

Voluntary Greenhouse Gas Emission Reductions

2008 Data:

- ❶ 60,000 ± metric tons of CO₂e destroyed at the Landfill Gas-to-Energy facility. ^{(1) (3)}
- ❷ 191,008 metric tons of CO₂ emitted from the Resource Recovery Facility. ⁽²⁾
- ❸ 2,797 metric tons of CO₂ emitted from transfer vehicles. ⁽²⁾
- ❹ 25,500 metric tons of CO₂e offsets sold on CCX.
- ❺ \$101,170 net income in 2008 from the sale of CO₂e offset sales.



**Landfill Gas-to-Energy Facility in Manor Township,
Lancaster County, PA**

In October, 2006 Lancaster County Solid Waste Management Authority became the first public environmental services organization in the United States to become a Member of the Chicago Climate Exchange (CCX). As a greenhouse gas (GHG) generator from the Resource Recovery Facility and transfer vehicles, the Authority made a voluntary legally binding commitment to reduce its GHG emissions by at least 6% by 2010 using its average emissions in 1998 through 2001 as the baseline.

Timeline to Membership

- 2005 — LCSWMA installed gas wells and conveyance piping throughout the closed Creswell Landfill and the active Frey Farm Landfill while energy partner, PPL Energy Services built a 3.2 MW Landfill Gas-to-Energy plant on 2 acres leased from LCSWMA.
- January 2006 — the voluntary, non-mandated gas collec-

tion and gas-to-energy operations begin.

- June 2006 — LCSWMA Executive Director learns about CCX at conference.
- July 2006 — CCX Offset Committee approves the landfill gas offset project.
- August 2006 — LCSWMA Board of Directors resolves to submit an application to join CCX.
- September 2006 — LCSWMA submits a legally binding commitment to participate as a member in CCX.
- October 2006 — LCSWMA conducts its first sale of 10,000 metric tons of CO₂e to earn \$38,500 from the commitment to reduce emissions and destroy greenhouse gases.

As a renewable energy generator and CCX member, LCSWMA received the 2007 Green Power: Turn It On! Award from Citizens for Pennsylvania's Future (PennFuture).

LCSWMA CCX Compliance Position

(All weight units are in metric tons)

	Baseline (1998—2001 avg.)	2006 ← Actual →	2007 ← Actual →	2008 ← Projected →	2009 ← Projected →	2010 ← Projected →
RRF Tons Processed	349,726	320,315	311,245	342,922	328,858	330,716
RRF CO ₂ Emissions ⁽²⁾	194,797	178,415	173,363	191,008	183,174	184,209
Diesel Gallons Used	252,966	243,854	255,285	269,096	270,000	270,000
Transport CO ₂ Emissions ⁽²⁾	2,629	2,534	2,653	2,797	2,806	2,806
Total CO ₂ Emissions	197,426	180,950	176,016	193,804	185,980	187,105
CCX Reduction Target	-	195,057	192,688	190,319	187,950	185,581
Net Amount	-	14,108	16,672	-3,485	1,970	-1,434
LCSWMA Net Position		SELL	SELL	BUY	SELL	BUY

All emissions data is verified by Financial Industry Regulatory Authority (FINRA), which is CCX's provider of regulatory services.

⁽¹⁾ CCX calculates 21 metric tons of CO₂ equivalents are destroyed for each metric ton of methane combusted.

⁽²⁾ CCX uses recognized and established protocols from the World Resources Institute and the Intergovernmental Panel on Climate Change to convert fuel burn into CO₂. For MSW, the rate is 0.557 metric tons CO₂ per metric ton of waste burned and for diesel, the rate is 0.01039 metric tons CO₂ per gallon.

⁽³⁾ Richardson, Smith, Gardner and Assoc. verify the metric tons of methane gas destroyed by the landfill gas-to-energy plant. They then prepare the report which LCSWMA submits to CCX.



CCX is a self-regulatory exchange that administers a voluntary, legally binding program for the reduction and trading of greenhouse gas emissions and offsets. CCX is the first and only exchange of its kind in North America. CCX has developed simple and standardized rules for issuing greenhouse gas emission offset credits for landfill methane capture and destruction, as well as for anaerobic methane digestion, renewable energy generation, no-till and low-till farming and other activities that destroy or sequester greenhouse gases.

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