

## Oregon Department of Environmental Quality Response to John Tierney's New York Times opinion piece, "The Reign of Recycling"

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On Oct. 3, 2015, *The New York Times* published an opinion piece ("[The Reign of Recycling](#)") by John Tierney) critical of recycling. Several local governments have asked DEQ for its response to that review. Other organizations, such as the Closed Loop Fund, have already published [detailed rebuttals](#). Rather than a detailed, point-by-point analysis, we focus here on the Oregon context, and the extent to which Tierney's criticisms apply – or not – to recycling in Oregon.

### Does Recycling Protect the Environment? Is it a Waste of Time?

Tierney writes, "If you live in the United States, you probably do some form of recycling . . . you probably assume that recycling is helping your community and protecting the environment. But is it? Are you in fact wasting your time? In 1996 . . . I presented plenty of evidence that recycling was costly and ineffectual, but its defenders said that it was unfair to rush to judgment . . . So what's happened since then? When it comes to the bottom line, both economically and environmentally, not much has changed at all."

This implies that recycling does not protect the environment and is uneconomical as well.

Is recycling bad for the environment? The most comprehensive evaluation of environmental impacts of recycling vs. disposal is a [series of meta-analyses](#) commissioned by WRAP in the United Kingdom. Researchers reviewed more than 200 life-cycle analyses comparing environmental impacts of recycling against impacts of landfilling and found – where data is of sufficient quality to support conclusions – that recycling is typically environmentally preferable. DEQ's own [meta-analysis of food waste studies](#) demonstrates that aerobic composting and anaerobic digestion are preferable to landfilling from the perspective of greenhouse gas emissions and soil health.

Recycling conserves resources (including energy) and reduces pollution (including greenhouse gases). Waste recycling by Oregon households and businesses in 2010 saved an estimated 29 trillion BTUs of energy (the equivalent of roughly 230 million gallons of gasoline) and reduced greenhouse gas emissions by roughly 3.4 million metric tons of carbon dioxide equivalents – comparable to the tailpipe emissions from more than 600,000 average passenger cars.

Is recycling a waste of money? While it costs money to recycle, so does the alternative. In discussing economic costs and benefits, it's important to consider [full costs](#), not just the hard transaction costs that are included in the garbage bill. For example, greenhouse gas



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emissions result in social costs, such as changes in net agricultural productivity, human health, property damages from increased flood risk, and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning. The federal government estimates that reducing one metric ton of CO<sub>2</sub> equivalent (in 2015) results [in social benefits of \\$12 to \\$120](#) (depending on choice of discount rate and statistic). If Oregon's recycling in 2015 reduces greenhouse gas emissions as much as it did in 2010, social benefits from one year's worth of recycling range from \$38 million to \$378 million. These represent the economic benefits of GHG reductions only and not other environmental benefits, which may be even larger.



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## Recycling Paper and Metal Makes Sense. What About Plastics and Food?

Tierney makes repeated criticisms of expanding recycling programs to address materials such as plastics and food. For example, he states, "As cities move beyond recycling paper and metals, and into glass, food scraps and assorted plastics, the costs rise sharply while the environmental benefits decline and sometimes vanish."

While the costs of recycling plastic and food may be higher than paper and metal, the environmental benefits are still very significant. An [analysis by DEQ](#) in 2011 looked at potential energy savings and greenhouse gas reduction that could be accomplished by recycling materials that are being thrown away each year. Of all materials, plastics had the highest potential for energy savings, and was also one of the more significant materials regarding greenhouse gas reduction, partly since plastic is such a high-energy material and so much of it is thrown away. Food waste composting did not provide any energy savings, but composting the food waste ranked second highest for greenhouse gas reduction of all materials being thrown away, right behind paper. This is because of the large amount of methane quickly generated in landfills when food waste is disposed, a significant portion of which escapes to the atmosphere before gas collection can begin. It was this analysis that was the impetus for food waste, plastic, and carpet (made mainly from plastic) to be targeted for increased recovery in Oregon's Senate Bill 263, passed in June 2015.

Tierney goes on to criticize plastics recycling by comparing it to flying. "To offset the greenhouse gas impact of one passenger's round-trip flight between New York and London, you'd have to recycle roughly 40,000 plastic bottles, assuming you fly coach." Yet while most Oregonians (and Americans) don't enjoy the privilege of flying to London, every household and business in Oregon has materials that can be recycled. In fact, the greenhouse gas benefits of recycling by Oregonians in 2010 (reductions in emissions of 3 million metric tons of carbon dioxide equivalent) is almost equal to the global emissions of all air travel by Oregonians to *all* destinations (not just New York or London) in that same year (3.2 million metric tons of carbon dioxide equivalent).<sup>1</sup>

## Are Recovery Goals Higher than 35 Percent III Advised?

Tierney states "The national rate of recycling rose during the 1990s to 25 percent, meeting the goal set by an E.P.A. official, J. Winston Porter. He advised state officials that no

