

City of Pittsburgh

Fleet and Public Electric Vehicles

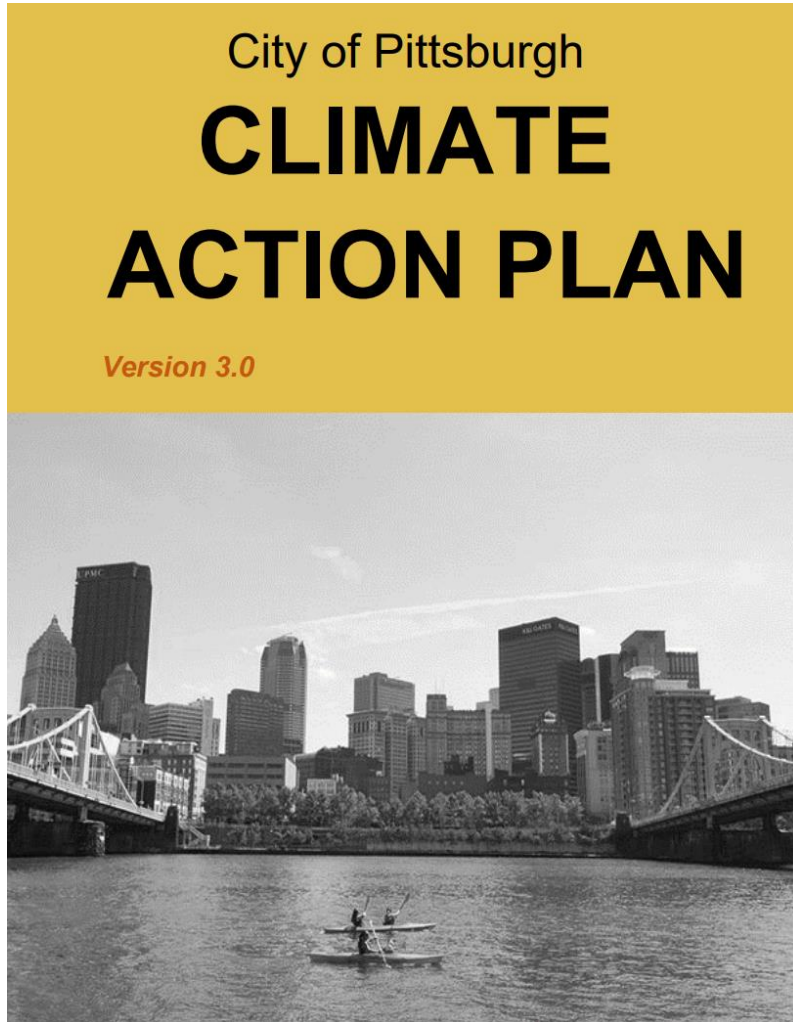
DCP Energy & Sustainability Training Session #2
October 9, 2020



Discussion Topics

- How vehicle electrification will benefit the City and our residents
- Fleet conversion
- Public EV charging
- Planning and integration opportunities

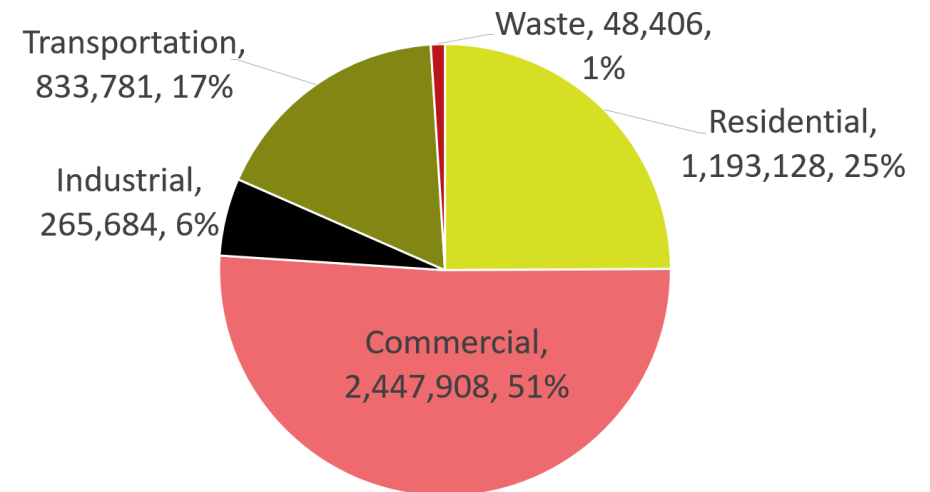
Pittsburgh's Climate Action Plan Targets



Climate Action Plan 3.0
(2019)

