

Total cost accounting for Solid Waste and Recycling

Re-Defining the way
residents
value trash

Re-Defining Trash

- What is *PAYT* ?

What is *PAYT*?

- Utility
- Unit based charge
- Equitable
- “Financially incentivizes people to make the right choice” *Jared Bloomenfeld, Director of Environment San Francisco Fortune Magazine*
2/10/07

PAYT Works...Coast to Coast

Worcester, MA

Pop. 172,648



San Francisco, CA

Pop. 776,733



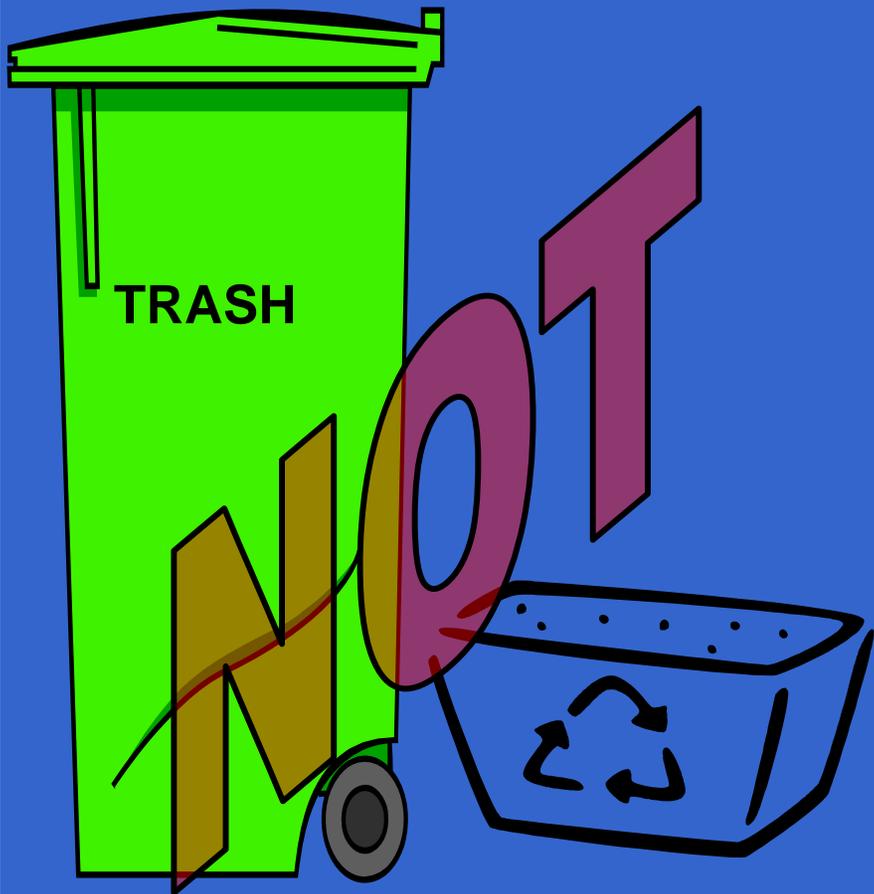
What is *PAYT*

- ❑ 7000 U.S. Municipalities use a form of PAYT
 - * Approximately 1500 are Unit-based (UBP)

- ❑ Minnesota, Washington, Oregon mandatory PAYT
Iowa mandatory under 25% recycling

- ❑ 1997 Massachusetts DEP promotes UBP
 - * Currently 120 communities participate
 - * Projected 25 additional in 2008

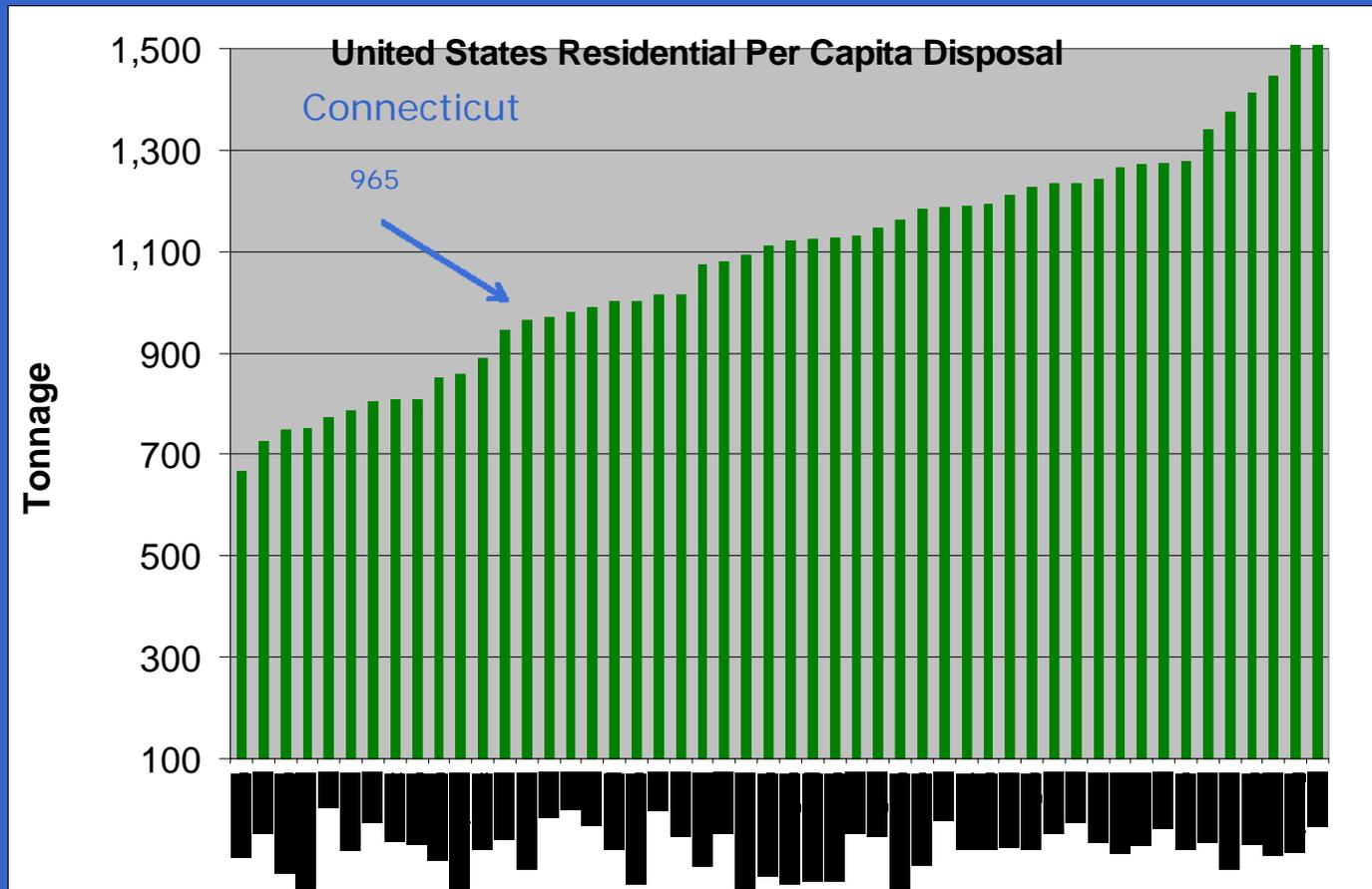
What is *PAYT*?



