

5 December, 2007

To: ETAAC Committee

From: Arthur R. Boone, Education Chair, Northern California Recycling Association ,  
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Re: Recycling-related contents of the ETAAC Final Report due to CARB on 23 January, 2007.

Following my appearance at the ETAAC meeting on November 29<sup>th</sup> in Merced, and at the CARB scoping session in Diamond BAR on November 30<sup>th</sup>, and after consultation with staff of the Sierra Club and Californians Against Waste, I developed a sense that the ETAAC would not be addressing recycling issues thoroughly unless the environmental community provided some input that could be inserted easily into their draft report to CARB. I would hope that this is that input.

#### BACKGROUND:

In the November 15<sup>th</sup> printed version of the draft ETAAC report to CARB, there are two entries under the “waste reduction, recycling, and resource management” section of that report [Part 4., Industrial Sector, Para. V., pp. 4-11 and 4-12.] One entry involves “waste conversion evaluation” and the other “landfill regulation and technologies.” These are the only two items in the report and do not, from an environmentalist’s perspective, address what we believe to be the critical issues of resource management and global warming. The two items that were not bound in with the November 15<sup>th</sup> draft but which have been accepted by the committee are “waste reduction at the source” and “waste recycling.”

None of these entries reflects the groundbreaking work that John Davis of the CRRRA Policy Committee and, separately, Charlotte Ely of the USEPA staff in San Francisco have done that shows that, if the tons of material currently being buried in California landfills were to be recycled, the annual emissions averted would be 15.5 million tons of CO2 equivalents. This is 17% of the industrial emissions that CARB staff currently calculates at 96 million tons of CO2 equivalent for 2004 [last available year, see powerpoints of “Scoping Plan Kick-Off Workshop,” panel 7] and is only slightly fewer emissions than what the removal of all diesel trucks from California roads and highways would effect.

(( If you are not familiar with this type of work; Davis’ and Ely’s goal has been to calculate the total tons of emissions averted by using recycled materials as feedstocks for future industrial production rather than virgin materials. They begin with the “per ton emissions averted” figures first reported in a 1998 USEPA study, GREENHOUSE GAS EMISSIONS FROM MANAGEMENT OF SELECTED MATERIALS IN MUNICIPAL SOLID WASTE (EPA530-R-98-013), September, 1998. This per-ton figure is then multiplied by the tons of a specific material now being loaded into a landfill that could be diverted and recycled; this total tons number has been calculated by projecting the 2001 California waste composition study to reflect the increased volumes of 2006. The final figures for each recyclable material are then aggregated to get the 15.5 million tons figure. (This methodology has been used by ICLEI since about 2000 in various local government work but neither the methodology nor the figure has apparently never been adopted or adapted by the CIWMB.) ))

During the ETAAC meeting at UC Merced on November 29, 2007, the committee discussed the draft final report but made no definitive additions or amendments to the “waste reduction” section except for deleting the two items mentioned above. The committee heard a statement from Dan Kalb of the Union of Concerned Scientists that includes four items related to recycling but took no definitive action.

#### MY PROPOSED CHANGES TO DRAFT ETAAC REPORT:

Sec 1. Insert at the end of the second paragraph in the Introduction to the “Industrial Sector” [page 4-1 in the Nov 15<sup>th</sup> draft] the following paragraph:

“The disposal of large quantities of post-consumer goods in landfills or at incinerators in California denies the opportunity to recycle these materials and commodities which could, if reintroduced as feedstocks in their appropriate industrial production cycles, result in a 17% decrease in CO2 equivalent emissions for the industrial sector. While much of the virgin goods production and the reprocessing of materials that are recycled now takes place outside the state, the materials enter the waste stream inside the state and, like electricity created elsewhere for California consumption, needs to be considered in our emissions management system. Wasting materials consumed in California should be ended”

Sec 2. Insert new language under existing Section V. “Waste Reduction, Recycling, and Resource Management.” as follows.

