Driving Towards a Sustainable Future

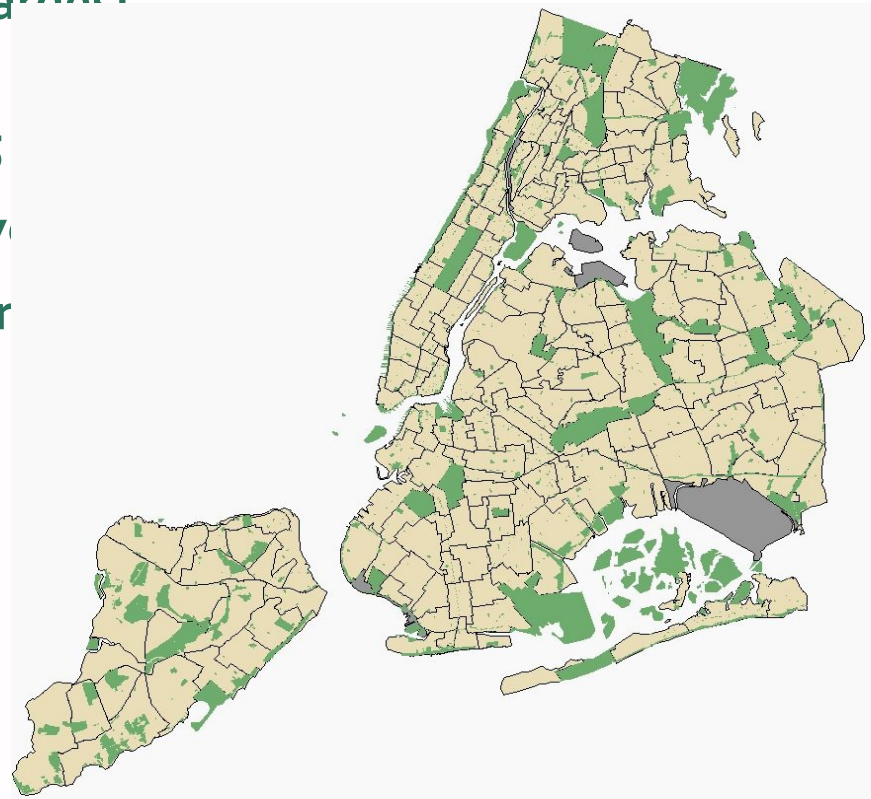
Advanced Energy Group – New York

Stakeholder Action Challenge: Electrifying Municipal Sanitation Fleets

April 19, 2023

About DSNY

- The NYC Department of Sanitation is one of the lar
  municipal refuse fleets in the world
- Serves 59 Community Board Districts within the 5
- Collects about 24 million pounds of trash and recy
- Efficiently managing solid waste, litter and snow r
  6,300 miles of streets



About DSNY

- **Snow Removal**
- Street Cleaning
- Residential Refuse & Recycling
- Freon Recovery (refrigerators, A/C)
- Special Events Cleanup (parades, etc.)
- Derelict Vehicle Removal (abandoned, stolen)
- Respond to Natural Disasters* (storms, etc.)