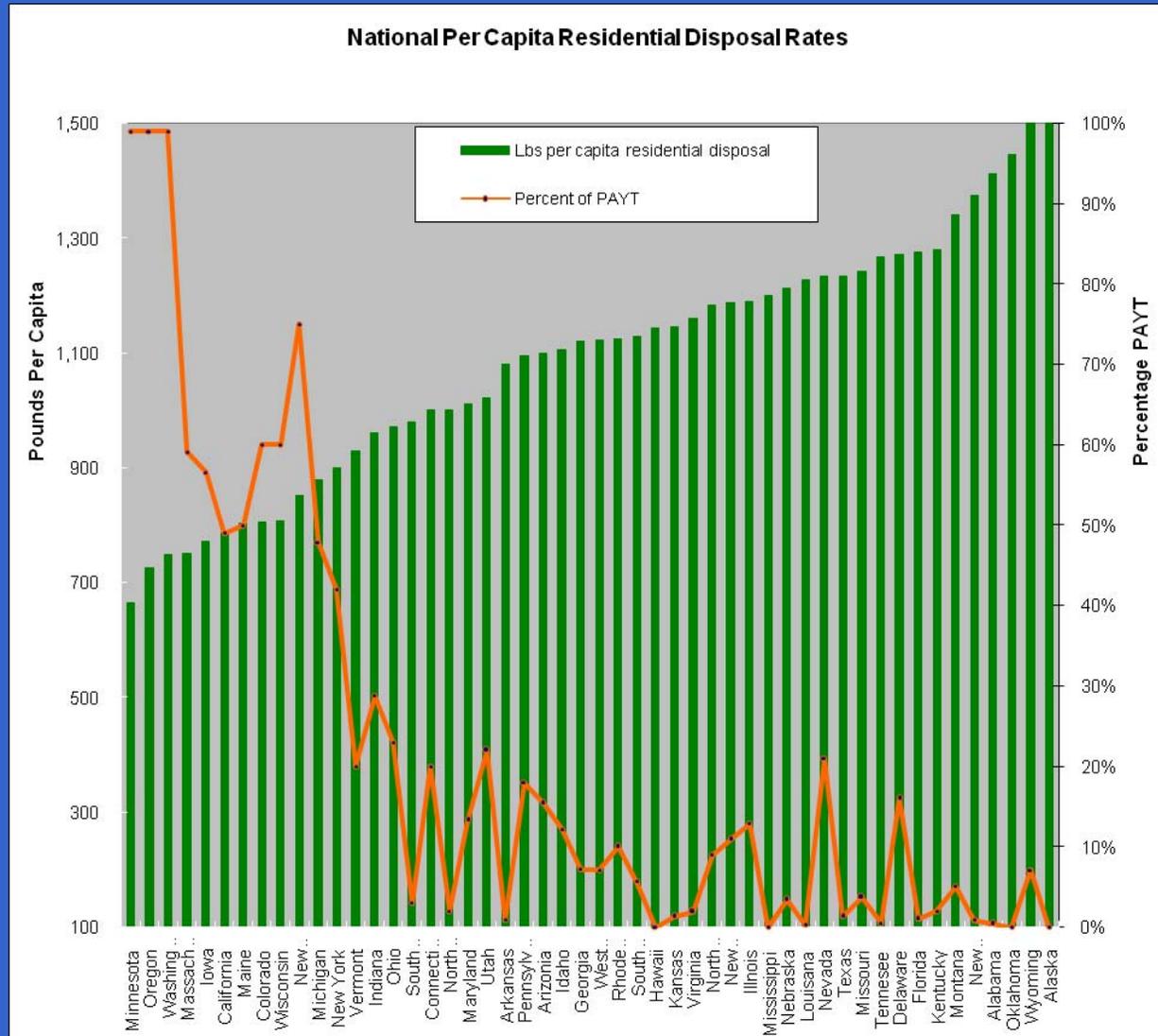
PAYT – Redefining Trash

- ❑ What is *PAYT*
- ❑ Where is *PAYT* successful around the globe?

