The Role of Public Finance Programs in Encouraging Private Investment in Alternative Fuel Vehicles and Infrastructure

Stephanie Stuckey Benfield
Director, Mayor's Office of Sustainability
City of Atlanta

U.S. DOT
February 22, 2016

power to change
ready. set. realize.

Goal

"Atlanta will become a top-tier city for sustainability."

Mayor Kasim Reed, 2010

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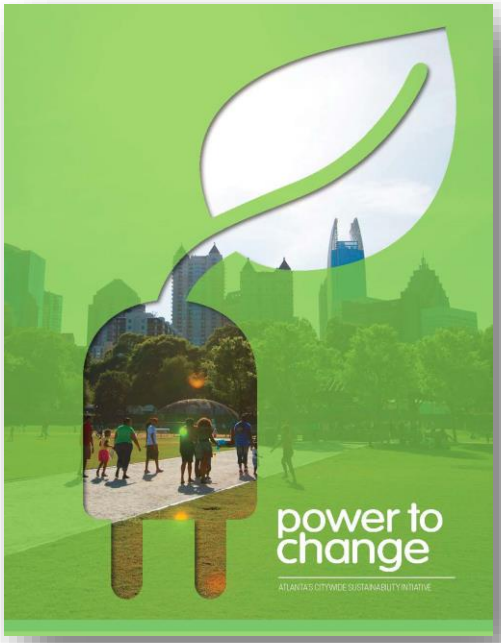
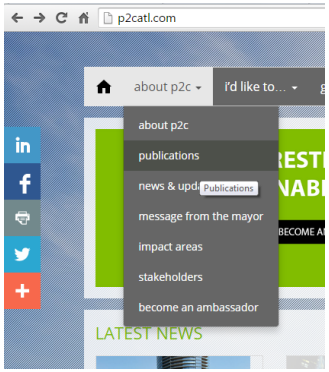
Power to Change



