

14 (2) a minimum of \$1 for each mercury switch removed by a scrap  
15 recycling facility pursuant to subsection b. of section 6 of this act as  
16 partial compensation for the labor and other costs incurred by a scrap  
17 recycling facility in the removal of the mercury switch;

18 (3) \$0.25 for each mercury switch removed by a vehicle recycler  
19 pursuant to subsection a. of section 6 of this act or by a scrap  
20 recycling facility pursuant to subsection b. of section 6 of this act as  
21 partial compensation for the department for costs incurred in  
22 administering and enforcing the provisions of this act;

23 (4) packaging in which to transport mercury switches to recycling,  
24 storage or disposal facilities;

25 (5) shipping of mercury switches to recycling, storage or disposal  
26 facilities;

27 (6) recycling, storage or disposal of the mercury switches;

28 (7) the preparation and distribution to vehicle recyclers and scrap  
29 recycling facilities of the educational materials required pursuant to  
30 paragraph (2) of subsection b. of this section; and

31 (8) maintenance of all appropriate record-keeping systems.

32

33 5. a. Within 120 days after receipt of a mercury minimization plan,  
34 the commissioner shall approve, disapprove, or conditionally approve  
35 the entire mercury minimization plan. The commissioner may solicit  
36 input from representatives of vehicle recyclers, scrap recycling  
37 facilities, and other stakeholders as the commissioner deems  
38 appropriate.

39 (1) If the entire mercury minimization plan is approved, the  
40 manufacturer shall begin implementation within 30 days after receipt  
41 of approval or as otherwise agreed to by the commissioner. If the  
42 entire mercury minimization plan is disapproved, the commissioner  
43 shall inform the manufacturer as to the reasons for the disapproval.  
44 The manufacturer shall have 30 days thereafter to submit a new  
45 mercury minimization plan.

46 (2) The commissioner may approve those parts of a mercury

1 minimization plan that meet the requirements of section 4 of this act  
2 and disapprove the parts that do not comply with the requirements of  
3 section 4 of this act. The manufacturer shall implement the approved  
4 parts within 30 days after receipt of approval or as otherwise agreed  
5 to by the commissioner, and submit a revised mercury minimization  
6 plan for the disapproved parts within 30 days after receipt of  
7 notification of the disapproval of the commissioner. The  
8 commissioner shall review, and approve, conditionally approve, or  
9 disapprove a revised mercury minimization plan within 30 days after  
10 receipt.

11 (3) If, at the conclusion of the time period of 120 days after receipt  
12 of a mercury minimization plan, the commissioner has neither  
13 approved nor disapproved the mercury minimization plan pursuant to  
14 paragraphs (1) or (2) of this subsection, the mercury minimization plan  
15 shall be considered to be conditionally approved. A manufacturer,  
16 subject to any modifications required by the commissioner, shall  
17 implement a conditionally effective mercury minimization plan within  
18 30 days after receipt of approval or as otherwise agreed to by the  
19 commissioner.

20 b. The commissioner shall reserve the right to complete, at the  
21 conclusion of a time period 240 days after the date of enactment of  
22 this act, on behalf of a manufacturer, any portion of a mercury  
23 minimization plan that has not been approved pursuant to this section.

24 c. The commissioner may review a mercury minimization plan  
25 approved pursuant to this section and recommend modifications  
26 thereto at any time upon a finding that the approved mercury  
27 minimization plan is deficient.

28

29 6. a. Commencing 30 days after the approval or conditional  
30 approval of a mercury minimization plan pursuant to section 5 of this  
31 act, a vehicle recycler who sells, gives or otherwise conveys ownership  
32 of an end-of-life vehicle to a scrap recycling facility for recycling shall  
33 remove all mercury switches identified in the approved mercury  
34 minimization plan from the end-of-life vehicle prior to delivery to a  
35 scrap recycling facility, unless a mercury switch is inaccessible due to  
36 significant damage to the vehicle in the area surrounding the location  
37 of the mercury switch, in which case such damage shall be noted on  
38 the normal business records of the vehicle recycler who delivered the  
39 end-of-life vehicle to the scrap recycling facility.

