

Implementing EVs in a Municipal Fleet

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**DuPage Environmental Summit
January 19, 2023**






Climate Action Goals

 **2025**

28% Reduction in emissions from 2008 levels

 **2030**

45% Reduction in emissions from 2010 levels

 **2035**

100% 24/7 Carbon-Free electricity citywide

 **2050**

Net-Zero greenhouse gas emissions

Juggling the approach to EVs



- Jump starting the use of EVs
- Funding and Purchasing
- Implementation and Use



Current Fleet Composition

(Excludes Fire Department)

726 Vehicles

Cars, SUVs, Pickups, Vans, Motorcycles, Specialty, 1 ton work trucks, HD single axle dump truck, HD tandem axle dump truck, HD tandem axle refuse truck

334 Pieces of Equipment

Lawn mowers, street sweepers, construction and off-road equipment

Annual Liquid Fuel Use

Use of B5 (5% biodiesel) year-round, and B20 (20% biodiesel) during warm weather months. Successful pilot testing of three dual fuel (B100) trucks, expanding to total 20 trucks in 2023

E10 "Gasohol"
(10% Ethanol and 90% unleaded gasoline)

408,000

Gallons

Diesel
(Fossil-based #1 and #2)

436,860

Gallons

B100
(100% biodiesel)

65,740

Gallons

Reduced
Greenhouse Gases
(GHG) by
458 metric tons

Current Fleet Emission Reduction Strategies



- **Electrify replacements and additional sedans (cars), vans, SUVs, and half ton pickup trucks.**
- **Monitor market availability of additional vehicle types.**
- **Increase use of B100 through dual fuel technology (DFT) and seasonal blending**



Cars

54 — 15 gas engine, 35 hybrid, 4 EVs

Potential to replace with EVs



Police Cars
/Specialty Units

55 — 20 patrol/pursuit cars, 31 Unmarked cars,
3 motorcycles (incl. 1 Plug in Electric Motorcycle),
1 Armored Personnel Carrier

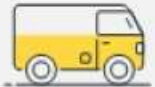
Monitor EV market availability



SUVs
(includes Police pursuit)

171 — 170 gas engine, 1 hybrid

Monitor EV market availability



Vans

56 — Passenger and cargo

Monitor EV market availability



Pickup Trucks
(includes Service Body)

261 — 199 pickup trucks,
62 Service Body pickup trucks

**EV market availability in
2023 model year**



Dump/Snowplow
/Refuse Trucks

129 — 52 single axle, 41 tandem axle,
36 refuse collection

**EV market availability in
2025 model year**

Path to Evs

2018



The Catalysts for Change:

- Council authorized Climate Action Plan
- Series of public Council “Workshops”
- Support from Electrification Coalition
- Taxpayer group presentations

Path to EVs

Funding and Purchasing

- Initial funding from Local Option Sales Tax (LOST)- Additions to Fleet
- Departmental replacement allocation going forward
- Initial additions received full Federal Tax Incentive (FTI) benefit
- Purchased utilizing Sourcewell Lease Purchasing Cooperative Contracts
[Sourcewell | Cooperative Purchasing Advantages \(sourcewell-mn.gov\)](https://sourcewell-mn.gov)