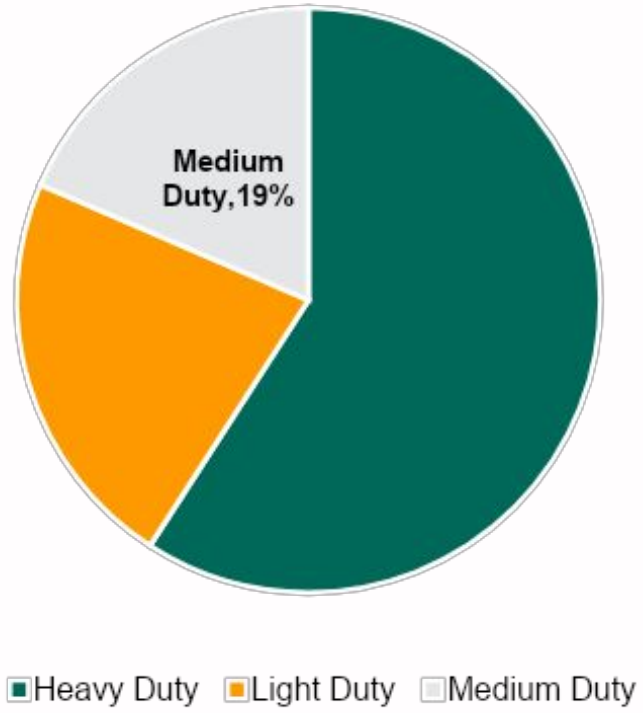



DSNY Fleet

DESCRIPTION	Class	Count
Refuse Collection (single-bin)	H	1,618
Refuse Collection (dual-bin)	H	620
Refuse Collection (front-loading)	H	107
Refuse Collection (other)	H	61
Roll On/Roll Off	H	71
Open Dump Truck	H	79
Front End Loader	H	446
HD Wrecker	H	59
Tilt Body Truck	H	19
Salt Spreader	H	458
Dual Purpose	H	128
Street Sweeper	M	435
Haulster	M	174
Other Vehicles	M	550
CFC	L	20
Passenger Cars	L	394
4 X 4	L	558
Light Trucks & Vans	L	423
Snow Melter	H	31
		6,251

Class Totals

Heavy Duty	3,697
Medium Duty	1,159
Light Duty	1,395



DSNY Snow Plow Fleet

DESCRIPTION	Class	Count
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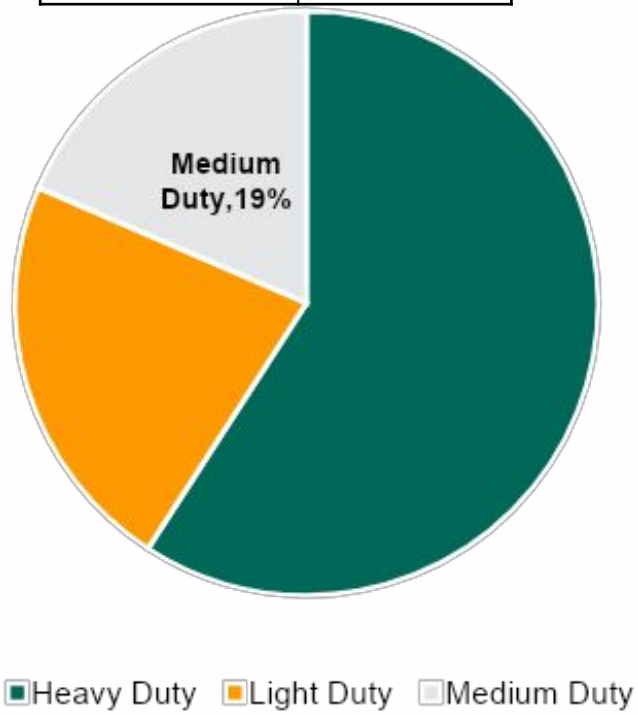
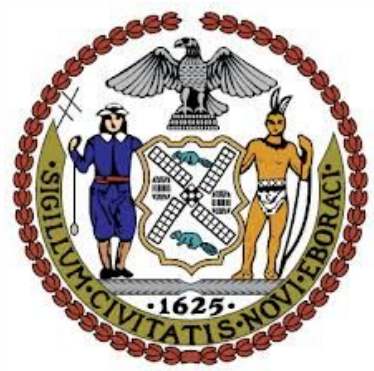
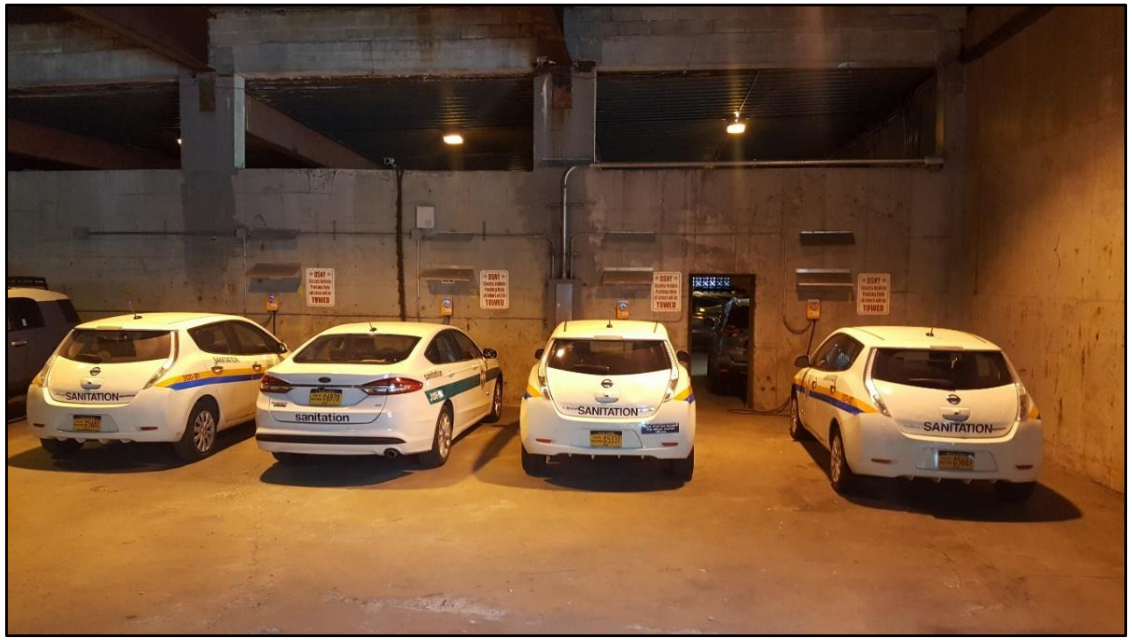