Overview United States 2006



Per Capita Residential Disposal



Boston Globe

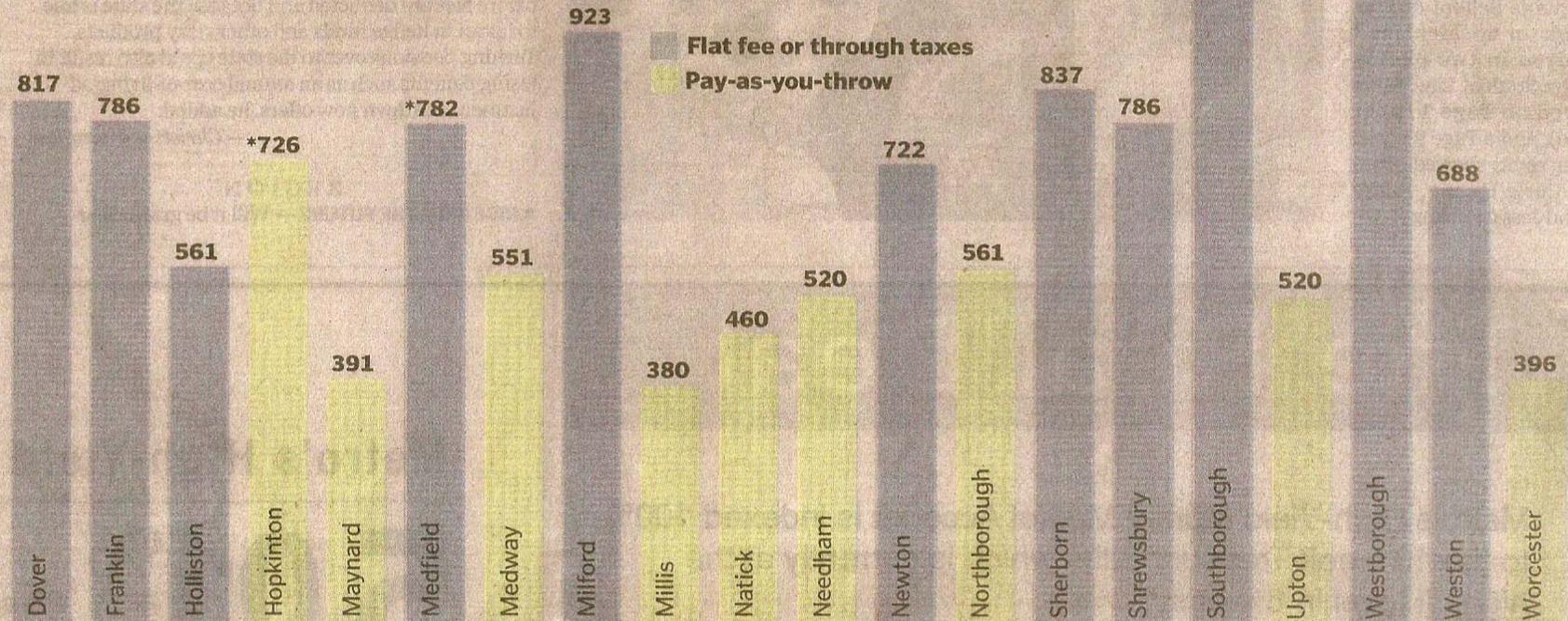
Burning Bucks

Communities try to save on trash costs by boosting recycling by residents

Thursday, February 22, 2007

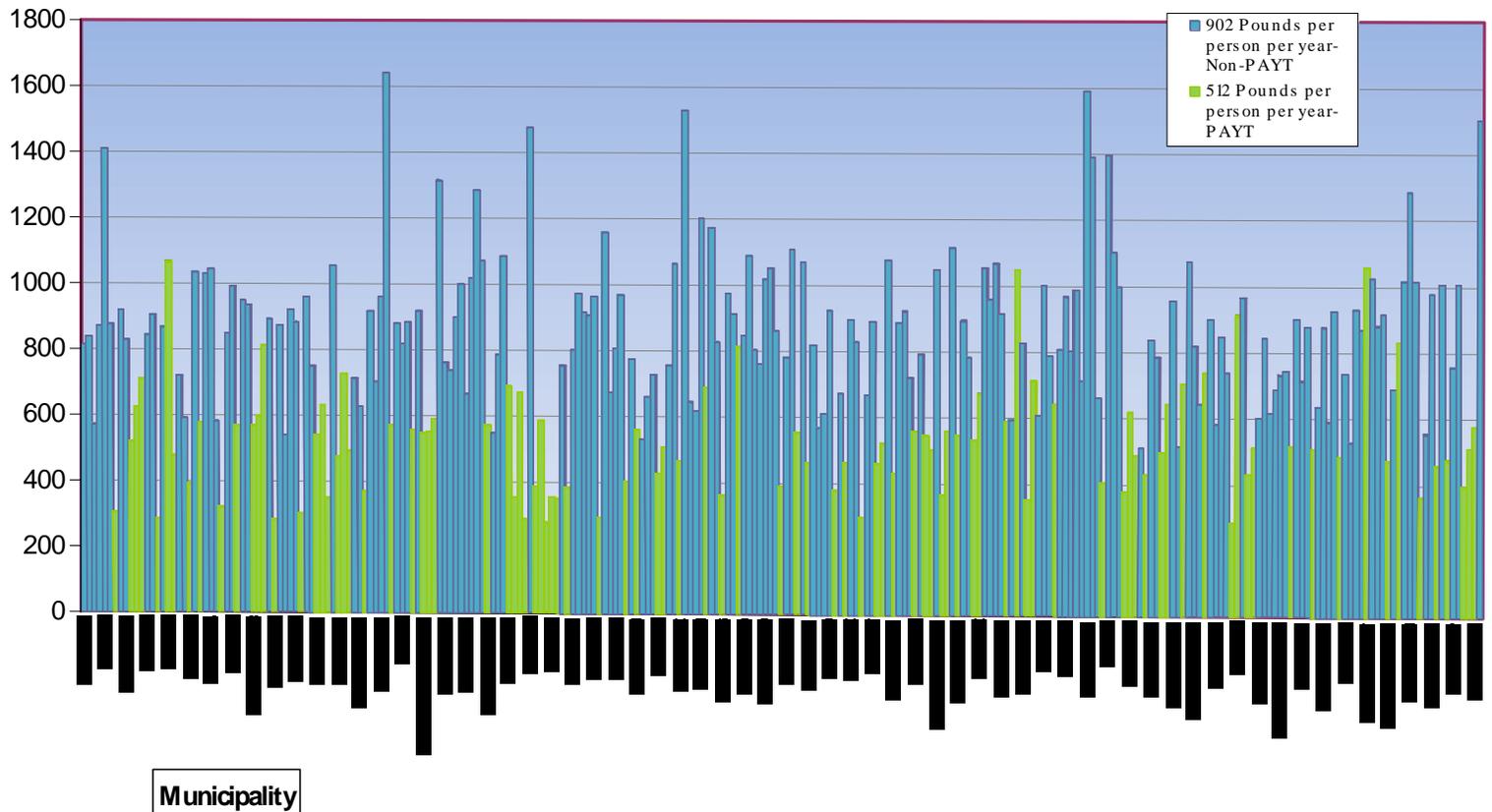
Up in smoke

Per-capita figures in 2005 reflect a wide range in the pounds of trash thrown away by residents of the 20 area communities that are clients of the Wheelabrator incinerator; nearly half of the cities and towns use a pay-as-you-throw system to reduce disposal costs and encourage recycling.