Path to EVs

Acquisition Cost

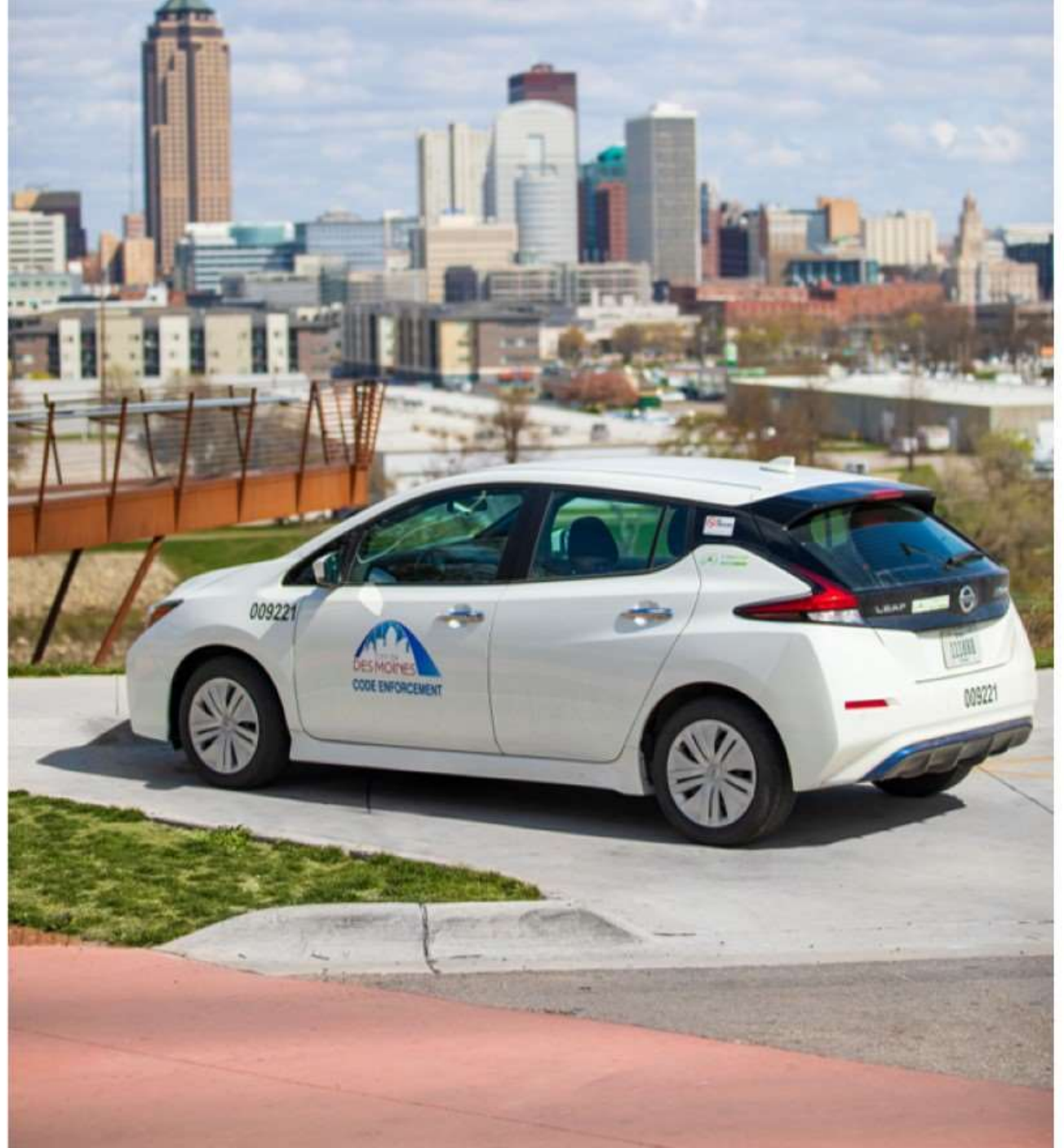
- Single initial payment of 24-month term lease from contract
- 2022 Nissan Leaf: \$18,585

Reduced Operating Costs

- Fuel, maintenance, repair

Charging Infrastructure

- Planned and budgeted in Facilities



Path to EVs Implementation

18 Nissan Leaf, 1 Ford E-Transit 150

- **Neighborhood Inspections**
- **Engineering Support**
- **Police Criminal Investigations- Detectives**
- **Library Services**
- **Additional units on order for Police and Library**

On order for delivery in June 2023



Path to EVs

User Concerns

- **Neighborhood Inspections-** Snow and ice traction, heating and cooling, range and charging time.
- **Engineering Support**
- **Police Criminal Investigations-** Detectives- Range and charging time
- **Library Services**

Fleet maintenance- Rapid tire wear, advanced tire replacement

Future of EVs

Next five-year replacement strategies

290 vehicles in existing fleet may be suitable for electrification based on current technology for sedans, SUVs, half-ton trucks and vans.

Replacements would be made from a major manufacturer and available for lease-purchase through existing contracts

Viable path to purchase would be identified but availability may be a limiting factor for the City

These strategies may yield up to 176 additional EVs over the next five years at cost parity or less than 3% incremental cost of EV or ICE.

Future of EVs

Next five-year replacement comparison and analysis

Budget Analysts performed a comparison and analysis based on:

- FY2023 base prices Ford Lightning \$50,000 Nissan Leaf \$23,000
- Assumed Ford Lightning base price for pickup, vans, and SUVs.
- Assumes a portion of the federal tax incentive will be applied
- ICE vehicle pricing based on State of Iowa contract prices
- 3% inflation for electric; 4% inflation for ICE

Fuel and maintenance comparisons use calculator from the Department of Energy
Alternative Fuels Data Center

<https://afdc.energy.gov/calc/>

Fuel price \$3.00 per gallon (current contract price) with 5% annual inflation

State of Iowa electricity prices (not national average)

Infrastructure costs of additional charging stations NOT included in this analysis

Future of Evs

Next five-year Summary

| | |
|---|--------------------|
| Total cost of electric vehicles over 5-year plan | \$7,087,961 |
| Total cost of ICE vehicles over 5-year plan | \$6,796,245 |
| Additional cost of electric vehicles | \$291,716 |
| Annual average | \$58,343 |
| Total Replacements | 176 |
| Average per unit | \$1,657 |

Now is an exciting time in Fleet Services

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Thank you!