PLAN: Power to Change

PROGRESS: GRI Report

http://issuu.com/atlantasustainability/docs/gri-report-final2-27-15



p2catl.com/publications

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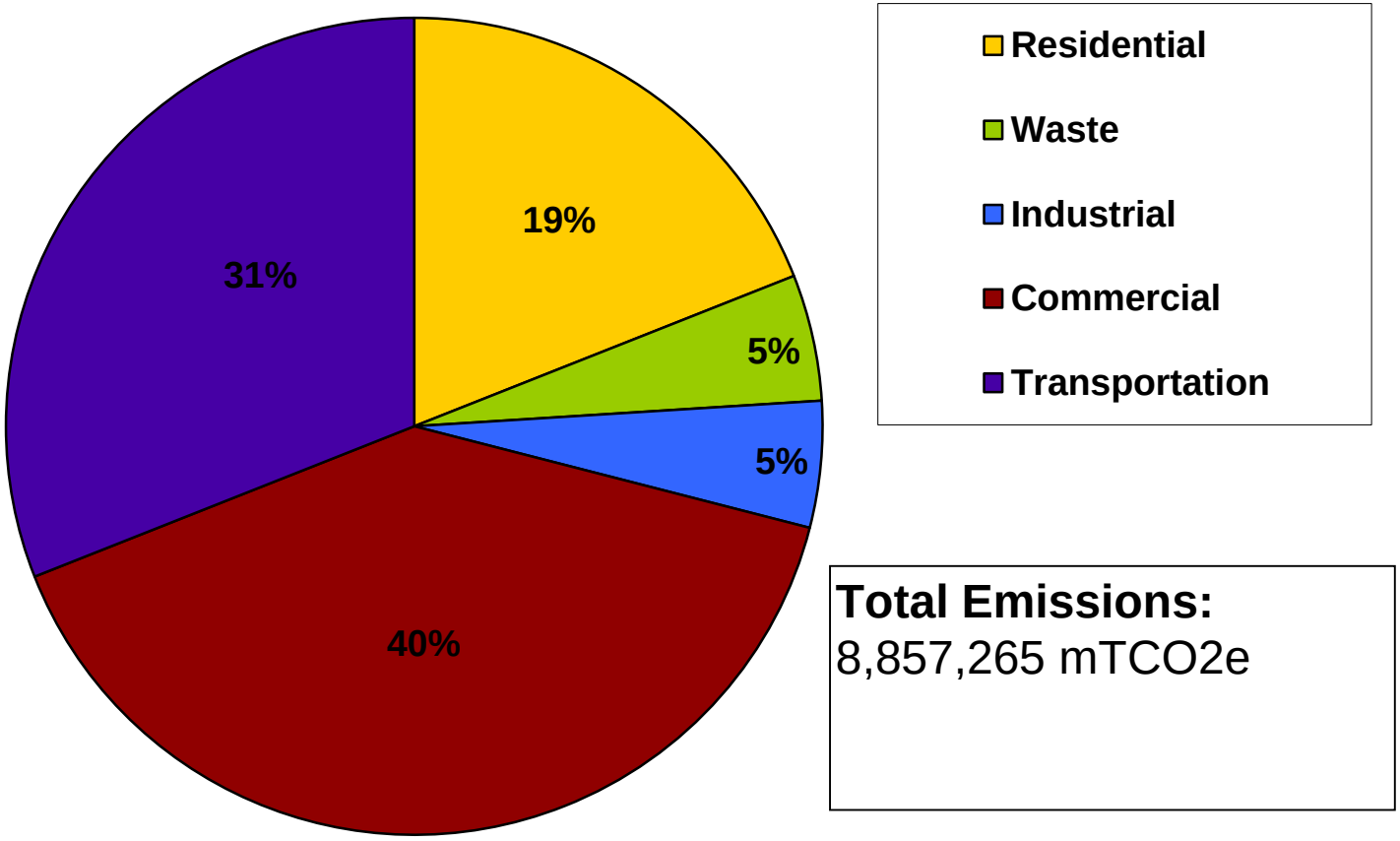
Impact Areas

Air Quality
Land Use
Sustainability Planning
Transportation & Mobility
Education
Growing Business
Energy Efficiency & Renewables
Community Health & Vitality
Materials Management
Water Management

Citywide GHG Emissions



Total Emissions:
8,857,265 mTCO2e

Reduce emissions from transportation by 20%

TRANSPORTATION

374,836 mTCO2e (3.64%)

Increase AFV usage and infrastructure

Reduce VMT

ACTIONS:

- Promote AFV rebates for vehicles and infrastructure
- Improve parking schemes
- Increase attractiveness to alternatives
- TOD

Encourage the production and use of clean local energy to 10% by 2020

102,959 mTCO2e (1%)

Facilitate Renewable Energy Investment

Use of Clean Energy in Municipal Operations

ACTIONS:

- Supply 10% of clean energy for city operations
- Establish clean energy financing districts

Atlanta Electric Vehicle Program

The case for change: Atlanta has a large number of old, gas guzzling, unreliable, and costly sedans in its fleet

Of the 351 sedans which had reliable data in Atlanta:

- 65 sedans over 100,000 lifetime miles
- 89 sedans over 10 years of age
- 54 sedans with greater than $18,000 of lifetime maintenance costs
- 59 sedans with fuel efficiency less than 15 mpg
- 60 sedans with total cost of ownership >$8k per year

Recap: Substantial financial, operational, and sustainability benefits from fleet electrification for Atlanta

