



Houston's Sustainability Programs

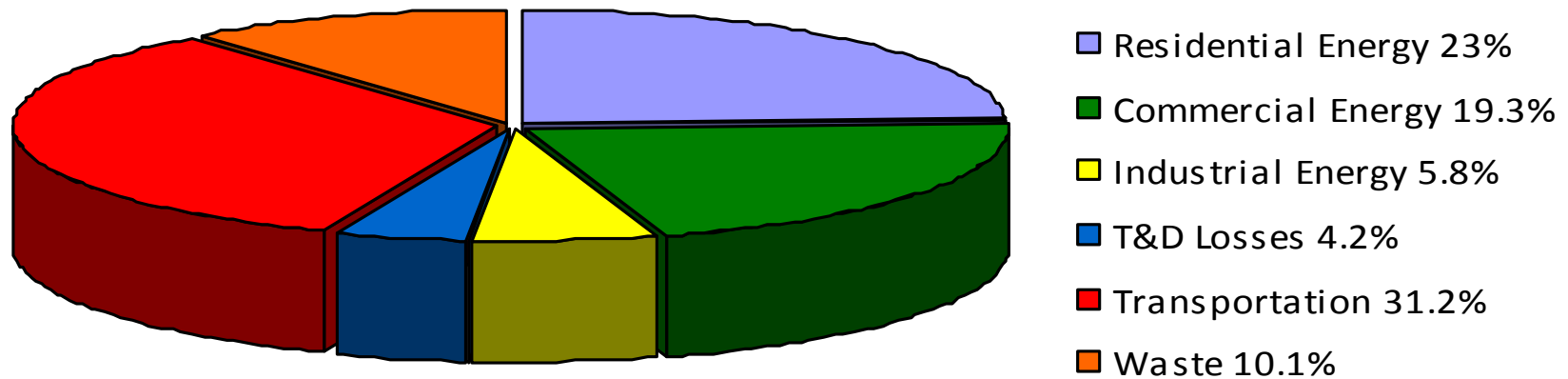
**Development and Regulatory Affairs
Council Member Sue Lovell, *Chair***

May 20, 2010

City of Houston's Carbon Footprint

2007 Update

Houston GHG Emissions



Greenhouse Gas Emissions Tracking/Reduction

” Measuring progress . Greenhouse gas reporting/accounting/reduction

” Houston’s approach

Past: Multi-Pollutant Reduction Plan for City Ops

Present: Recently completed greenhouse gas emissions inventory for the Houston community

Future: Develop climate action plan and community-wide strategies for cost-savings, air quality improvement, and awareness



Climate Strategy Basics:

What our climate footprint tells us

- É **Air Quality:** Improve measurement = reduce toxins
- É **Energy Efficiency:**
 - ó Require new and retrofitted buildings be more energy efficient, reduce waste
 - ó Help businesses and residents conserve energy, recycle/compost
- É **Expand Renewables:** Utilize more wind, solar power.
- É **Alternative transportation:** Encourage use of mass transit by collaborating with METRO.
- É **Environmental Stewardship:** Divert waste flow away from landfills to recycling/composting paths
- É **Make sure we in City government have our house in order and act as role model**
 - ó Example: Implement performance contracting tool for large energy efficiency improvements in city buildings and wastewater plants
 - ó Example: Incentivize use of less polluting cars



COH Leadership Structure



É Laura Spanjian, *Sustainability Director*

É Environmental Coordinating Council

- ó Air Quality: HHS, HAS
- ó Energy Efficiency and Renewables: GSD, PWE
- ó Transportation: FIN
- ó Recycling, Composting, Waste Reduction: SWD
- ó Green Building: PWE
- ó Water Quality/Conservation: PWE, HHS
- ó Greening and Open Space: PRD

É Clinton Climate Initiative Support (1 of 3 cities in US)

É ICLEI Support



CLINTON
CLIMATE
INITIATIVE



Improving Houston's Air Quality

É **Measurement Goal:** Pursue accurate emissions data

É **Regional Cooperation** with other cities/counties

É **Technologies**

ó Mobile Ambient Air Monitoring Laboratory (MAAML)