Massachusetts Residential Pounds Per Capita

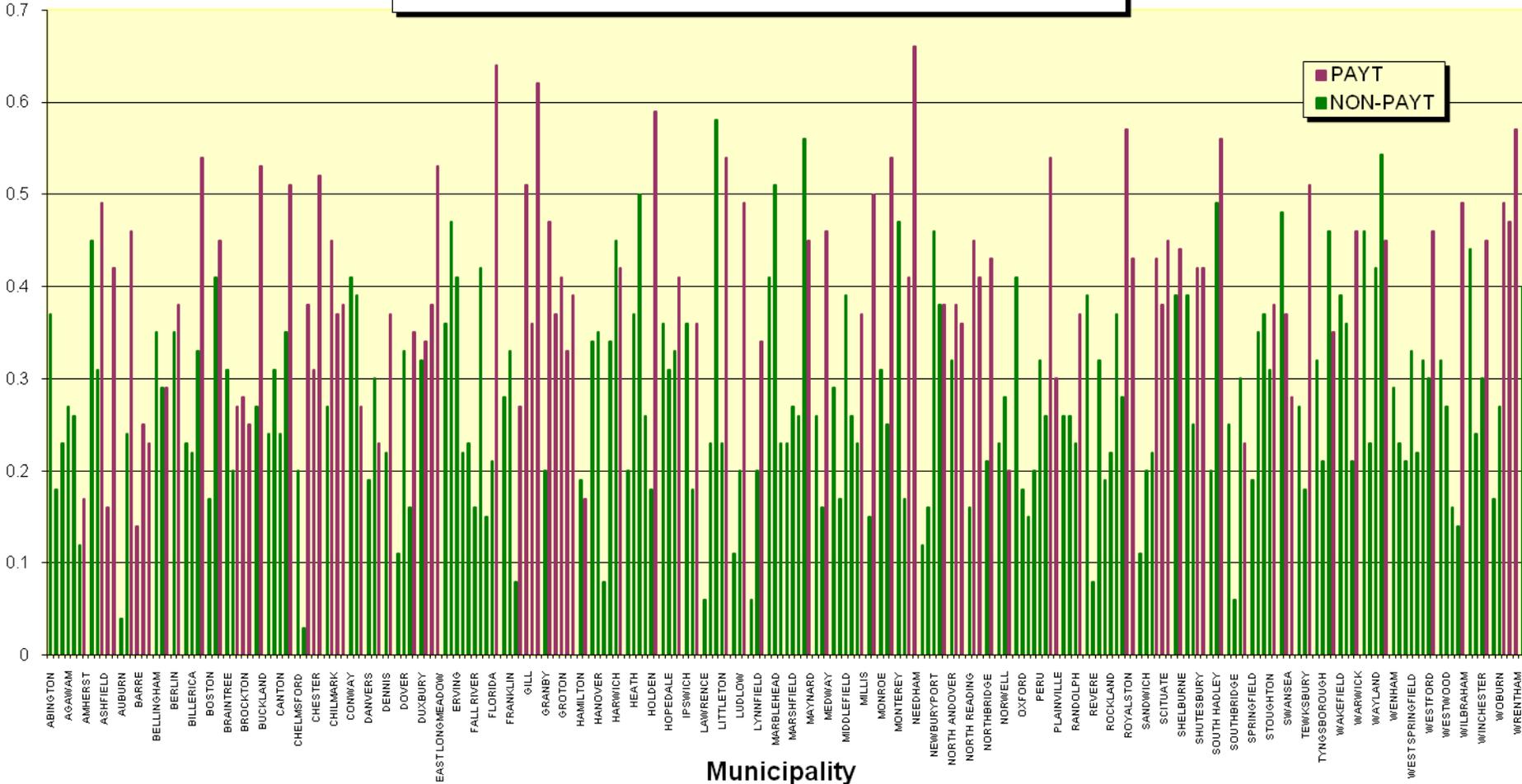
Massachusetts Pounds Per Capita Disposal 2005



Massachusetts Recycling Chart

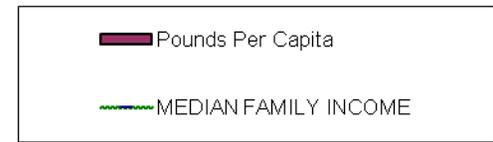
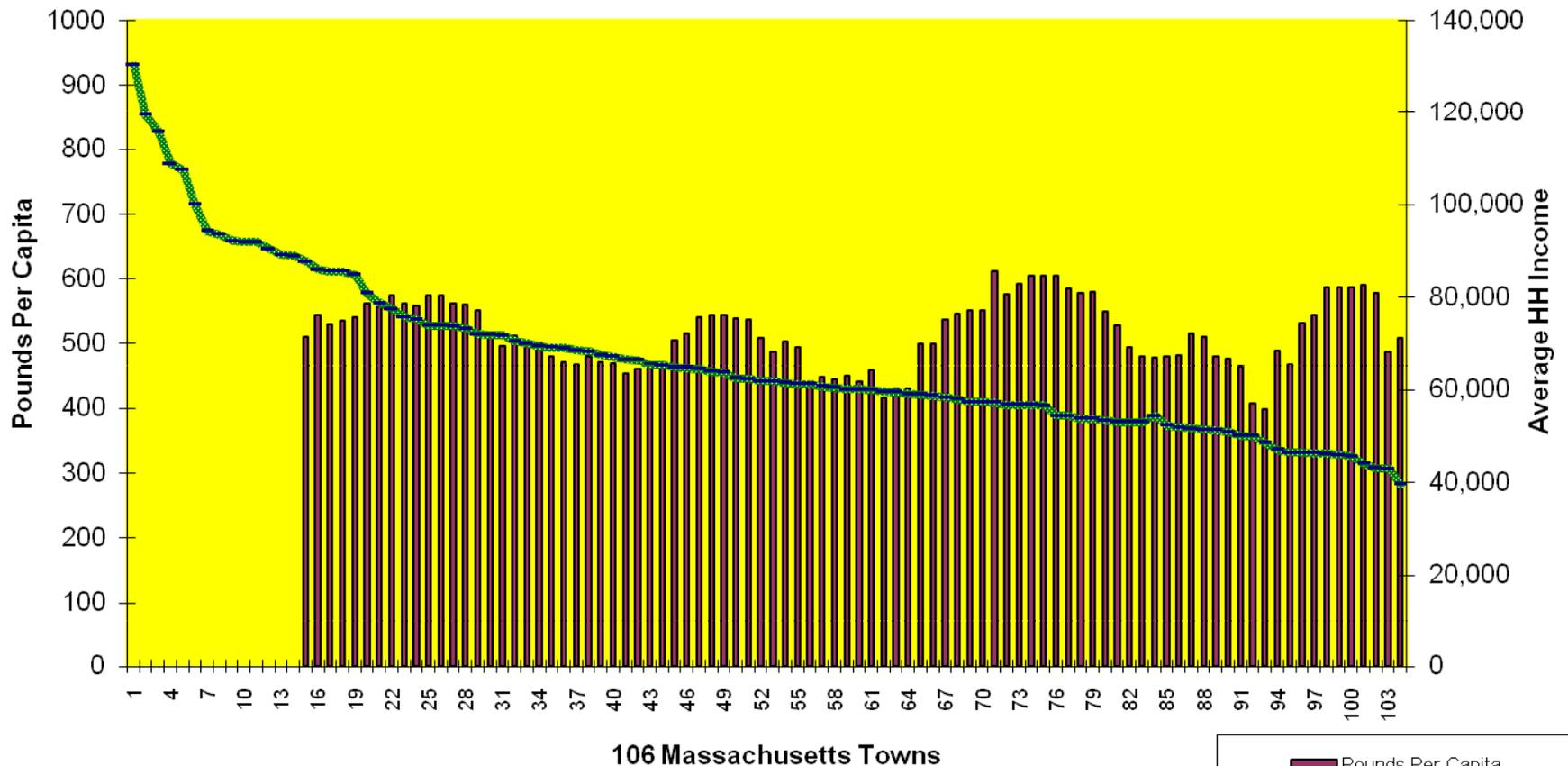
Massachusetts Recycling % Per Municipality
PAYT vs Non-PAYT 2005