Benefits	Key drivers	Example metrics
1 Improve city financials	**Reduce total fleet cost**	• TCO per mile over lifecycle versus existing vehicles
	Reduce budget volatility	• Variance of budgeted cost versus actual cost
2 Strengthen operational performance	**Enhance driver safety**	• Number of vehicles overdue for replacement
	Increase availability	• Average fleet availability attributable to maintenance
	Improve transparency	• Percentage of fleet with on-board GPS / telematics
	Increase satisfaction	• Driver satisfaction ratings
3 Achieve sustainability goals	**Increase fuel efficiency**	• Average fleet fuel economy
	Shift to alternative fuels	• Alternative fuels as share of total fuel consumption
	Reduce fleet size	• Total number of vehicles in fleet
	Reduce GHGs	• Greenhouse gas emissions attributable to fleet

Additional PR benefits relating to local and national perceptions of city's innovativeness, efficiency, and sustainability

Recap: What does this effort provide? More than just vehicles – a comprehensive solution for clean, low-cost mobility

Tax credits	• Vision Fleet passes through the value of federal and state tax credits
Simplicity	• Vision Fleet reduces complexity, streamlines the process and carries the load
Support	• Vision Fleet trains drivers and stays engaged to optimize fleet performance
Infra-structure	• Vision Fleet installs and manages charging infrastructure
Car-sharing	• Industry-leading car-sharing platform (keyless entry, web reservations)
Telematics	• Telematics devices and data service
Advanced analytics	• Vision Fleet provides a real-time analytics platform that is purpose-built for EVs
Risk mitigation	• Fixed rates - locking savings and insulating city from volatility in oil prices

Market leading platform for deploying and managing clean vehicles at the lowest possible cost – with an experienced third party doing the heavy lifting to get it done

Overview: How the agreement with Vision Fleet works

Vehicle selection	• Project targets highest-cost and least reliable gasoline vehicles for replacement • Vehicles replaced with new, fuel efficient electric vehicles provided by Vision Fleet
Rates	• City locks in low, predictable yearly TCO per-mile rates (consisting of a baseline per-mile rate up to minimum annual VMT[1] and a lower per mile utilization rate for miles above minimum VMT) • City receives shared-savings when vehicles are driven more efficiently
Vehicles	• Vision Fleet assumes responsibility for vehicle purchase; VF procures vehicles, captures tax incentives, and provides them to city in a phased deployment; City can buy EVs at contract end
Maintenance	• Vision Fleet pays for preventative, warranty-based, and normal wear-and-tear maintenance; • Maintenance is performed through existing city maintenance services[2]
Fuel	• Vision Fleet assumes responsibility for fuel costs – city is reimbursed for electricity and gasoline costs as they are incurred
Infrastructure	• Fueling infrastructure costs is included in TCO-per mile charge[3] • Vision Fleet pays for and coordinates smart deployment of infrastructure
Technology & Analytics	• City receives full Vision Fleet technology, advisory and support services at no additional cost; • Vision Fleet iQ: Telematics, advanced vehicle analytics, car-sharing platform
Duration	• Initial contract term of two-years, with option for city to renew on three additional two-year terms at lower rates

1. VMT = Vehicle miles traveled 2. Vision Fleet has option to perform through dealers in event of dispute over fairness of rates 3. Allowance of up to $3,000 per vehicle for all infrastructure related costs; Additional costs beyond this will result in slightly higher rate

Backup: Rate structure

Note: Rates shown here do not yet reflect loss of Georgia state BEV tax credit

		Base Rate Per Mile	Utilization Rate Per Mile	Minimum Miles	Pre-Payment
Initial term (years 1-2)	PHEV	$0.73	$0.65	10,500	0
	BEV	$0.55	$0.50	7,000	0