É More accurately determine the major sources of air toxics emissions and work to ameliorate Houston's air quality

ó Differential Absorption Light Detection (DAIL)

É Better understand specific sources of point source emissions at refineries to feed into policy and rule making

É **TCEQ Legislation:** COH active engagement



Energy Efficiency

Performance Contracting at Wastewater Treatment Plants

- É Approved December 16, 2009
- É Active participation by Clinton Climate Initiative
- É Contract(s) with ESCo(s) to obtain guaranteed energy savings at some or all the of City's 39 wastewater treatment plants
 - ó Costs to be paid for with savings from reductions in energy usage
 - ó Lifetime of project: 15 ó 20 years
 - ó Frees up previously budgeted CIP dollars



Energy Efficiency

Performance Contracting at Wastewater Treatment Plants

- É Initial facilities: 69th Street, Almeda Sims, Sims North, Sims South, Clinton Park, Homestead, and the lift stations associated with those WWTPs
- É The six targeted WWTPs are responsible for using over 30% of the energy purchased by the City.
- É This project has the potential to be the largest energy efficiency program at the City of Houston.



Energy Efficiency

Performance Contracting for COH Buildings

- É 297 facilities
- É Office buildings, libraries, multi-service centers, police stations, fire stations, health centers, recreation facilities
- É Utilize two ESCOs - Siemens Building Industries and Schneider Electric
- É 5.3 million square feet under assessment
- É 4.5 million square feet receiving energy conservation measures
- É Financing through utility savings
- É Phase 1:
 - ó Schneider to be completed by end of May: 1.1 million square feet
 - ó Siemens to be completed by end of May: 37,000 square feet



Residential Energy Efficiency Program

Weatherization Program

- ó Check for leaks and seal any cracks
- ó Window caulking
- ó Weather-strip doors
- ó CFL replacement
- ó Attic Insulation
- ó Water heater blankets

É **No cost for residents (Stimulus funded)**

É **Working with Rice University on weatherization study to better market program**

É www.houstontx.gov/reep/



Residential Energy Efficiency Program

Program Results

- É Since 2006, over 8,000 have benefited
- É Significant savings for homeowners
- É 12-18% kWh reduction; as high as 20% over summer months
- É \$8 million spent, about \$1,000 per home
- É High homeowner satisfaction
- É Average savings = \$50-\$100 per month



Energy Efficiency

LED Traffic Lights

É 2000 intersections completed

É Average 90% cost savings

ó Saves the City \$10K per day or \$3.6M a year

É Average 65% energy savings

É Last longer (7 years vs. 1 year)

É Upgrading heads from 8 inch to 12 inch as part of the process

É Remaining 400 streetlights complete 2010



Energy Efficiency

LED Streetlight Pilot Project

- É Up to 50% more energy efficient
- É Instant on/instant off performance unlike current High Pressure Sodium (HPS) lights
- É Long life ó 15-20 years vs. 4-5 years
- É Failure/damage of one light does not impact others



Renewables: Wind

Large scale purchase of Renewable Wind Power delivered to City of Houston facilities via long-term contracts

- É COH has purchased 50 MW of wind power
 - ó 33% renewable
 - ó 7.5 cents per kWh
 - ó Over the next 5 years
- É Option to purchase an additional 30 MW (80 MW total)
- É EPA ranks the City of Houston as the #1 municipal purchaser of renewable energy
 - ó Awarded the Green Power Leadership Award

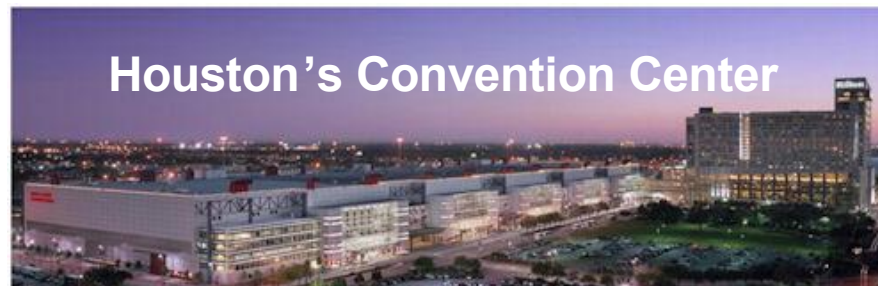


Renewables: Solar



Solar

- É Solar America City
- É Received \$1.3 million SECO grant for solar powered generators