Recycling %

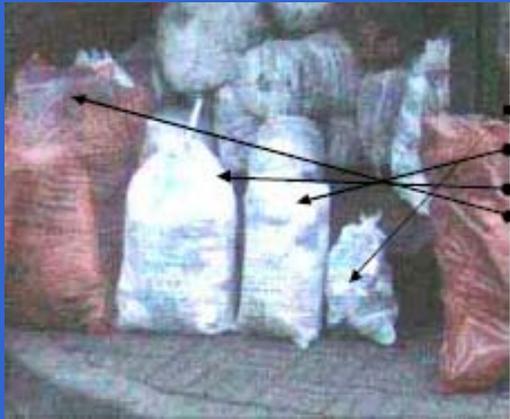


Massachusetts Income Distribution

Per Capita Income and PAYT



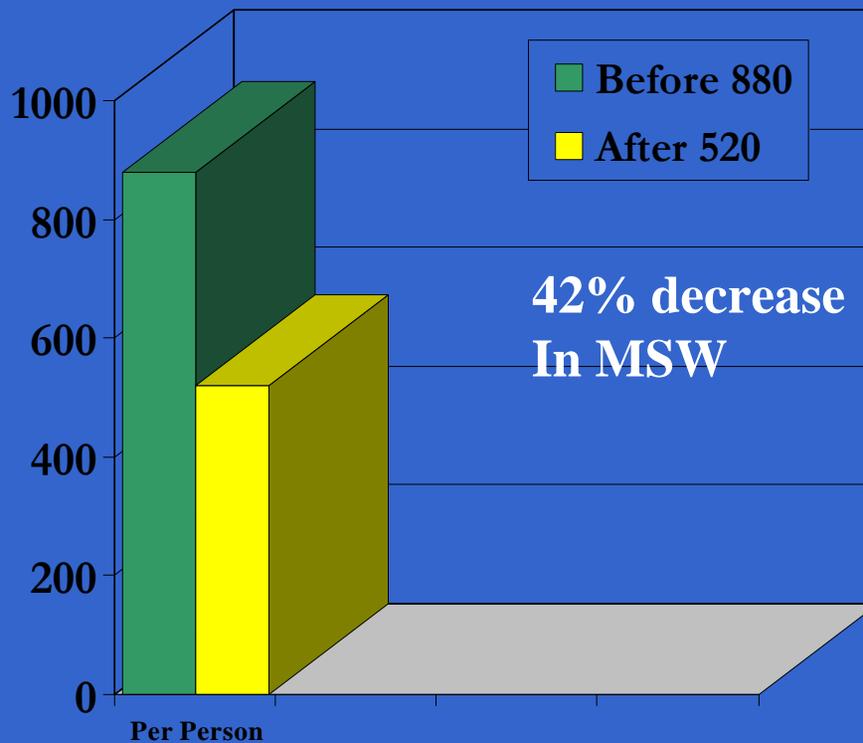
Seoul Korea VGCF (Volume based garbage Collection fee system)



Before and After VGCF System

Municipal Solid Waste Disposal Before VGCF was
12,238 ton/day

Municipal Solid Waste Disposal After VGCF was
7,013 ton/day



Zürich Switzerland



Entsorgung + Recycling Zürich

COLLECTION CALENDAR

2001

FOR DOMESTIC WASTE IN THE CITY OF ZÜRICH

Refuse

The disposal of refuse is financed according to the principle that the polluter should pay. Therefore only the official extra-charge waste bags with the colour imprint are to be used (Züri-Sacks). They can be bought wherever you do your daily shopping. If other bags are used, a charge of CHF 98.-- (incl. VAT) for the costs incurred will be made.

Collection on public holidays:

What

Combustible waste such as packaging, wood, small animal droppings, etc.

Quarter	Day
Affoltern	Mon
Albisrieden	Tue
Altstetten	Fri
Alt-Wiedikon	Thu
City	Tue+Fri
Enge	Mon
Escher-Wyss	Wed
Fluntern	Tue
Friesenberg	Tue

see reverse

Bulky waste

Bulky, combustible waste such as furniture, carpets, wood waste, etc. Max. 40 kg per item.

Garden waste

Garden waste, leaves, grass cuttings, weeds, branches, pruning waste, hedge trimmings, etc.

When/Where

A Weekly collection round as per the following plan. Except holidays.

Quarter	Day
Gewerbeschule	Mon+Thu
Grünau	Wed
Hard	Wed
Hirslanden	Wed
Hirzenbach	Fri
Hochschulen	Tue+Fri
Höngg	Thu
Hottingen	Wed
Langstrasse	Tue+Fri

A Bulky waste collection on request: **Tel. 01 645 77 77**

B Refuse-fired heating and power station Hagenholz.