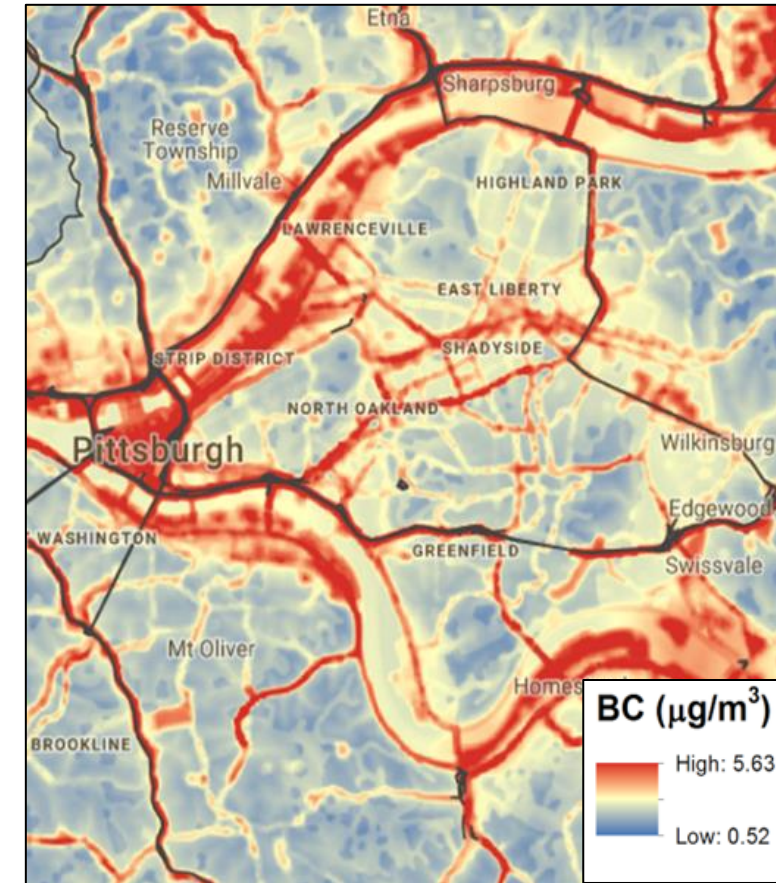
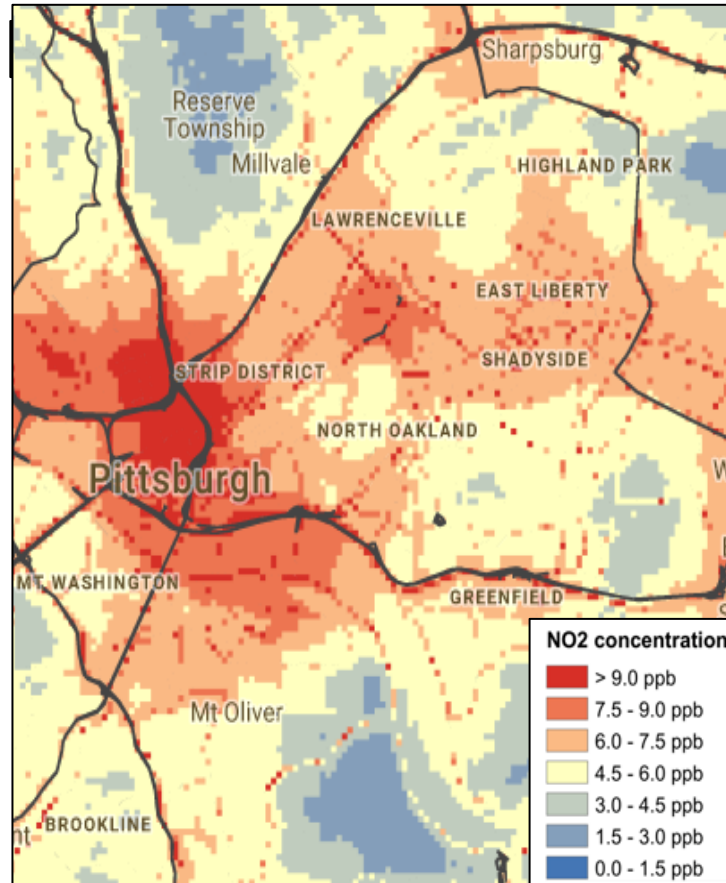
Pittsburgh's 2030 Goals

- 100 Percent Fossil Fuel Free Fleet by 2030
- Transportation Emissions Reduction of 50%
- 100% Sourcing Renewable Energy for Facilities



Sources of Pollution

- The maps show NO₂ and Black Carbon pollutants in Pittsburgh. On both maps, dark red areas tend to be located where traffic patterns are
- Pittsburgh's topography lends itself to inversion events, causing pollution from regional energy generation and vehicles to linger.