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<sup>1</sup> For recycling benefits, see [this report](#). For air travel emissions, see Table 4.1 of "Oregon's Greenhouse Gas Emissions Through 2010: In-Boundary, Consumption-Based and Expanded Transportation Sector Inventories," published by ODEQ, ODOE and ODOT July 18, 2013.

more than about 35 percent of the nation's trash was worth recycling, but some ignored him and set goals of 50 percent and higher. Most of the goals were never met . . . “

Oregon was one of the states to ignore J. Winston Porter's advice. Oregon's recycling rate was about 27 percent in 1991, when the state first set a goal of 50 percent recovery by 2000. By 1996, when Tierney wrote his first article, Oregon's recovery rate was 35 percent and by 2000, its recovery rate climbed to 39 percent. However, recycling did not stagnate as Tierney has claimed, but instead continued to climb. By 2005, Oregon's recovery rate was 45 percent, and by 2013, the state reached 50 percent recovery. About half of this recovery comes from private commercial recycling/recovery, such as scrap metal dealers, wood waste recyclers, yard debris composters, paper mills and larger retailers who sell their recyclables directly to mills. The remainder comes from the public recycling programs that Tierney criticizes, such as curbside recycling. Regardless of how the materials are collected, they clearly have recycling value; if they didn't, private companies would not be profiting by recycling them. Fortunately, Oregon ignored the advice of John Tierney and J. Winston Porter and has continued to expand and improve recycling opportunities.

## Does Recycling Contribute to Pollution?

While acknowledging that recycling can reduce pollution, Tierney states that “recycling operations have their own environmental costs, like extra trucks on the road.” The extra trucks are necessary to collect separated recyclables and transport them to market. While recycling trucks burn fossil fuels and create pollution, their impacts are very small and easily justified when one looks at the big picture. For example, a DEQ analysis for the City of Portland found that collecting 100 tons of separated recyclables from households (in a separate truck) results in roughly six metric tons of carbon dioxide equivalent (greenhouse gases). These are life-cycle fuel emissions representing both emissions when the fuel is burned in the engine, as well as emissions from extracting, refining and transporting it to the pump. When those 100 tons of separated recyclables pass through a sorting facility and eventually on to recycling end-markets (paper mills, steel mills, etc.) the resulting reduction in greenhouse gas emissions is almost 40 times higher: 232 metric tons of CO<sub>2</sub>e. So yes, while recycling collection trucks contribute to pollution, these impacts are small when compared to the much larger benefits that they make possible.

## Not All Recycling is Equal

Tierney points out that the environmental benefits of recycling different materials vary; not all recycling is the same. This is consistent with DEQ's understanding, and is why DEQ proposed and supported Oregon's Senate Bill 263 (2015), which among other changes, directs Oregon to begin calculating local waste recovery rates not only on the basis of tons of material (where all materials are treated the same) but also environmental outcomes, such as energy savings. This new approach, which DEQ proposes to implement by 2017, will provide local program managers a more refined understanding of the relative environmental benefits of different waste recovery programs, methods and materials.



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## Is “Zero Waste” a Bad Idea?

Tierney criticizes political leaders in San Francisco, Seattle, New York and elsewhere for advocating for “zero waste.” Oregon has not adopted a “zero waste” goal or framework for some of the reasons that Tierney highlights: diminishing returns and increasing costs as recovery rates approach 100 percent. (DEQ’s other concerns with “zero waste” are summarized in [this paper](#)). Viewed from the perspective of the entire life cycle, there are some materials and some circumstances where landfill disposal will be the best option – both environmentally and economically. But that does not mean that current recovery programs (in Oregon or elsewhere) are necessarily optimal, or that waste recovery programs should not be further expanded or improved. As of 2010, nearly one third of the materials Oregonians disposed of as garbage consisted of readily recoverable materials, including cardboard, plastic bottles, and aluminum and steel cans.

## Oregon Businesses Depend on Recycling

One aspect Tierney didn’t discuss is the importance of recycling to local economies. Many Oregon businesses depend on recycling. The state has a steel mill that depends on scrap metal; paper mills that produce new paper from cardboard, office paper and junk mail; a glass plant that produces bottles from old bottles; and a plastic plant that takes all plastic collected under the Oregon Bottle Bill and turns it into feedstock for making new bottles or other plastic items. These businesses depend on the recyclables we collect, as do the collection companies and processors who handle those materials.

## Conclusion

Oregon has been a leader in recycling, first with the Bottle Bill in 1971, followed by the first statewide Recycling Opportunity Act in 1983, and then continuing with statewide Materials Management legislation (Senate Bills 245 and 263) this year. DEQ supports recycling when it makes sense: when it helps reduce pollution, saves money and conserves natural resources. Recycling continues to have long-term value. So Tierney's implication that recycling is wasteful does not hold true for the recycling occurring in Oregon. In contrast, paying many dollars per ton to have these recyclables collected as garbage and thrown away would be a real waste.

## Alternative formats

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