Fleet Environmental Initiatives



- 2021 – Executive Order #90
  - All electric non-emergency LDV by 2030
  - All electric remaining LDV, all MDV and non-emergency HDV by 2035
  - All electric specialized & emergency trucks by 2040 (if an electric option is not available sooner)
- 2020 – Executive Order #53 (all-electric fleet by 2040)

EO #53 & #90



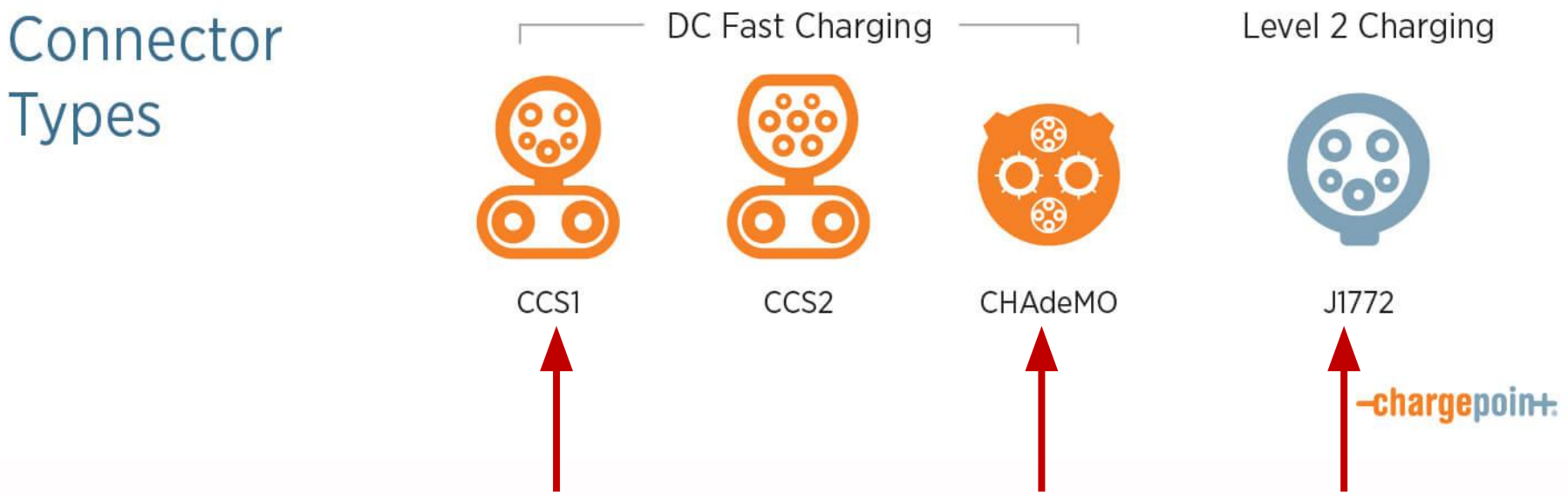
Plug-in Vehicles	Count
Chevy Bolt	92
Chevy Volt	2
Ford Fusion (Energi)	72
Ford E-Transit	27
Ford Mustang (Mach-E)	1
Mack LRe	7
Mitsubishi Outlander	163
Nissan Leaf	17
Street Sweeper	1
Total	**382**