B Opening hours of the Hagenholz centre on Saturdays before official moving dates: 24 and 31 Mar.; 22. and 29 Sept. from 7:30 am to 2 pm.

B Own compost heap.

A Garden waste collection subscription: Weekly collection round from 19/3 to 14/12/01.

A To order garden waste collection for non-

How

Put out in Züri-Sacks (waste bags with bag charge) or containers. Before 7:00 am on the day of collection please.

Quarter	Day
Leimbach	Mon
Lindenhof	Tue+Fri
Mühlebach	Wed
Oberstrass	Tue
Oerlikon	Fri
Rathaus	Tue+Fri
Schwamend.-Mitte	Fri
Saatlen	Fri
Seebach	Mon

Compost in your own garden if possible.

Composting advice line: **Tel. 01 645 77 77** or

www.kompostberatung.ch. No kitchen waste, no small animal droppings and cat litter. Put out in plastic

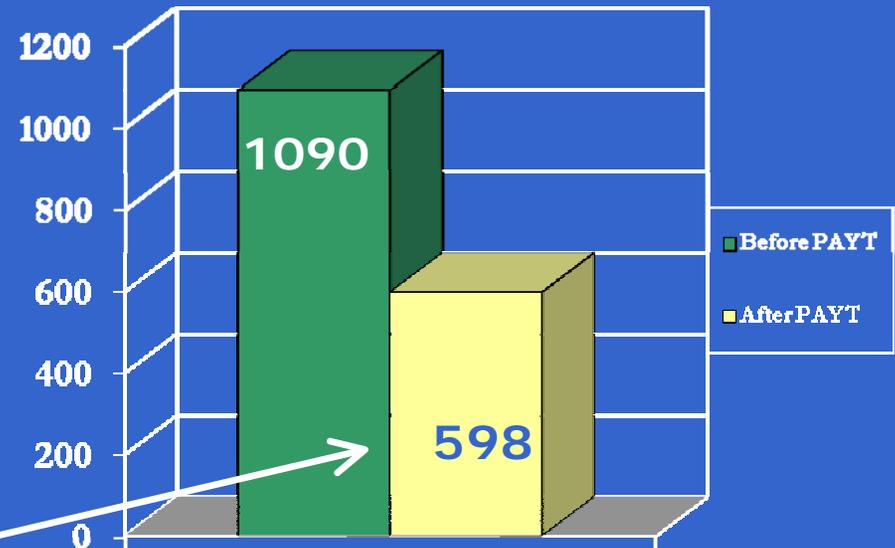


Zürich, Switzerland

☐ Polluter Pays System

☐ The cost of Züri-sack is 4.25

☐ The average household uses one per week



41% decrease
in MSW

Zürich Switzerland



New Zealand

'Waste Minimization Bill'

40% of municipalities must achieve
'Zero Waste' by 2015

- All SWM Plans include PAYT
- Authorities predict a combined total 40,000 new jobs over the next 10 years in the Recycling Industry

Ontario Canada

Advanced Wet/Dry (UBP) PAYT System

Towns	Population	Diversions	PP/Y
Guelph	100,000	58%	457
Belleveille	37,000	63%	403
Sidney	17,000	69%	337
Trenton	15,000	75%	272

East Hampton

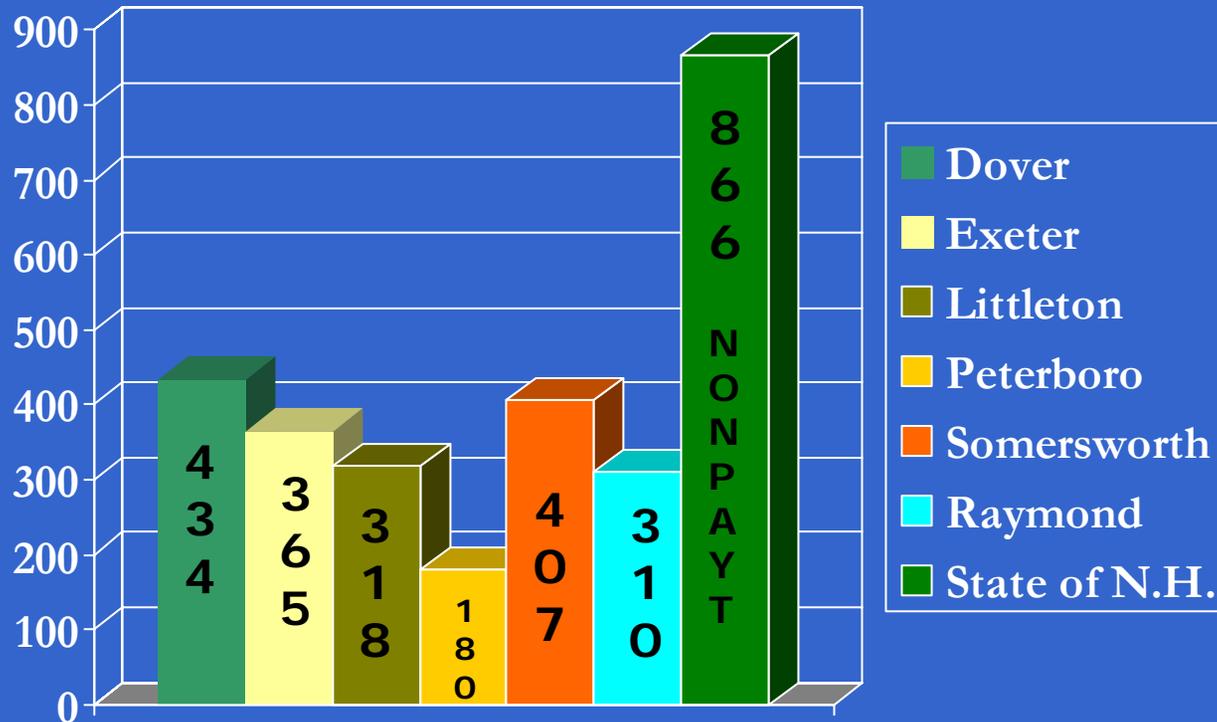
Intensive MSW Recycling Pilot

Barry Commoner - 1988

Ordinary people using existing technology

- ❑ 100 families in 10 weeks
- ❑ 'Pilot Test' residents were able to divert 84% of household waste
- ❑ 4 components
 - Food/organic material
 - Paper
 - Mixed recyclables
 - Trash