Transportation

Hybrid Vehicles : Cars and Buses



É 755 hybrid vehicles

É 3rd largest municipal fleet in the country

É Goal of 50% of non-specialty civilian fleet to be reached this year

É Reduced fuel consumption from 9.4 million gallons in 2005 to 8.8 million gallons in 2009

É METRO purchasing 100 hybrid buses a year through 2011 for a total of 449 hybrid buses



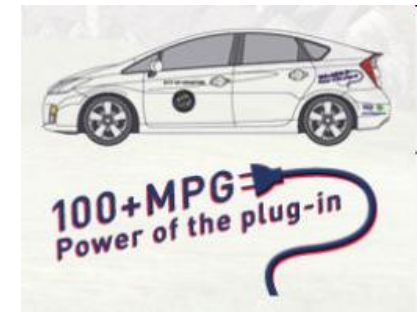
Transportation

Electric Vehicles (EV)

É City of Houston and Reliant Energy Partnership

É Conversion of 10 City vehicles to Plug-in Hybrid Electric Vehicles

É Installation of 15 charging stations throughout the City powered by the latest in EV technology



Transportation

Houston Bikeways

É Renewed focus on commuting

É Bicycling as an accepted and normal mode of transportation

É Completion of gaps

É Shower expansion



Transportation



Bike to Work Day 2010



May is National Bike Month

So pump up your tires, get your bike map* and ride the trail, ride in your neighborhood or ride to work.

Friday, May 21st, is Bike to Work Day. Join us for the Bike Ride to City Hall.

What: Bike Ride

When: Friday, May 21, 2010

Where: South Picnic Loop in Memorial Park

Time: 7:30 a.m.

Meet at 7:00 a.m. at the South Picnic Loop in Memorial Park (between volleyball and softball fields). The ride begins in Memorial Park at 7:30 a.m. and will end with a press conference at the steps of City Hall. Bike Barn will be at Memorial Park and City Hall to assist you. Refreshments will be provided by Bike Barn, Corner Bakery, Shipley Do-nuts, Chick-fil-A and Clif Bar.

Any questions, call (713) 837-0003

* Maps are available at Houston Public Libraries, the Downtown Visitors Center, and participating bike shops. A bikeway network map is available at our Web site too at www.houstonbikeways.org.



Recycling

Residential Recycling

É 74,000 homes on single-stream recycling

ó 96 gallon bins

É 150,000 homes on duel-stream recycling

ó 18 gallon bins

É 150,000 homes not serviced



Recycling

COH Municipal Facilities Recycling

É Launched November 2009

É 300 City facilities

É In partnership with Abitibi

É All types of paper, cardboard,
cans, plastic, glass



Composting

Compostable Bags

É Program began April 5, 2010

É High compliance rate

É Bag costs significantly decreased

É Retailers who market the bags

ó Krogers, HEB, Target, Wal-Mart, Fiesta Markets, Ace Hardware

É Anticipate diverting up to 60,000 tons/year; disposal savings of approximately \$2 million



Waste Reduction

Reuse Warehouse

É 9003 N. Main, Houston, TX

É Partnering with Living
Paradigm

É Opened Spring 2009

É 220 tons of construction and
demolition waste diverted in
first year



Green Building

Greening the Codes

É ASHRAE 90.1 2004 plus local amendments
for commercial construction

- ó Increased energy efficiency: cool roofs, efficient lighting
- ó Approved by City Council; code in effect August 1, 2008

É IECC 2006 plus local amendments for residential construction

- ó Target: 15% increase in energy efficiency
- ó Approved by City Council, code in effect October 2009