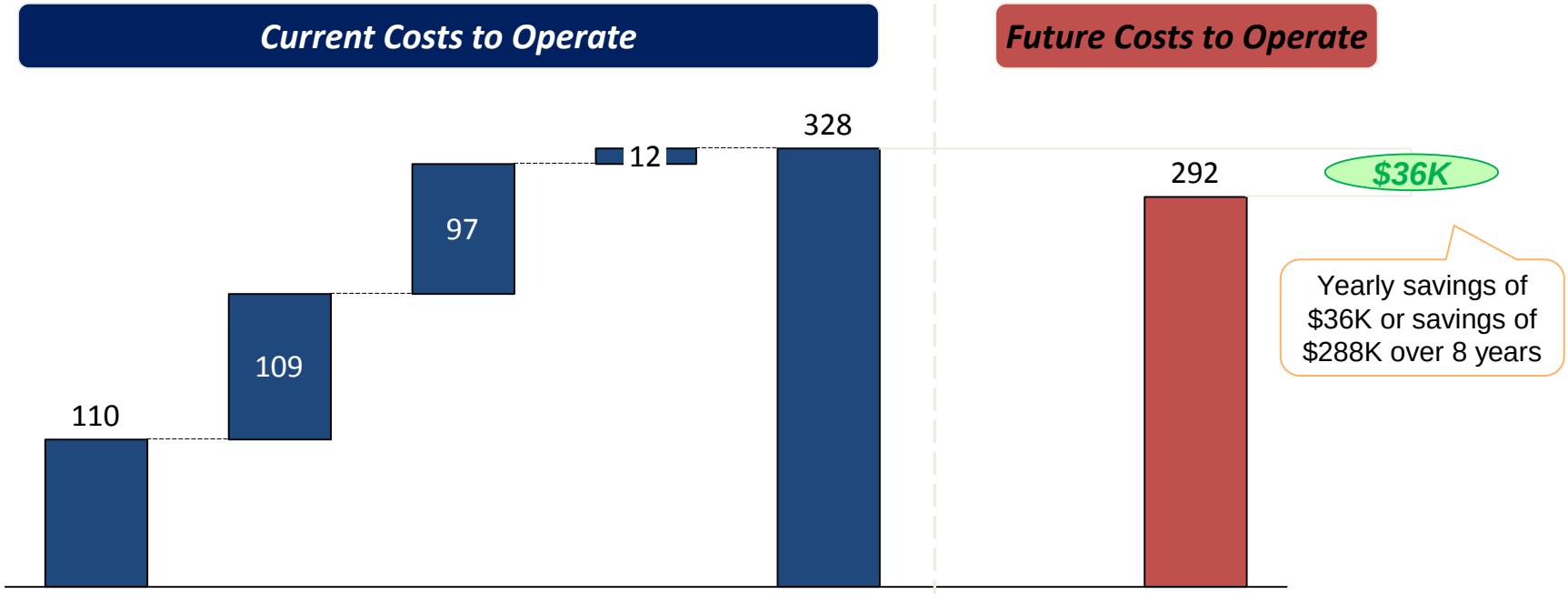
		Base Rate Per Mile	Utilization Rate Per Mile	Minimum Miles
Annual renewals (years 3-8)	PHEV	$0.63	$0.55	10,500
	BEV	$0.45	$0.40	7,000

		Base Rate Per Mile	Utilization Rate Per Mile	Minimum Miles
8-year average	PHEV	$0.66	$0.58	10,500
	BEV	$0.48	$0.43	7,000

Rates include: Vehicles, Fuel (gas and electricity), Routine maintenance, Charging infrastructure, Telematics, Analytics, Car-sharing tech, Advisory services and Support

Note: Base rate is charged on all miles up to the minimum miles; Utilization rate is charged on all miles in excess of the minimum miles

Atlanta would pay ~$330k per year, or ~$0.67 per mile, to operate the gas vehicles that will be retired through this pilot



Note: All costs and savings values are based off of blended averages of both TCO costs and VF rate structures over an 8 year-period; Initial TCO/mile cost is $0.62/mile; Gas price assumed to be at an average of $3.50/gallon over the 8 year period; Maintenance costs have been adjusted to the mid-point of their lifetime to account for inflation; CapEx costs have been adjusted for inflation; TCO is assumed to increase at an average of 2% per year to account for increased maintenance costs and inflation; Neither rate includes accident costs; Future costs reflect a mix of 15 BEVs and 35 PHEVs; Rate includes shared savings; Telematics costs are not factored in for the cost of existing vehicles; Miles driven are assumed to be the maximum between current miles driven or the minimum BEV/PHEV threshold per vehicle

