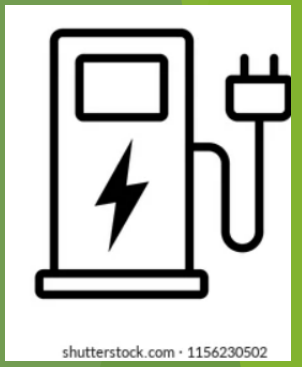
# NEST
# Recommending EV Charging Station Ordinances Based on Stretch Codes for New Commercial/ Business Parking Areas




By NEST Transportation Chairman - Bruce Jones
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Background Presentation for Naperville Building Review Board

10/15/2025

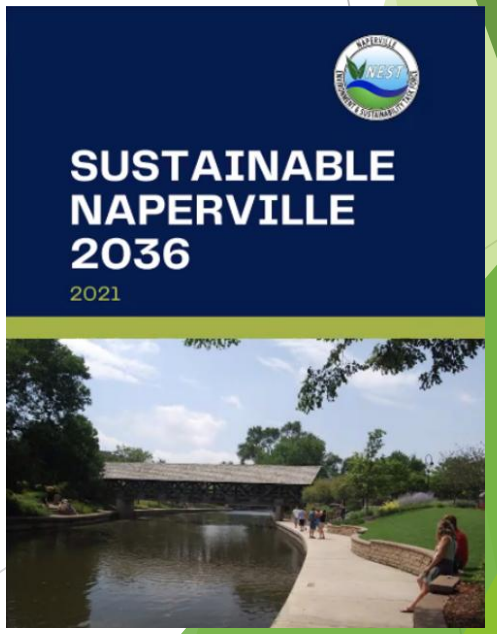
# TOPICS

- NEST
- Terminology
- Definitions
- Commercial Code EV Charging Station Recommendation
- Based on 2024 International Energy Conservation Code (IECC)
- Rebates - Federal, City, State
- Benefits
- Example
- Trends
- EV Growth
- Conclusion

# NEST

- Naperville Environment & Sustainability Task Force
- Founded in 2018
- In 2019 NEST became an official City task force
- ~50 volunteers from many backgrounds, professions
- Created sustainability plan for Naperville in 2021

- Ted Bourlard Chairperson
- 9 committees, Building & Development, City Engagement. Community Engagement, Energy, Metrics & Measurement, Natural Resources, Operations, Transportation, Waste
- Bruce Jones  Transportation Chair

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# TERMINOLOGY

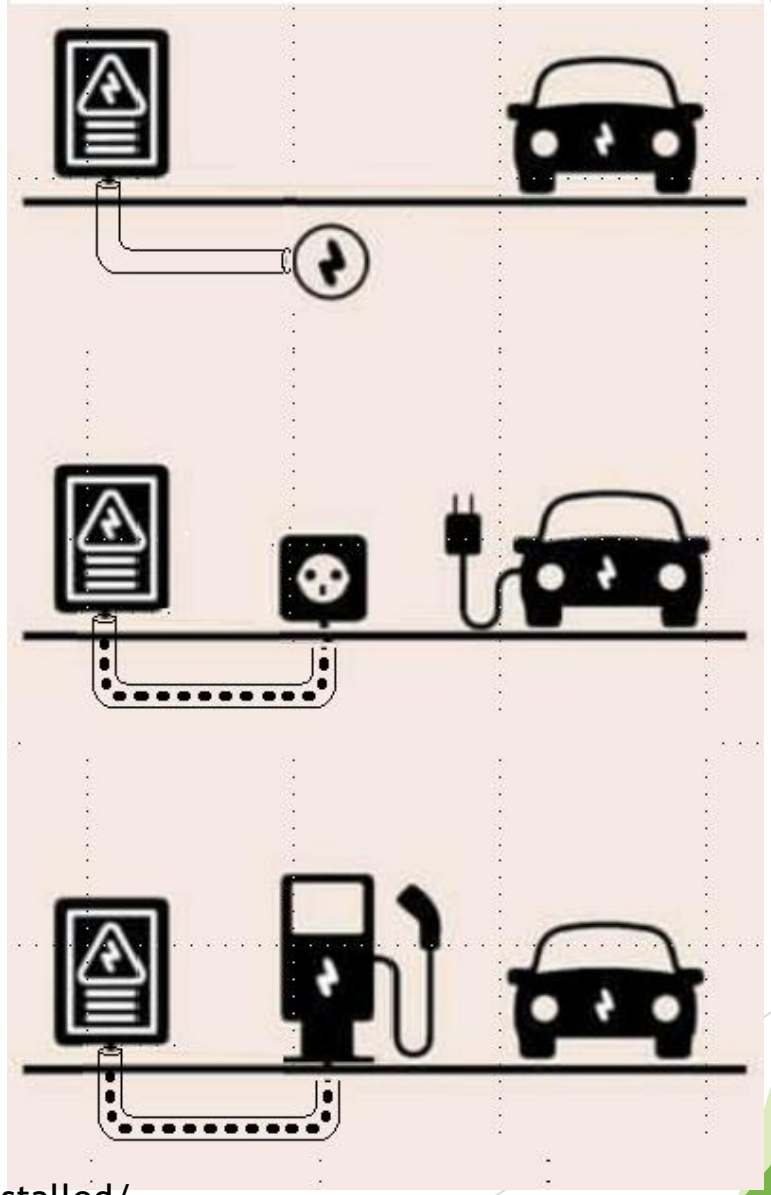
- EV = Electric Vehicle or
- BEV = Battery Electric Vehicle
- EVSE =
  - Electric Vehicle Supply Equipment or
  - Electric Vehicle Charging Station or
  - Charging Station
- ICE = Internal Combustion Engine
- TCO = Total Cost of Ownership