É Green building Resource Center to help educate builders and
owners



Green Building

Green Building Resource Center

É Offering the public green building strategies

É 40 educational displays

É LEED Commercial Interior Gold Certified

É Educational website

ó www.codegreenhouston.org



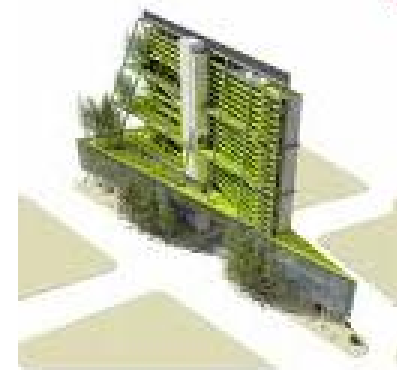
Green Building

LEED Gold Central Permitting Center (1002 Washington)

É Utilization of:

- ó Low-flow fixtures
- ó Wind turbines, Solar panels
- ó Natural light utilization
- ó Vegetated roof, Rainwater harvesting

É Other emerging green technologies



LEED Gold Fire Station 90 (Grand opening May 13)

É Utilization of:

- ó Low-flow fixtures
- ó Drainage swales, Permeable pavement
- ó Rainwater harvesting
- ó Green Label certified carpet



Water Quality

Great
American
Cleanup
2009 REPORT

Mobilizing Volunteers and Improving
Communities All Across America



Water Quality, Source Water Protection

É Lake Houston: Monitoring and discharge reduction/prohibition

É Regional Detention with Water Quality Features

É Cottage Grove Stormwater BMP Demonstration Project

É Adopt-a-Ditch Program

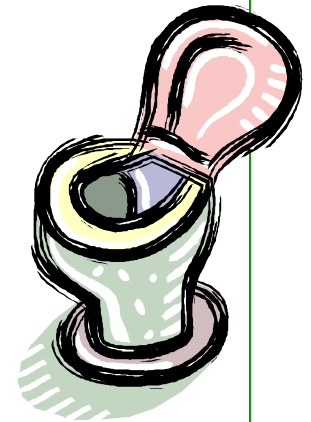
ó Program featured on Keep America Beautiful's Annual Report Cover



Water Conservation/Education

Public Education

- É State approved stormwater curriculum development
- É Corral the Grease
 - ó Fats, oils and grease (FOG) education
- É Water Conservation program for multi family residential
- É Waterworks Museum and Education Center,
Northeast Water Purification Plant
 - ó The Waterworks will be a state-of-the-art water museum and education center; only the second of its kind, rivaling a similar exhibition in New York City.



Stormwater Reduction

Benefits of Low Impact Development (LID) help mitigate the effects of urbanization on stormwater

- É Mimic natural watershed processes by replicating pre-existing hydrologic conditions
- É Remove pollutants close to their source
- É Use rainwater as a resource
- É Increase vegetation in the City



Greening and Open Space

Million Trees Plus

- É City of Houston has planted 120,000 trees from 2008-2009
- É 930,000 total trees planted in Houston area (including private and TXDOT)

Adopt-an-Esplanade

- É 808 acres adopted
- É 80 acres converted (turf replaced with mulch, trees, native vegetation, or combination)
- É Create criteria/standards for maintenance and climate appropriate plants

Local Food/Gardens

- É 611 Walker
- É City Hall



Social Media Expansion for GreenHoustonTx

GreenHoustonTx all over the web!

É Website relaunch

ó www.greenhoustontx.gov

É Twitter

ó **Follow @GreenHoustonTx**

ó www.twitter.com/GreenHoustonTx

É Facebook

ó Coming soon

É Youtube

ó Coming soon

É Newsletter and blogs



Future Work

Go Green Save Green

É Create Climate Action Plan

É **Go Green Save Green** programs

ó Property Assessed Clean Energy loan program

ó Green Office Challenge

ó Rain barrel program

ó Tap water quality education: Reduce use of bottled water

É Environmental Coordinating Council

ó Meets monthly

É Quarterly/Bi-Annual updates



Thank you

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