NO₂ (right) and BC (left) Pollution Maps courtesy Albert Presto/CMU/Breathe Project

Environmental Impacts

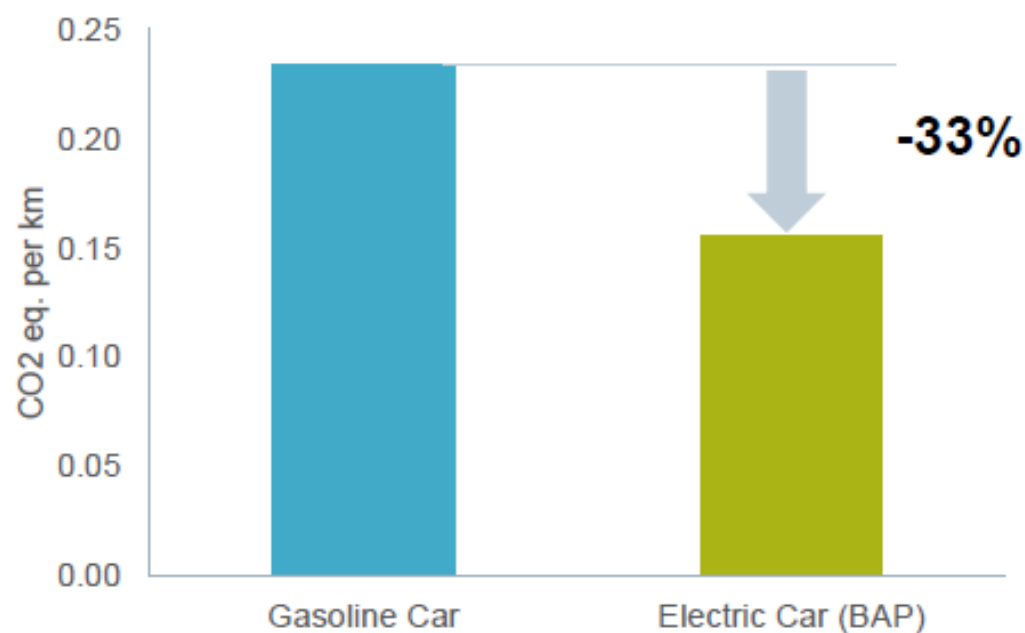
Gasoline Car Vs. Electric Car

Electric cars in Pittsburgh would have lower emissions as compared to gasoline cars

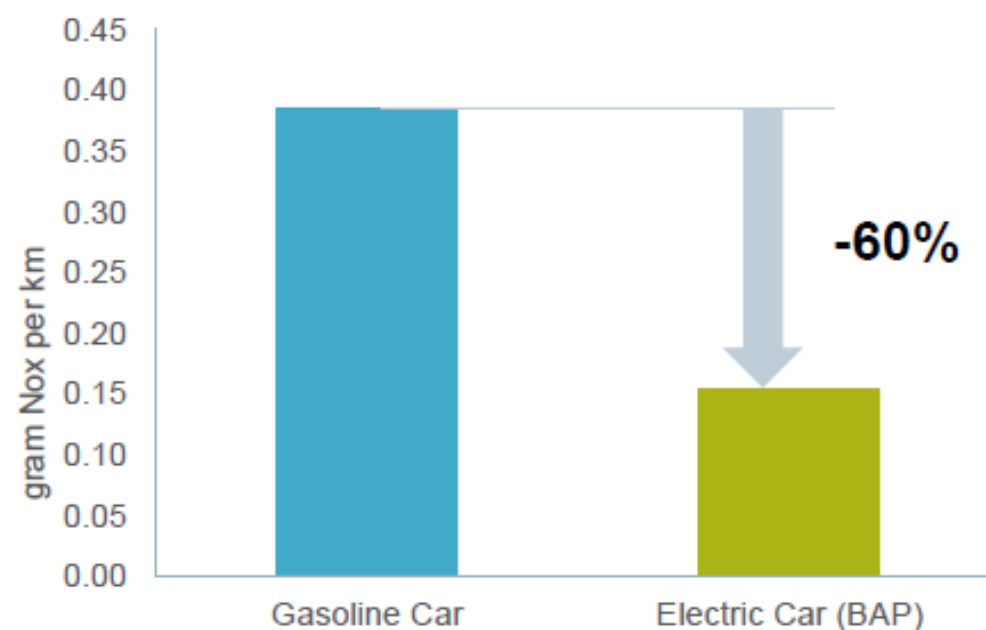
33% reduction in CO₂ eq. emissions per km