PAYT Re-Defining Trash in New Hampshire





1999 EPA Report

'Cutting the Waste Stream in Half'

- **Features 18 Large US cities**
- **15 used PAYT to meet their MSW Goals**
- **3 used mandatory recycling and fines**

PAYT – Redefining Trash

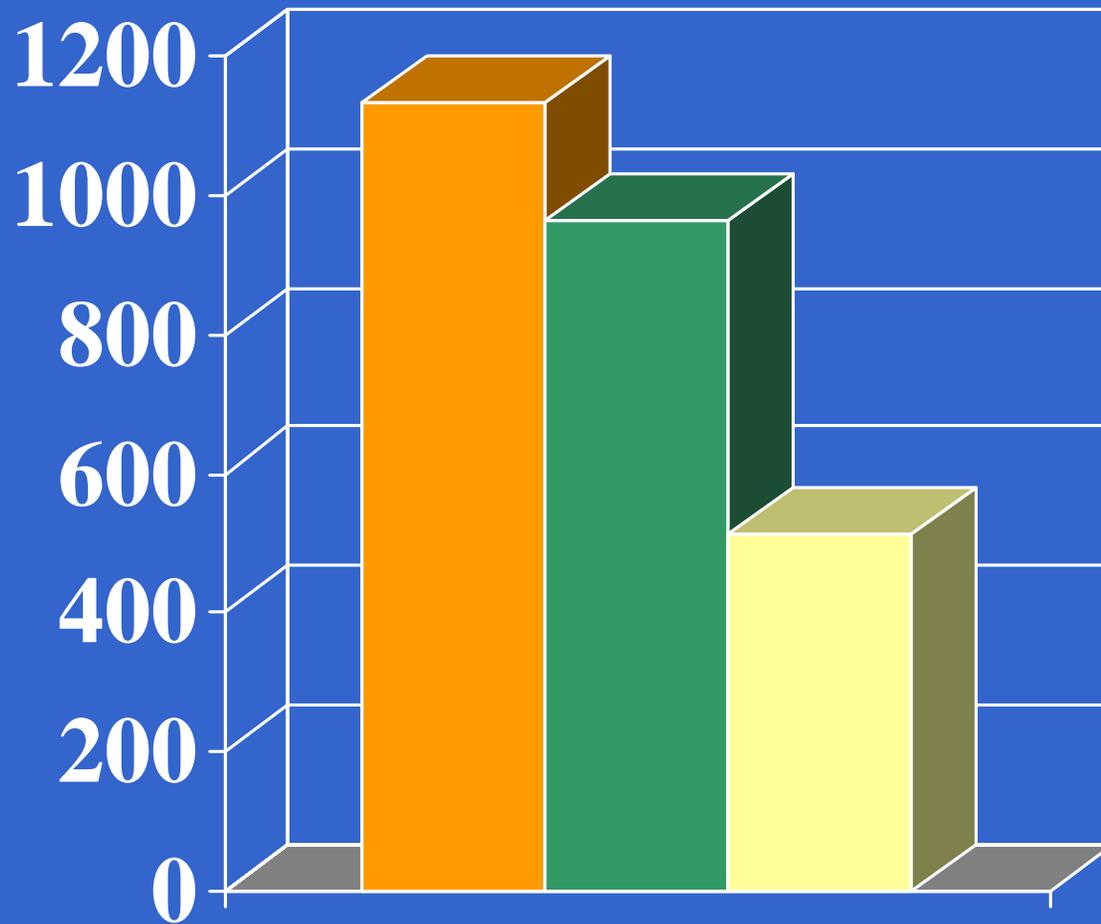
- ❑ What is *PAYT*?
- ❑ Where is *PAYT* successful?
- ❑ Why *PAYT* for Connecticut?

Why PAYT for Connecticut?

Waste Diverted

Overview for Connecticut

Residential per capita Disposal



■ US Average
1135 Lbs

■ CT Average 965
Lbs

■ MA PAYT
average 512
Lbs

2005 Numbers

Source: Bio-Cycle/MA DEP
/SES

Town of Marshfield, Massachusetts

Started PAYT July 9th 2007

Comparison Trash and Recycling

Trash	July 2006	July 2007	Percentage Improvement	August 1-31 2007	September 1-30 2007
Tons in	1126.7	788.5	-30%	-42%	-47%
Loads	38	27	-29%		
Curbside tons in	891.8	665.3	-25%		
Loads	103	84	-18%		
Swap Shop Trash	22.7	6.9	-70%		
Swap Shop Scrap	5	4.8	-4%		
Cardboard/Paper Tons	158.2	214.8	36%	33%	
Commingled plastic/glass/metal	60.75	90.04	48%	41%	

MSW for the Town of Stafford, CT

MUNICIPAL SOLID WASTE



Why PAYT for Connecticut?

Waste diverted

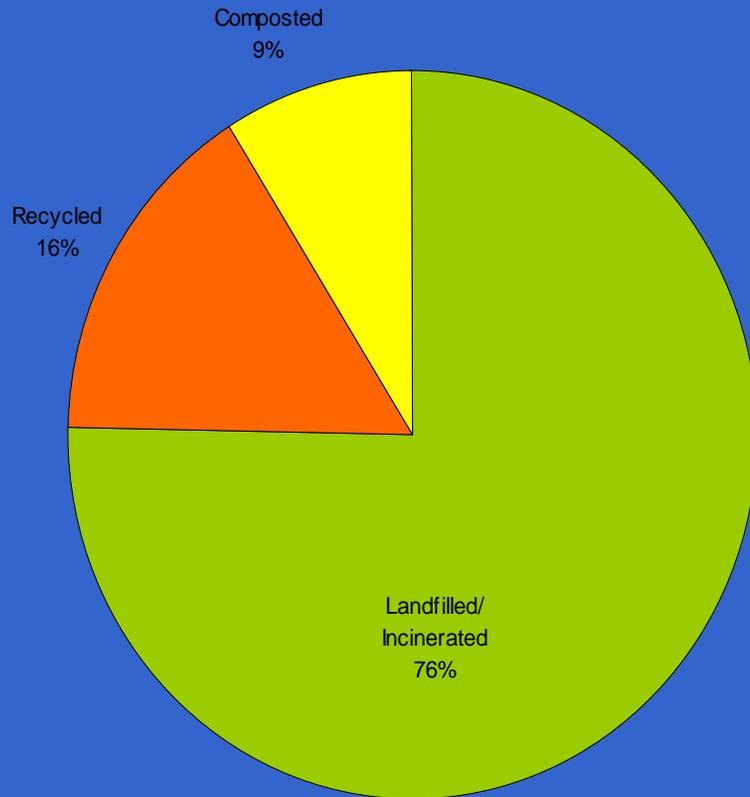
Tax \$\$ Saved for Residents

Why PAYT for Connecticut?