40 b. Notwithstanding subsection a. of this section, a scrap recycling  
41 facility may agree to accept an end-of-life vehicle, which has not been  
42 intentionally flattened, crushed or baled, containing mercury switches,  
43 in which case the scrap recycling facility shall be responsible for  
44 removing the mercury switches identified in the mercury minimization  
45 plan approved pursuant to section 5 of this act before the end-of-life  
46 vehicle is intentionally flattened, crushed, baled, or shredded.

1 c. A vehicle recycler or scrap recycling facility who removes  
2 mercury switches pursuant to subsection a. or subsection b. of this  
3 section shall maintain records documenting the number of mercury  
4 switches collected, the number of end-of-life vehicles containing  
5 mercury switches, and the number of end-of-life vehicles processed for  
6 recycling. These records shall be made available for review by the  
7 department upon the request of the department.

8 d. No person shall represent that mercury switches have been  
9 removed from an end-of-life vehicle being sold, given or otherwise  
10 conveyed for recycling if that person has not removed the mercury  
11 switches, or arranged with another person to remove the mercury  
12 switches.

13 e. Upon removal, mercury switches shall be collected, stored,  
14 transported, and otherwise handled in accordance with the mercury  
15 minimization plan approved pursuant to section 5 of this act.

16 f. Upon removal, mercury switches shall be collected, stored,  
17 transported, and otherwise handled in accordance with the provisions  
18 of the rules and regulations concerning universal waste adopted by the  
19 department pursuant to the "Solid Waste Management Act," P.L.1970,  
20 c.39 (C.13:1E-1 et seq.) and the "New Jersey Statewide Mandatory  
21 Source Separation and Recycling Act," P.L.1987, c.102  
22 (C.13:1E-99.11 et al.), as applicable.

23

24 7. a. One year after the implementation of a mercury minimization  
25 plan approved pursuant to section 5 of this act, and annually  
26 thereafter, a manufacturer subject to section 4 of this act shall,  
27 individually or as part of a group, report to the commissioner  
28 concerning the implementation of the mercury minimization plan. The  
29 report shall include, but need not be limited to, the following: (1) a  
30 detailed description and documentation of the capture rate achieved,  
31 with the goal of achieving a mercury switch capture rate of at least 90  
32 percent, consistent with the principle that mercury switches shall be  
33 recovered unless the mercury switch is inaccessible due to significant  
34 damage to the end-of-life vehicle in the area surrounding where the  
35 mercury switch is located; (2) a description of additional or  
36 alternative actions that may be implemented to improve the mercury  
37 minimization plan and its implementation in the event that a mercury  
38 switch capture rate of at least 90 percent is not achieved; (3) the  
39 number of mercury switches collected, the number of end-of-life  
40 vehicles containing mercury switches, the number of end-of-life  
41 vehicles processed for recycling, and a description of how the mercury  
42 switches were managed; and (4) a description of the amounts paid to  
43 cover the costs of implementing the mercury minimization plan.

44 b. The commissioner may discontinue the requirement for the  
45 annual report pursuant to subsection a. of this section upon a finding  
46 that mercury switches in end-of-life vehicles no longer pose a  
47 significant threat to the environment or to public health.

1       8. a. Whenever the commissioner finds that a person has violated  
2 any provision of this act, or any rule or regulation adopted pursuant  
3 thereto, the commissioner may:

4       (1) issue an order requiring the person found to be in violation to  
5 comply in accordance with subsection b. of this section;

6       (2) bring a civil action in accordance with subsection c. of this  
7 section;

8       (3) levy a civil administrative penalty in accordance with subsection  
9 d. of this section;

10       (4) bring an action for a civil penalty in accordance with subsection  
11 e. of this section; or

12       (5) petition the Attorney General to bring a criminal action in  
13 accordance with subsection f. of this section.

14       Pursuit of any of the remedies specified under this section shall not  
15 preclude the seeking of any other remedy specified.