“It is well known that the United States with 5% of the world’s population consumes 25% of the world’s resources. State legislation to reduce the disposal of solid resources notwithstanding [California’s AB 939, encoded as Public Resources Code ss. 40,000 et seq., resulted in programs which reduced waste disposed in California from 44 million tons in 1990 to 42 million tons in 2005.a net decline of 4% in 15 years], wasting continues to be a major commercial activity in California which 1) deprives recycling ventures of available, post-consumer feedstocks, 2) results in energy consumption to produce new finished materials to produce new finished goods from virgin materials that are not necessary when reprocessing post-consumer materials are used instead, and 3) creates landfills with long-term liability and resource extraction and depletion issues.

This committee believes that a detailed plan is necessary to correct current practices but we have neither the time nor the expertise to suggest or direct the shape of future programs in this area. We believe that the Governor, the Legislature and the Integrated Waste Management Board can work together to plan and advise on how the solid waste enterprise in California, the seventh largest economy in the world, can be transformed into a post-industrial and post-consumer resource salvage and recycling enterprise. Anything less will be less than the best we can do for California. See Appendix No. xxxx for a detailed report. “

Sec. 3. Add this Appendix to the ETAAC Report as follows:

#### APPENDIX A: SUPPLEMENTAL REPORT CONCERNING WASTE REDUCTION AND RECYCLING:

As noted in the text, committee members are not specialists in the reuse of post-industrial and post-consumer resources. During the course of our deliberations the environmental community brought to us several thoughts and hopes for the future of materials conservation and reuse; those submissions are included as attachments to this appendix. As a committee our own focus is on technologies to reduce global warming; we believe waste reduction and recycling procedures are in their infancy and that further refinement of existing techniques and technologies can yield impressive results in materials conservation, materials reuse, and reduced emissions.

We believe that the best way to chart a new course for secondary materials management in California would be either for CARB to work with the California Integrated Waste Management Board to develop revised priorities or to establish a Select Committee of the Legislature, similar to the Senate Select Committee of 1988 that delineated the scope and direction of what became AB 939. The statements that we make below are not necessarily items that we all agree about but they suggest ideas, concepts, and programs that can shape the future of waste reduction and recycling in the state, and we hope that the California Air Resources Board will either work with the CIWMB or advise the Legislature that the following points are integral parts of the future of waste reduction and recycling in California.

##### A. Declare that Waste is An Antiquated Concept:

From the beginnings of human society until roughly two hundred years ago, natural systems were generally able to absorb and neutralize man-made materials or substances or man-caused dislocations in the natural environment to limit the deleterious effect of these materials on human health and the environment. With the advent of modern science and the development of manufacturing, the impact of humans on the earth has

expanded exponentially [one billion people in 1900; 6 billion in 2000]. Science and manufacturing have brought about both the increased quantity and complexity of finished goods available for acquisition. The by-products of these manufacturing and scientific processes have been categorized as “wastes” whereas in fact they are simply materials, often complex or degraded, created inadvertently but for which no markets are known to exist. About 1996, the number of products with SKU codes exceeded for the first time all the known species of living creatures in the world. With computers to track our production and distribution, we have created supply chains of impressive complexity but we have mostly refused to invest in systems to manage materials when their utility to us is over. It is the economy itself which moves raw materials through manufacturing and distribution to retail goods that we acquire and then expect a simple solution to their management when we are through with them. It needs to be said clearly that wastes are simply unwanted resources; we believe that their appropriate management will, once undertaken, be considerably less expensive or more beneficial than anyone currently believes. The environmentalist says, “There are no solid wastes, only wasted solids.”