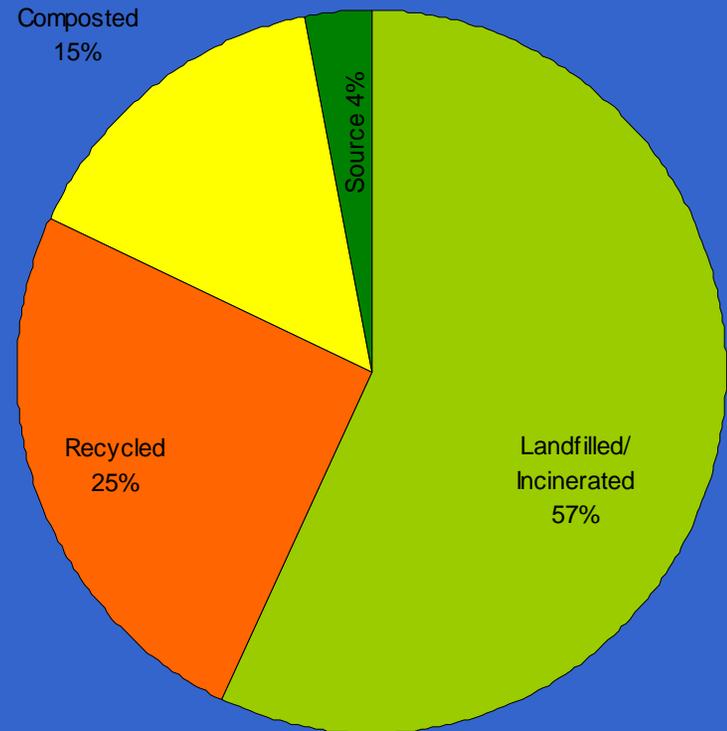
- Waste Diverted**
- Tax \$\$\$ Saved**
- Recycling Increased**

Connecticut MSW

Connecticut Before PAYT



Connecticut After PAYT



Recycling Revenue for Municipalities

- **RIRRC \$65/ton dual stream collection**
 - * **Based on PAYT additional Connecticut revenue would be approximately 18 million dollars**
- **Springfield MRF \$38.5/ ton single collection**
 - * **Based on PAYT additional Connecticut revenue would be approximately 10 million dollars**

Opportunity for Jobs in the Recycling Market

- ❑ 1.1 million jobs (2000)
- ❑ 236 Billion in gross sales
- ❑ Recycling Waste creates four jobs for every one job if the material was not recycled

*Policy brief for– Gov. Schwarzenegger 2006

‘Creating Wealth from Waste’

**Robin Murray London School Of
Economics**

“The most important economic benefit occurs when the recovered materials are manufactured into finished products within the local community”

Does Recycling Pay Off? \$\$\$

3 Golden Rules

- Quantity
- Quality
- Regularity



PAYT provides an increased, consistent stream of quality material

Why PAYT for Connecticut?

- Waste Diverted**
- Tax \$\$\$ Saved**
- Recycling Increased**
- GHG Decreased**

PAYT Yields Personal GHG Reductions

- ❑ 6.6 MTCE per Capita 2005
- ❑ 4.4 MTCE Industry Agriculture (non-controllable)
- ❑ 2.2 MTCE Personal Choices (controllable)

Per Capita savings from *PAYT* equals .22 MTCE or 10% of personal carbon footprint or 3.2% of total GHG

EPA Report – achoate@isfi.com

Recycling saves energy



95% less energy aluminum

70% less energy plastic

40% less energy paper

Why PAYT for Connecticut?

- Waste Diverted**
- Tax \$\$\$ Saved**
- Recycling Increased**
- GHG Decreased**
- Encourages upstream producer responsibility**

PAYT encourages Industrial Responsibility without Legislative action

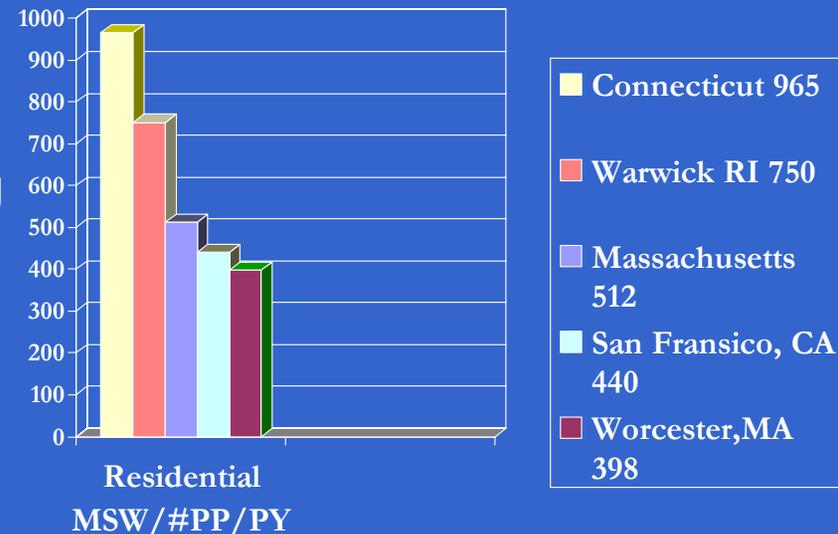
- 
- Green Dot
 - Producer Take back
 - Retailer Take back
 - EPR (Extended Producer Responsibility)

The Convenient Truth

- Adapts to any collection system
- Cheap to get started
- Reduces residential waste by 44%
- Saves 54 million dollars to taxpayers
- Increases the recyclable resource stream and stimulates local economy
- Reduces pollution/GHG

Its wasteful not to start today

- ❑ 48% Waste Reduction
- ❑ 48% Reduction in Disposal Cost
- ❑ Increased Source Reduction, Recycling and Composting
- ❑ Stimulates the economy
- ❑ Reduces GHG



Total cost accounting for Solid Waste and Recycling

Re-Defining the way
residents value trash

Thank You,

Kristen Brown

Waste Solutions

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www.thewastesolution.com