16       b. Whenever the commissioner finds that a person has violated this  
17 act, or any rule or regulation adopted pursuant thereto, the  
18 commissioner may issue an order specifying the provision or  
19 provisions of this act, or the rule or regulation adopted pursuant  
20 thereto, of which the person is in violation, citing the action that  
21 constituted the violation, ordering abatement of the violation, and  
22 giving notice to the person of the person's right to a hearing on the  
23 matters contained in the order. The ordered person shall have 20  
24 calendar days from receipt of the order within which to deliver to the  
25 commissioner a written request for a hearing. After the hearing and  
26 upon finding that a violation has occurred, the commissioner may issue  
27 a final order. If no hearing is requested, the order shall become final  
28 after the expiration of the 20-day period. A request for hearing shall  
29 not automatically stay the effect of the order.

30       c. The commissioner may institute an action or proceeding in the  
31 Superior Court for injunctive and other relief to enforce the provisions  
32 of this act and to prohibit and prevent a violation of this act, or of any  
33 rule or regulation adopted pursuant thereto, and the court may  
34 proceed in the action in a summary manner. In any such proceeding  
35 the court may grant temporary or interlocutory relief.

36       Such relief may include, singly or in combination:

37       (1) a temporary or permanent injunction;

38       (2) assessment of the violator for the reasonable costs of any  
39 inspection that led to the establishment of the violation, and for the  
40 reasonable costs of preparing and litigating the case under this  
41 subsection.

42       d. The commissioner may assess a civil administrative penalty of  
43 not more than \$7,500 for a first offense, not more than \$10,000 for a  
44 second offense and not more than \$25,000 for a third and every  
45 subsequent offense. Each day that a violation continues shall  
46 constitute an additional, separate, and distinct offense.



1 No assessment may be levied pursuant to this section until after the  
2 violator has been notified by certified mail or personal service. The  
3 notice shall include a reference to the section of the statute, rule,  
4 regulation, or order violated, a concise statement of the facts alleged  
5 to constitute a violation, a statement of the amount of the civil  
6 administrative penalties to be imposed, and a statement of the person's  
7 right to a hearing. The ordered person shall have 20 calendar days  
8 from receipt of the notice within which to deliver to the commissioner  
9 a written request for a hearing.

10 After the hearing and upon finding that a violation has occurred, the  
11 commissioner may issue a final order after assessing the amount of the  
12 fine specified in the notice. If no hearing is requested, the notice shall  
13 become a final order after the expiration of the 20-day period.  
14 Payment of the assessment is due when a final order is issued or the  
15 notice becomes a final order. The authority to levy a civil  
16 administrative penalty is in addition to all other enforcement provisions  
17 in this act, and the payment of any assessment shall not be deemed to  
18 affect the availability of any other enforcement provisions in  
19 connection with the violation for which the assessment is levied. The  
20 commissioner may compromise any civil administrative penalty  
21 assessed under this section in an amount the commissioner determines  
22 appropriate.

23 e. A person who violates this act, or any rule or regulation adopted  
24 pursuant thereto, shall be liable for a penalty of not more than \$7,500  
25 per day, to be collected in a civil action commenced by the  
26 commissioner.

27 A person who violates an administrative order issued pursuant to  
28 subsection b. of this section, or a court order issued pursuant to  
29 subsection c. of this section, or who fails to pay an administrative  
30 assessment in full pursuant to subsection d. of this section is subject  
31 upon order of a court to a civil penalty not to exceed \$50,000 per day  
32 of each violation.

33 Any penalty imposed pursuant to this subsection may be collected,  
34 with costs, in a summary proceeding pursuant to the "Penalty  
35 Enforcement Law of 1999," P.L.1999, c.274 (C.2A:58-10 et seq.).  
36 The Superior Court and the municipal court shall have jurisdiction to  
37 enforce the provisions of the "Penalty Enforcement Law of 1999" in  
38 connection with this act.

39 f. A person who willfully or negligently violates this act shall be  
40 guilty, upon conviction, of a crime of the fourth degree and shall be  
41 subject to a fine of not less than \$2,500 nor more than \$25,000 per day  
42 of violation. A second offense under this subsection shall subject the  
43 violator to a fine of not less than \$5,000 nor more than \$50,000 per  
44 day of violation. A person who knowingly makes a false statement,  
45 representation, or certification in any application, record, or other  
46 document filed or required to be maintained under this act, or who

1 falsifies, tampers with or knowingly renders inaccurate, any monitoring  
2 device or method required to be maintained pursuant to this act, shall,  
3 upon conviction, be subject to a fine of not more than \$10,000.