#### B. Landfills are an Obsolete Technology for a Resource-challenged World.

Since the foundation of human settlements ten thousand years ago, it has been recognized that allowing unwanted materials, particularly putrescent ones, to pile up near human settlements attracted rodents and disease; recent excavations at Jamestown in Virginia indicate the importance of sanitation in restoring that community from the deadly impacts of early disease and death. Today landfills are a convenient outlet for unwanted materials but must be seen as increasingly obsolete. One example: it’s well known that the recycling rate for aluminum cans is about 52% [national data for 2005]. That figure means that 90 days after being filled and shipped, an aluminum can has a 52% chance of being recycled. So 52% go back into the stream of commerce and 48% go to the dump. Ninety days later, those 52% cans come back around and now, in the second round of salvage, 48% go to the dump so we now have only 27% of the cans in circulation [52% of 52%]. After a few more cycles, all the cans of the original batch are in the dump. In fact, with aluminum cans being popular since the mid 1970s, about 97% of all the aluminum cans ever made are now in a landfill somewhere. This is not sustainable, this is not the proper husbandry of resources. A similar case can be made for all resources now partly recycled; landfills are a simple but obsolete solution to the complexity of managing post-industrial and post-consumer materials, products, and substances.

#### C. The Role of Conversion Technologies:

About seven years ago the state law was amended to encourage the development of what have been named “conversion technologies” which is actually a class of technologies that favor various chemical transformations for materials now without a ready market. For a variety of reasons not clearly understood, project proponents have found it difficult to combine a technology, permits, feedstocks, and capital; opponents of such technologies think of them as garbage burning factories in disguise. Our hope is simply that the state will remain open to technological advancement without embracing unsafe or unfortunately expensive ventures. A more earnest examination of the project development difficulties of halted projects might be illuminating.

#### D. Curbside Efficiency Needs to be Better Understood:

Most of the communities in California have invested in curbside collection programs for collecting recyclable materials at residences and, in some places, at small businesses; these programs are generally paid for through garbage rate surcharges but often not identified as such. However, many people do not participate or participate only fitfully or partially. Very little is understood about consumer behavior in this area and many communities seem relatively indifferent to the program’s lack of market penetration. One writer suggested this is similar to investing in a sewer line for a community and then not stopping people from using their outhouses. All kinds of research has been performed to understand the consumer’s decisions about electricity usage; almost none has been performed to ascertain curbside participation behaviors. This should change.

#### E. The Economics of Commercial Recycling is Poorly Understood:

Materials disposition decisions among commercial operations (which is 63% of California's waste stream) are very poorly understood; there is little research on this topic. There is a general belief that the most cost-reducing strategy for used materials management will be considered the best but numerous operations undertake recycling programs at considerable cost with little reward. San Jose State University has a Center for the Development of Recycling but it has received almost no state funds and has produced little research. This all needs to change.

#### F. Data Gathering on Recycling Activities:

California state agencies currently do not collect data on state recycling rates. There is data on what goes into landfills (the CIWMB prepares annual total tonnage figures and every five years the CIWMB pays for a waste characterization analysis) and there are national virgin and used materials production numbers but there are no state-wide recycling numbers. In the original version of AB 939, state data was to be built from local data but this proved difficult and was abandoned in 1992. There are frequently problems in initiating data collection systems (resistance from private businesses resisting disclosure of competitive information, double-counting, etc., but the states of Oregon (see Oregon Revised Statutes, Chapter 459A.020 (2)(a)(C)) and Florida (see Florida Statutes Annotated, Ch. 288, s. 1185, creating a Recycling Markets Advisory Committee), have been creating this data for several years. California should follow these states so we can say confidently that x percentage of material y is recycled and 100-x percentage is wasted.