60% reduction in NO_x emissions per km

CO₂ eq. emissions per km



NO_x emissions per km



City of Pittsburgh **Fleet** Transition Strategy

Create Net Positive Financial and Environmental Actions by:

- Avoided Operations and Maintenance of Vehicles
- Fuel Savings and Fuel Switching – electrification, biogas, biodiesel
- Fleet Reduction and Optimization – fewer vehicles, better service
- Accelerate Fleet Turnover – newer, more efficient vehicles
- Smart routing for Environmental Services
- Vehicle Downsizing
- Transportation Alternatives for Employees

City of Pittsburgh 2014 Baseline Fleet Emissions

Vehicle Type	Departments	Vehicles	Miles	2014 Annual				
				Fuel (GGE)	GHG (MT CO ₂ -e)	NOx (ton)	PM (lb)	HC (ton)
REFUSE HAULERS	PWES	75	802,905	316,039	3,650	4.8	517.7	0.34
PICKUPS	DPW, PWSA	232	1,775,570	205,006	2,301	1.6	44.9	1.47
POLICE CARS & MC	POLICE	237	3,459,626	205,233	2,299	0.5	24.8	0.92
DUMP TRUCKS	DPW	81	528,342	101,009	1,180	2.2	289.6	0.36
FIRE TRUCKS	FIRE	66	361,539	88,169	1,033	1.6	177.5	0.25
AMBULANCES	EMS	35	577,341	92,009	1,078	0.5	21.8	0.14
CARS	BUILD, INVEST	118	718,266	42,676	478	0.1	5.4	0.18
OTHER TRUCKS	MISC	61	248,860	36,569	423	0.8	104.2	0.17
WORK VANS	PWSA	38	252,439	33,985	382	0.2	4.2	0.14
SUVs	FIRE, EMS	51	380,706	31,632	354	0.2	5.6	0.19
POLICE VANS	PRISONER TRANSP	10	251,032	25,103	281	0.1	2.9	0.06
PASSENGER VANS	DPW, EMS, P&R	34	161,118	18,334	205	0.1	3.0	0.11
TOTAL		1,038	9,517,744	1,195,765	13,665	12.7	1,201.6	4.31

Items in red are highest emitters and together represent 85+% of total fleet emissions

GGE = "gasoline gallon equivalent; MT CO₂-e = metric tons carbon dioxide equivalent

CURRENT FLEET MAKEUP

1200 Total Fleet



10 CNG Refuse
Packers



26 EV Sedans
\$13,638.30
8,812 gal gas



32 Police
Hybrid Sedans
\$56,000
27,000 gal gas



Current City-Owned Charging Infrastructure



Municipal Fleet

- 5 solar-powered dual hose mobile units at Second Ave
- 9 grid-tied level 2s at the Motorpool lot
- 15 dual hose level 2s at Second Ave



Public

- 35 level 2 chargers at Parking Authority Lots
- 2 dual hose DCFC + 4 dual hose level 2 in East Liberty

[illegible]

70 vehicles, 26 EV
30 level 2 chargers

AFIG, PEDA

Opportunity for PPA customers

Seek to cover lot with 1.2
MW solar installation
Existing 5 Solar Arcs

Formed an internal, **cross-departmental task force to deliver** the project

EV Task Force and Recommendations

Recommendation	Priority	Difficulty	Lead Department	Supporting Orgs
★ Plan for Converting PPA Facilities	High	Moderate	PPA, DCP	Duquesne Light Company, NRDC
Neighborhood Mobility Hubs	High	High	DCP, DOMI, PPA	Duquesne Light Company
Residential On-Street Pilot to Determine Policy	High	High	DOMI, PPA, DCP	
Commercial District On-Street Charging	Low	Moderate	PPA, DOMI	
★ EV Readiness in New Construction and Planning	Moderate	Moderate	DCP, PLI, URA	
Permitting DC Fast Charging	Low	Low	DCP, PLI	Duquesne Light Company
Design Standards and Consistent Signage	Moderate	Low	PPA, PLI, DCP, DOMI, DPW	
Energy and Infrastructure Alignments	Moderate	High	DOMI, PPA, DCP	Duquesne Light Company
Education and Outreach	Low	Low	DCP, I+P	Pittsburgh Region Clean Cities, PennEnvironment
Pricing and Enforcement	Moderate	Low	PPA	
★ Leveraging New and Existing Infrastructure	Moderate	Moderate	PPA, DCP, DOMI	