Legacy gasoline vehicles to be retired through EV pilot

	Vehicles	Lifetime Mileage	Yearly Mileage	Years in Service	TCO/mile	MPG	Maintenance/ Mile
Mayor's Office	1	108,432	14,410	13.0	$0.65	18.5	$0.19
DPW - Solid Waste Services	2	67,674	7,000	11.0	$0.76	13.0	$0.35
DPW - OOT - Highway & Street	3	70,615	7,000	9.8	$0.70	12.0	$0.23
DPW - OOT - Traffic & Signal	4	73,858	11,312	9.4	$0.62	14.9	$0.16
Watershed - Drinking Water	4	64,563	7,271	8.7	$0.57	17.9	$0.19
Watershed - Waste Water	4	76,143	7,000	10.4	$0.70	21.5	$0.06
Police Department	30	82,854	11,254	12.1	$0.68	19.9	$0.19
Office of Contract Compliance	2	N/A – new vehicles rather than replacements					

Takeaways:

1) Vehicles have very high average lifetime miles – ready for replacement
2) Vehicles have been in service for a long time – leads to high TCO and high maintenance costs
3) Vehicles travel many miles each year and have relatively low fuel efficiency

Note: TCO/mile is over 8 year average assuming an increase of 2%/year; maintenance costs are for first year only – not an average over 8 years; Data not available for Office of Contract Compliance; Yearly mileage is assumed to be the maximum of current mileage driven or the minimum threshold for either BEV or PHEV; TCO has been adjusted downwards for vehicles that currently do not drive the minimum threshold amount

Savings and budget impact of 50 Pilot Vehicles

	Average cost per vehicle ($K)			Total yearly cost ($K)			Savings
	Current gas vehicles	Electric vehicles – Years 1-2	Electric vehicles – Years 3-8	Current	Electric vehicles – Years 1-2	Electric vehicles – Years 3-8	Over 8 years
Mayor's Office	$9.4	$10.1	$8.7	$9.4	$10.1	$8.7	$3.0
DPW - Solid Waste Services	$5.3	$3.8	$3.1	$10.6	$7.6	$6.2	$32.2
DPW - OOT - Highway & Street	$4.9	$3.8	$3.1	$14.8	$11.4	$9.3	$39.3
DPW - OOT - Traffic & Signal	$7.1	$6.8	$5.7	$28.2	$27.2	$22.6	$35.6
Watershed - Drinking Water	$4.2	$3.9	$3.2	$16.6	$15.8	$12.9	$24.2
Watershed - Waste Water	$4.9	$3.8	$3.1	$19.6	$15.3	$12.5	$51.5
Police Department	$7.6	$8.1	$6.9	$229.2	$241.6	$208.0	$102.6
Office of Contract Compliance				$21.0[1]	$21.3	$14.3	$0.0
TOTAL				**$328.4**	**$350.3**	**$294.5**	**$288.4**

1. Estimated in order to provide like-for-like comparison across departments; Office of Contract Compliance does not currently have vehicles for own use