#### G. Modify System for Rating Program Success:

In 1989 California was the eighth or ninth state ever to adopt a rate-and-date law wherein the legislature directed that recycling be increased by a fixed percentage (in California the law said that of all materials generated for disposal, the percentage recycled should be 25% by 1995 and 50% by 2000). Because diversion was never measured directly after 1992 but rather total generation was calculated based on a variety of economic factors, [the so-called Tseng formula; called for by AB2494, 1992, encoded at Public Resources Code s. 41780.1], the generation of discarded materials has increased exponentially in California from 50 million tons in 1990 to 88 million tons in 2006 [a 76% increase] while the population has increased only 15% and the GHG emissions have increased 12.4% [427 MMT in 1990; 480 MMT in 2004]. The aberrancy of the generation number has led to widespread distrust of California's announced recycling rate and the efficacy of its existing programs. Several years ago the State of Oregon switched to a direct measurement of landfilled materials [see Oregon Revised Statutes, ch. 459A.010, (1)] with a cap set initially with a per capita adjustment until 2009 when the amount of material allowed to be landfilled in Oregon would be fixed at the 2008 level "no annual increase in total municipal solid waste generation." [ch. 459A.010(1)(d)]. The Province of Nova Scotia in Canada has recently adopted a similar mechanism with the state allocating landfill capacity within the cap and landfills are allowed to sell unused capacity to over-loaded landfills. Nova Scotia is different from Oregon in that its law projects a declining volume of landfilled waste over the near-term future; Oregon projects a flat and fixed amount of garbage, irrespective of population increase. No one on our committee is an expert on this issue but we think California appears ripe for a change of measurement systems. In 1990 there were 44 million tons of garbage buried in California; in 2006 it was 42 million tons; clearly the existing system is not creating notable success stories. With proper attention, individuals and businesses have been able to recycle in excess of 90% of what they get rid of (known as a zero waste program) but that type of program success is not widespread or growing rapidly.

#### H. Diverting More Materials from the Landfills:

Since California met its year 2000 goals of 50% recycling in 2005, the volume of garbage being landfilled has continued to increase, slowly but steadily. The legislature has considered various minor amendments to the law but little has been enacted and wasting continues. All of the major industries that recycle existing buried materials (paper, glass, metal, plastic, wood and organic materials) indicate they desire to process a considerably larger volume of recyclable materials than they are currently receiving but these same industries seem to have made an insignificant effort to date to attract more materials. Getting materials

away from the garbage system seems like getting people out of their automobiles; a convenient system of moderate cost trumps an inconvenient system of lesser cost. The major strategies currently considered that would decrease landfilled volumes involve primarily EPR (extended producer responsibility), or landfill bans whereby certain materials are banned from landfill disposal (several environmental organizations have rallied behind the “get organics out of landfills” banner). The CIWMB has discussed both of these strategies and is moving slowly towards adopting some mix of the two. The John Davis proposal cited above favors establishing a goal of increasing the flow of common curbside materials by 20% within a stated time period. This committee has no experts on this matter.

I. Abolish Recycling Credit for Alternative Daily Cover:

In 1995, resolving a dispute among members of the CIWMB, the legislature amended AB 939 to allow for the use of alternative daily cover material in landfills to count as “diversion” credit. Since then landfills have consistently underpriced compost yards for disposal of shredded green materials and placed compost yards in an untenable financial situation when competing for raw materials. The permanent loss of organic materials going in to landfills as ADC (estimated in 2005 as 8.4 million cubic yards, slightly less than the 9.1 million cubic yards going to compost, mulch, and boiler fuel) prevents that material’s use as a soil amendment (mulch is 2.3 million c.y.; compost is 3.0 million c.y.) which in turn allows agriculture to use less water on their crops, thus reducing water pumping, a major use of electricity in California.

J. California Consumer Products Recycling Commission:

What continues to disturb the construction of a total recycling system is the continuing introduction into the marketplace of products and particularly packaging for which recycling markets do not exist. We would expect that the idea that government would interfere with proprietary packaging decisions would be greatly resisted in the consumer products companies but we believe that, like a consumer products safety commission, a small state agency with powers of investigation, conference and conciliation without the right to file a cause of action would be helpful to the long-term goal of removing non-recyclable packaging from the state.

INDEX OF ATTACHMENTS: to be provided.