

Role of Waste-to-Energy in the PA Clean Power Plan

DEP SOLID WASTE ADVISORY COMMITTEE
COMMONWEALTH OF PENNSYLVANIA
JANUARY 21, 2016

Presenters

- **James Warner**
Lancaster County Solid Waste Management Authority
- **David Vollero**
York County Solid Waste Authority

Value of Waste-to-Energy (WTE)

- Produces stable and reliable baseload energy
- Reduces greenhouse gases (GHG) emissions and operates with excellent environmental performance
- Complements and augments recycling goals
- Contributes to community sustainability efforts
- Adds reliability and flexibility to systems of managing waste
- Creates good-paying jobs
- Many states, including PA, already recognize WTE as renewable

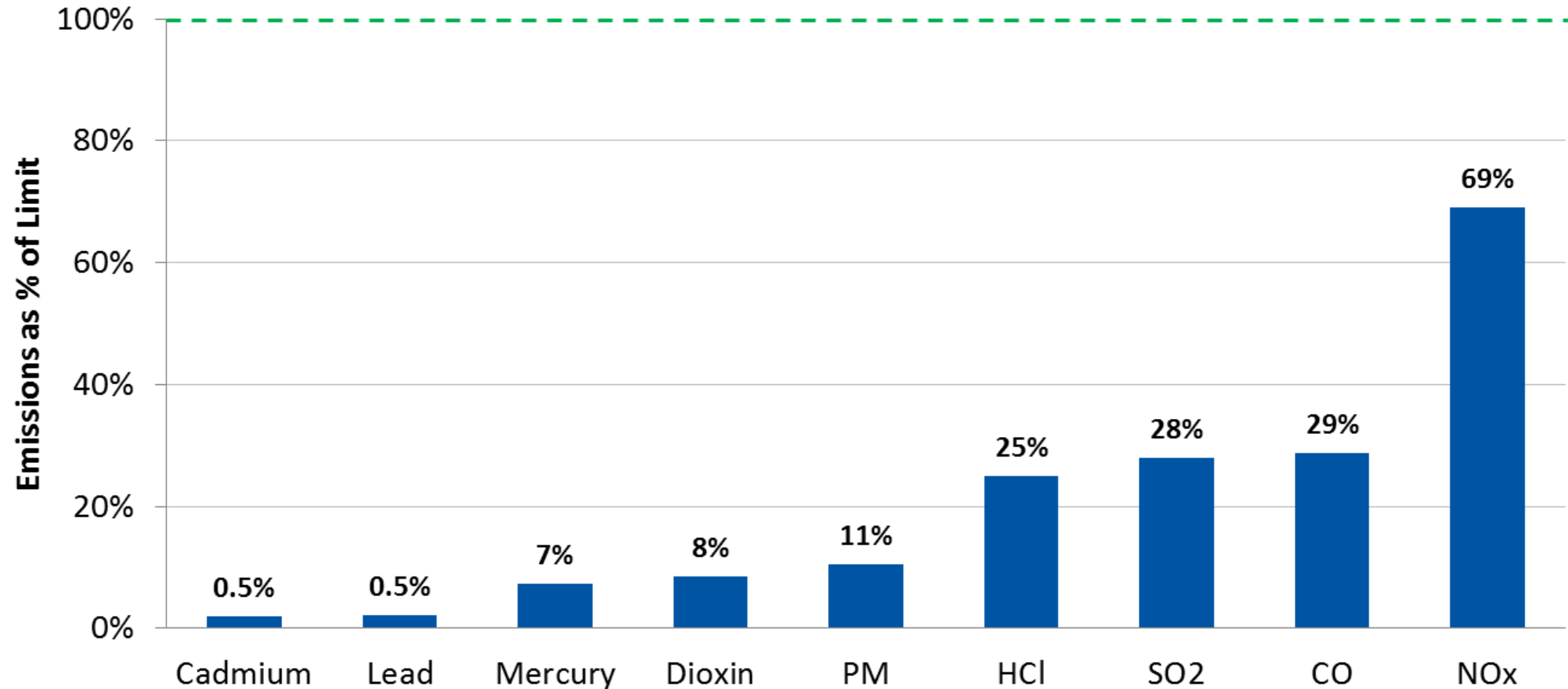
Facts for Waste-to-Energy

- Reduces GHG emissions:
 - ✓ U.S. Average = **1 ton CO₂e reduced / ton MSW diverted from landfill** (U.S. EPA)
(Estimate for PA ≈ 0.6 ton CO₂e / ton MSW diverted based on state specific data, including PA's more aggressive landfill regulations)
 - ✓ WTE electrical generation offsets/displaces fossil fuels
- Recovery rate of about **2% of metals** post-combustion (of MSW processed)
- Documented environmental excellence:
 - ✓ Emission levels are well within, and often below, EPA standards
(ex: Lancaster 5-year average of **71% below DEP limits** for combined CO, HCl, SOx, NOx)
 - ✓ Steadfast emissions compliance: PA facility* 14-year average of 99.7%
* Includes Chester, Harrisburg (2008-14), Lancaster, Plymouth, and York WTE facilities

Recognition of WTE Climate Benefits

- U.S. EPA and U.S. EPA scientists
- The Intergovernmental Panel on Climate Change (IPCC)
- European Union
- CalRecycle and California Air Resources Board
- Mandatory and voluntary carbon offset markets (CDM & Verified Carbon Standard)
- Center for American Progress, Third Way, World Economic Forum

WTE Emissions Relative to Federal Limits



* Includes Chester, Harrisburg, Lancaster, Plymouth, and York WTE facilities, 2011 - 2014.