Note: Current costs assume a TCO/mile that is an average over 8 years assuming an increase of 2%/year; Assumes that all BEV replacement candidates drive 7,000 miles and all PHEV candidates drive minimum of 10,500 miles; Data not available for Office of Contract Compliance; Savings assume shared savings effect of $0.005/mile; Does not include accident costs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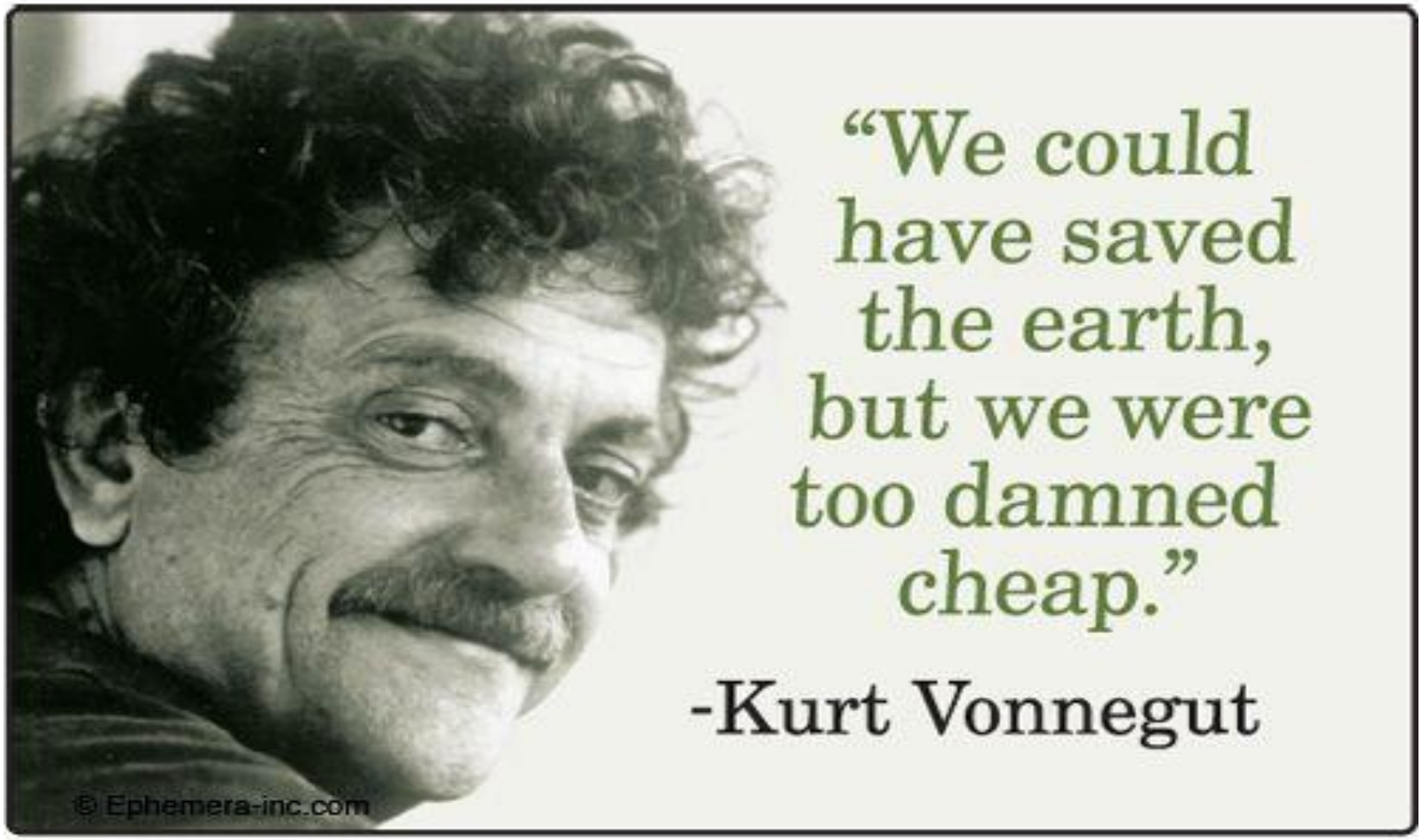
“We could have saved the earth, but we were too damned cheap.”
-Kurt Vonnegut
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Questions?

Stephanie Stuckey Benfield
sbenfield@atlantaga.gov
404-330-6100

/AtlantaSustainability

@ATLSustainable
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