4  
5 9. Notwithstanding any other policies and guidelines for the  
6 procurement of vehicles to the contrary, the Department of the  
7 Treasury shall, within one year after the effective date of this act,  
8 revise its policies, rules and procedures to give priority and preference  
9 to the purchase of vehicles that do not contain mercury, taking into  
10 consideration competition, price, availability and performance.

11  
12 10. This act shall take effect immediately.

#### 13 14 15 STATEMENT

16  
17 This bill would create a collection and recovery program for  
18 mercury switches removed from scrapped vehicles in New Jersey, and  
19 require vehicle manufacturers, either individually or as part of a group,  
20 to develop and submit to the Department of Environmental Protection  
21 (DEP) mercury minimization plans within 90 days of the effective date  
22 of this bill.

23 The mercury minimization plan would address the removal of  
24 mercury switches, i.e., any light switch or an anti-lock braking system  
25 switch that contains mercury and that is installed by a manufacturer in  
26 a vehicle, by vehicle recyclers prior to vehicles being melted down. As  
27 part of the plan, manufacturers would provide information on the  
28 makes, models and years of vehicles that may have mercury switches,  
29 and implement an education and outreach program to assist vehicle  
30 recyclers and scrap recycling facilities in undertaking a safe and  
31 environmentally sound method for the removal of the mercury  
32 switches from end-of-life vehicles. The bill would also require  
33 manufacturers to pay a minimum of \$1 for each mercury switch  
34 removed by a vehicle recycler or a scrap recycling facility as partial  
35 compensation for the labor and other costs incurred by the vehicle  
36 recycler or the scrap recycling facility in the removal of mercury  
37 switch, and \$0.25 to the DEP for each mercury switch removed as  
38 partial compensation for the DEP's administrative and enforcement  
39 costs. Manufacturers would also be responsible for the costs of  
40 packaging to transport, and shipping of, mercury switches to recycling,  
41 storage or disposal facilities, and the recycling, storage or disposal of  
42 the mercury switches;

43 This bill would require vehicle recyclers who sell, give or otherwise  
44 convey ownership of end-of-life vehicles to scrap recycling facilities  
45 for recycling to remove all mercury switches identified in the mercury  
46 minimization plan from end-of-life vehicles prior to delivery to a scrap

1 recycling facility, unless a mercury switch is inaccessible due to  
2 significant damage to the vehicle in the area surrounding the location  
3 of the mercury switch.

4 The bill would further provide that a scrap recycling facility may  
5 agree to accept an end-of-life vehicle, which has not been intentionally  
6 flattened, crushed or baled, containing mercury switches, in which case  
7 the scrap recycling facility would be responsible for removing the  
8 mercury switches.

9 Lastly, this bill, notwithstanding any other policies and guidelines  
10 for the procurement of vehicles to the contrary, would require the  
11 Department of the Treasury to revise its policies, rules and procedures  
12 to give priority and preference to the purchase of mercury-free  
13 vehicles, taking into consideration competition, price, availability and  
14 performance.

15 This bill is modeled on legislation enacted by the State of Maine in  
16 2001.

17 Mercury is a persistent and toxic pollutant that bioaccumulates in  
18 the environment. Forty-one states, including New Jersey, have issued  
19 fish advisories that warn certain individuals to restrict or avoid  
20 consuming fish from bodies of water contaminated with mercury.

21 Iron and steel manufacturing plants provide a valuable scrap metal  
22 recycling service. A primary feed stock of such plants is scrap metal  
23 from recycled end-of-life vehicles and other recycled products that  
24 may contain mercury. Mercury provides no benefit to iron and steel  
25 manufacturing plants and has no role in the manufacture of iron and  
26 steel. Mercury that is not removed from end-of-life vehicles prior to  
27 crushing and shredding contaminates the scrap metal and may be  
28 released to the environment when the scrap metal is melted during the  
29 steel manufacturing process. As a result, iron and steel manufacturing  
30 plants are a significant in-State source of mercury emissions.  
31 Removing mercury switches from end-of-life vehicles prior to crushing  
32 and shredding and thus preventing mercury from entering high  
33 temperature processes is an effective way to reduce mercury emissions  
34 into the environment.