



SWANA Resource on Measuring Recycling

SWANA Technical Resource

SWANA supports the use of transparent and consistent methods to measure tons of materials recycled as a part of an integrated solid waste management system. From a historical and geographic perspective, SWANA recognizes that recycling has been measured using various approaches across North America. The objectives of this resource are to (1) encourage entities that measure recycling to disclose and provide transparency regarding the numbers and methods utilized to calculate recycled tons; and (2) recommend a consistent methodology be used for measuring recycling across organizations, program types and specific materials.

SWANA Position

SWANA supports developing a formalized approach to measuring and communicating recycling measurements as part of a sustainable materials management program and within an integrated solid waste management system. The focus of this resource is on measuring the amount and type of materials recycled (e.g. tons). Once an entity measures the quantity of material recycled, there are multiple methods that can be applied to evaluate recycling. Many of these methods utilize weight as a key component.

SWANA recognizes multiple approaches have been utilized to evaluate recycling. This resource does not include or recommend a specific approach for determining these methods or the benefits of recycling. Examples of methods to evaluate recycling include but are not limited to weight-based recycling rates, volume-based recycling rates, participation rates, capture rates, generation rates, material measurements such as life cycle and greenhouse gases, and other environmental and/or economic impacts.

This resource was developed as a collaborative effort and reflects input from SWANA members and national organizations such as the U.S. Environmental Protection Agency (U.S. EPA) and the Environmental Research and Education Foundation (EREF).

Background

- By consistently measuring tons of recycled materials, entities can calculate the benefits of recycling of materials and track the progress of efforts to implement sustainable materials management programs.



- This resource applies to any "reporting entity" that is measuring recycling. A reporting entity may include but not be limited to state, provincial /regional and local governments, as well as private businesses, trade associations or non-profit organizations that are measuring recycling.
- SWANA recognizes that some state, provincial and local governments are subject to laws that govern how those entities report their recycling measurement information.
- Efforts to measure recycling have traditionally calculated a recycling rate. A recycling rate indicates the percentage of waste generated that is recycled and is typically calculated using the formula: $\text{Total Recycled} / (\text{Total Recycled} + \text{Total Disposed}) = \text{Percent Recycling Rate}$; whereas totals are measured on a weight basis (e.g. tons). This formula uses sorted recyclable materials sent to entities to be recycled into new products, not materials at the collection point. Some industry participants believe that this method treats all tons of recycled material as being equal because it does not differentiate the various benefits associated with recycling different materials.
- Recycling measures are only useful when transparent definitions describe the material being managed. Clear definitions are thus the first requirement for establishing recycling measures for any material, or combination of materials.
- Unless other laws or policies of a state, province, or region require certain reporting metrics be used, reporting entities should utilize the reporting framework developed by the U.S. EPA to measure recycling. Information on this framework is provided on the U.S. EPA's website at: <https://www.epa.gov/smm/sustainable-materials-management-us-state-data-measurement-sharing-program>.
- In addition, SWANA encourages reporting entities to utilize U.S. EPA's *Measuring Recycling: A Guide for State and Local Governments* as a resource for developing the methodology to measure recycling. This report is available at: <https://archive.epa.gov/wastes/consERVE/tools/recmeas/web/pdf/guidel.pdf> [Note: EPA is in the process of updating this guide, and expects the new version to be published in 2018. Once it is published, this resource can provide the updated link].
- Reporting entities should be as transparent as possible when measuring recycling and should communicate the basis for the data used. Reporting entities should clearly define terms when reporting recycling information. This should include but not be limited to information on the management methods (e.g., recycling, composting, landfill, waste to energy, etc.), material types (e.g., paper, plastic, glass, metals, organics, etc.) and included sectors (e.g., residential, commercial, institutional and industrial).



- SWANA understands that recycling quantities may need to be calculated based on a range of assumptions and varied methodologies. In all instances, the reporting entity should be as transparent as possible in disclosing the methodology for the information reported. At a minimum, reporting entities should disclose information on the following: definition of recycling; materials and sectors included; reporting period; whether the reported information was provided on a mandatory/voluntary basis; how double counting was addressed; efforts to extrapolate or fill data gaps; accounting for residuals; and accounting for importing/exporting.
- While many governments have developed reporting requirements to measure recycling, SWANA would encourage reporting entities to review the 2017 study completed by the State of Texas to measure recycling as an example that is consistent with this SWANA resource. The Texas study was primarily based on the methodology from the U.S. EPA's *Measuring Recycling: A Guide for State and Local Governments* and the report provides transparency for the reported information. The report is available at: <http://www.txrecyclingstudy.org/>.

Going forward, SWANA should continue to evaluate approaches to measure recycling including but not limited to participation rates, capture rates, generation rates, material measurements such as life cycle and greenhouse gases, and other environmental and/or economic impacts. To better correlate recycling data among governments, further improvements are needed for transparency and consistency in defining, measuring and reporting the tons and types of material recycled.

As clarification, this resource does not focus on an approach to measure diversion. Efforts to measure diversion are often calculated via a similar recycling rate but include materials that are diverted from the landfill which are not recycled into new materials or products. A diversion rate indicates the percentage of waste generated that is recycled and diverted, and is typically calculated using the following formula:

$$\frac{\{\text{Total Diverted} + \text{Total Recycled}\}}{\{\text{Total Recycled} + \text{Total Diverted} + \text{Total Disposed}\}} = \text{Percent Diversion Rate}$$

whereas totals are measured on a weight basis (e.g. tons)

CERTIFIED to be correct and complete statement of the approved resource.