27% of Light Duty Fleet = Plug-in Vehicles

BEV & PHEV Fleet

Mfg.	Type	Range	Battery	L2 Acceptance Rate	DCFC Acceptance Rate	Charge Port Type		
		Miles	kWh	kWh	kWh	J1772	CCS1	Chademo
Chevy Bolt	BEV	259	65	11		X	X	
Chevy Volt	PHEV	35	16.5	3.3		X		
Ford Fusion Energi	PHEV	21	7.6	3.3		X		
Ford E-Transit	BEV	116	68	10.5		X	X	
Ford F150 Lightning	BEV	200	130	11.3		X	X	
Ford Mach-E	BEV	230	68	10.5		X	X	
Ford Transit Connect	BEV	60	28	3.3		X		
Mitsubishi Outlander	PHEV	22	12	3.3		X		X
Nisssan Leaf	BEV	73	24	6.6		X		X
Global Broom	BEV		180	19		X		

EV Charger Connector Types



EV Chargers

Level 1

Level 2

DCFC

Level-2	DCFC
220 Volts	480 Volts
40 Amps	100 Amps
Single Phase	Three Phase
7.2 kW +	50 kW +
J1772	CCS1 or CHAdeMO
110	48

Solar Car Ports

Garage	QTY
BK11	2
Floyd Bennett Field	3
BK Enforcement-Shore Pkway	2
Staten Island MTS	1
BK Enforcement-Flushing Ave	4
QNS-Enforcement	2
BK12	2
BK15	2
	18

10 of 18 completed

Charger Network

chargepoint

Heavy Duty BEV Milestones

BEV Refuse Truck

Launched on November 18, 2020

BEV Street Sweeper

Launched on May 7, 2021

What to Consider (BEV)

1. Budgeting & Planning
2. Vehicle lifecycles
3. How much battery (kWh)
4. Performance (payload, range, gradeability, snow plowing)
5. Lead-times (production/delivery)
6. Fueling/Charging window (~ 1 hour during snow storm)
7. Training (operator, mechanic)
8. Warranty (what is covered/how long)

What to Consider (EVSE)

1. Budgeting & Planning
2. How many chargers (Level-2, DCFC)
3. Who will install?
4. Who will Maintain?
5. Charger networking (Wi-Fi, cellular service)
6. Charge management (avoid Peak Load Demand charges)
7. How much power (Megawatts?)
8. Floor Plan (parking/charging)
9. Electrical service upgrade

Next Steps…

1. Maximize EVSE deployment utilizing existing infrastructure
2. Conduct site assessments **(how much more power?)**
3. Develop transition plan **(roadmap)**
4. Implement Resiliency Plan **(backup generators)**
5. Pathway for BEVs to plow snow

Citywide Initiative!

Thank you!

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