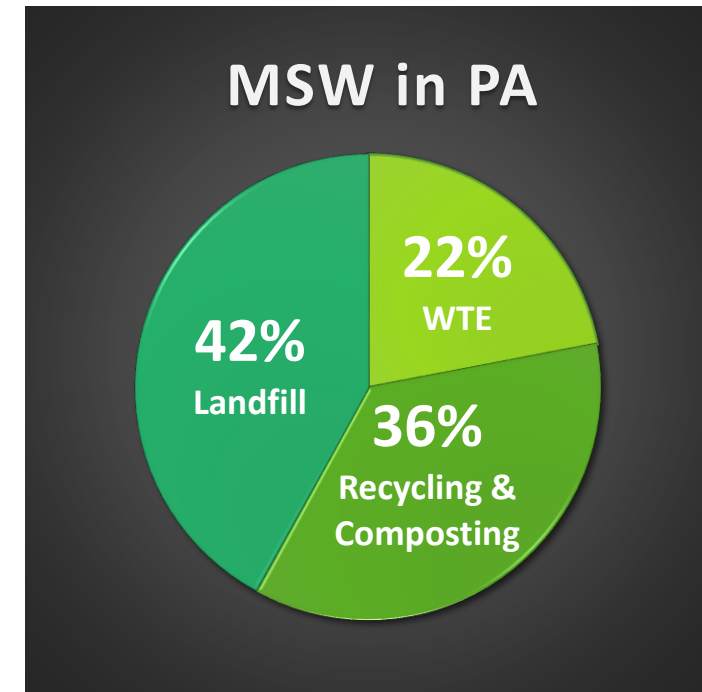
Waste-to-Energy in PA



- 1** Covanta Plymouth Renewable Energy
- 2** Delaware Valley Resource Recovery Facility
- 3** Lancaster County Resource Recovery Facility
- 4** Susquehanna Resource Management Complex
- 5** Wheelabrator Falls Inc.
- 6** York County Resource Recovery Center

Waste-to-Energy in PA

- State Population (2010): **12.7M** people
- WTE Processing Capacity: **8,748** tons per day
- Total WTE Electric Capacity: **268 MW**
- Energy Produced by WTE: **216,555** homes powered
- Jobs at WTE Facilities: **354**
- Total Jobs Created by WTE: **1,114**
- Total Economic Output by WTE: **\$586M**
- State Law Defining WTE as Renewable: **Alternative Energy Portfolio Standards Act**



EPA Clean Power Plan

- Provides standards for power plants to reduce GHG emissions by 2022 (a major contributor to climate change)
- Directs states to develop and adopt individualized plans
- Recognizes WTE as an eligible compliance tool that states can include in their specific plans
- Offers many opportunities to use WTE as a tool to reduce GHG emissions from the power sector (traditionally associated with fossil fuel combustion), as well as to reduce GHG emissions from the waste management sector by eliminating the methane resulting from decomposing waste that would have otherwise been landfilled

WTE in the Clean Power Plan

Treatment of WTE under the Rule:

- WTE facilities are not considered affected electric generating units
- Lifecycle benefits of WTE not explicitly recognized; however, stack emissions are not counted against state goals
- New WTE capacity in states with rate-based plans eligible to generate emission rate credits (ERCs)

WTE in the Clean Power Plan

Considerations for PA Clean Power Plan:

- Use **mass-based plan** to provide flexibility and policy support for both existing and new renewables, including WTE
- Support **investments in WTE by local governments**, ensuring this municipal waste infrastructure is supported with tradable compliance instruments
- **Allocate allowances** to existing WTE facilities, which adds financial stability to GHG-reducing WTE assets (note: failure to support existing renewables, like WTE could result in backsliding on GHG emissions as those existing assets reach planned life in soft energy markets)

WTE in the Clean Power Plan

PA should incorporate WTE in its plan for the following reasons:

- ✓ WTE reduces GHG emissions
- ✓ WTE is baseload power
- ✓ WTE is compatible with recycling
- ✓ WTE boosts local jobs and economies
- ✓ WTE is a cost-competitive source for managing municipal solid waste that also produces renewable energy

Review & Wrap-Up

- Electricity generated from municipal solid waste is an eligible, GHG-mitigating technology in the Clean Power Plan
- PA is the only state to commit to creation of plan by end of 2016
- Including WTE in the PA's plan reinforces EPA's solid waste hierarchy, while providing numerous benefits on the state and local level

