



City of Houston Energy Efficiency and Emission Reductions

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Baseline



Source	Pollutant (tpy)		
	GHG	NOx	VOC
2005 Baseline Inventory	1,968,848	1,928	306
2010 Business As Usual	2,123,989	2,145	340
2010 Emissions Goal	1,751,933	1,629	306



Wind Power

- ◆ Contracted 50 MW of wind power by 2010
- ◆ Authorized to purchase up to 80 MW
- ◆ Cost savings



Building Retrofits

- ◆ Partnership between CCI, ESCOs, and CoH
- ◆ 271 buildings, 11 million square feet
- ◆ Project payback 7-12 years
- ◆ Contract guarantees 30% energy use reduction

Residential Energy Efficiency Program



- ◆ Key program affecting existing building stock
- ◆ Neighborhood-by-neighborhood retrofit program
- ◆ Engage civic leaders and Council members
- ◆ Qualify neighborhood at 200% over poverty level.
- ◆ Little bureaucracy – easy signup
 - In and out in 2 hours
 - Costs \$900 / house
 - 4200 homes
 - 9 neighborhoods
 - 275 homes per month

Residential Energy Efficiency Program



- ◆ EE Weatherization Measures
 - Caulk windows
 - Add insulation in attic 9 inches
 - Weatherstrip doors
 - Replace cfls into fixtures
 - Insulated hot water heater

Residential Energy Efficiency Program



- ◆ Performance manage entire system
- ◆ From signup, to install , to scheduling, to customer satisfaction
- ◆ Contractors like Direct Energy
- ◆ Savings 12% for the year (heat adjusted year over year)
- ◆ 20% in summer and winter peaks
- ◆ Looking to expand program and replicate to other cities
- ◆ Payback in 5-6 years

Houston Airport System



- ◆ Implementing an EMS
- ◆ Basic measures – motion detectors, photoreceptors, timers, etc.



Lighting Retrofits

- ◆ Replaced 8,000 T12 (1.5") fixtures with T8 (1") fixtures and compact fluorescents
- ◆ 9.8 million kWh reduction



Vending Machines

- ◆ Vending Misers – use motion detectors and timers to control energy use (186)
- ◆ Saves over 265,000 kWh/year
- ◆ Removing bulbs in snack machines saved over 74,000 kWh/year
- ◆ Payback in under 18 months



Hybrids

- ◆ Over 500 hybrids
- ◆ Goal: 1,600 by 2010
- ◆ Hybrids expanding – 2 diesel electric dump trucks to PWE, 2 diesel electric garbage trucks to SWD



Summary

- ◆ Practical solutions to address impacts of City of Houston operations
- ◆ Conservative estimates
- ◆ Majority of projects lead to cost savings
- ◆ Decouple growth from energy consumption

Decoupling Growth



- ◆ 5.8% less energy use over last 5 years.
Cost \$1.1 B to \$1.2 B
- ◆ Region KW 1.1% GDP at 4%



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Mayor's Office of Environmental Programming web site:
www.greenhoustontx.gov

CoH Emission Reduction Plan:
www.greenhoustontx.gov/reports/emissionreduction20080909.pdf

Benzene Action Plan:
www.greenhoustontx.gov/reports/benzeneactionplan-2008may.pdf