# EVSE Installation Related Definitions

- **EV Capable**
  - Electric panel capacity with a dedicated branch circuit and a continuous raceway from the panel to the parking spot installed. (NO wiring)

- **EVSE-Ready Outlet**
  - Electric panel capacity and raceway with conduit to a junction box or 240-volt AC charging outlet installed at parking spot. (e.g. with wiring to a NEMA 14-50, 6-50 Receptacle etc.)

- **EVSE Installed**
  - Level 2 or 3 charging station installed at parking spot.



https://www.chargedfuture.com/ev-capable-ev-ready-and-ev-installed/

# Recommendation for Naperville:
## Add Commercial EVSE (Charging Station) Ordinances Based on Stretch Codes

- PURPOSE:
- Helps **Building Owners** Save Money
  - During construction or renovation of parking areas
  - Lay conduit and EV charging station infrastructure - much LESS expensive
  - Versus trenching, remodeling later when VERY expensive and disruptive
- Helps Company **Employees** Save Money
  - Those without EV charging stations at home or
  - Live in condos / townhouse / apartments etc. without charging
  - Commute into Naperville
  - Many are under-resourced

# 2023 Illinois Electric Vehicle Charging Act Did NOT cover Commercial Businesses

- Governor Pritzker signed IL Senate Bill SB0040 on June 9, 2023
- Requiring Electric Vehicle (EV) charging infrastructure in parking areas of **New or Renovated Residential** buildings, houses, townhouses, condominiums, multifamily housing
- Does **NOT address New or Renovated Commercial / Business Parking Areas**

https://www.ilga.gov/legislation/BillStatus.asp?DocTypeID=SB&DocNum=40&GAID=17&SessionID=112&LegID=142908

# Basis for Commercial Business Recommendation

- 2024 International Energy Conservation Code (IECC)
- Appendix CG: Electric Vehicle Charging Infrastructure
- https://codes.iccsafe.org/content/IECC2024V1.0/appendix-cg-electric-vehicle-charging-infrastructure

# Commercial Code EV Charging Recommendation

| REQUIRED EV POWER TRANSFER INFRASTRUCTURE | | | | |
|---|---|---|---|---|
| OCCUPANCY CLASS | EVSE SPACES | EV READY SPACES | EV CAPABLE SPACES | 2021 International Building Code (IBC), section 302.1 Occupancy Classification |
| Group A | 10% | 0% | 10% | 1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5 |
| Group B | 15% | 0% | 30% | 2. Business (see Section 304): Group B. |
| Group E | 15% | 0% | 30% | 3. Educational (see Section 305): Group E |
| Group F | 2% | 0% | 5% | 4. Factory and Industrial (see Section 306): Groups F-1 and F-2 |
| Group H | 1% | 0% | 0% | 5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5 |
| Group I | 15% | 0% | 30% | 6. Institutional (see Section 308): Groups I-1, I-2, I-3, and I-4. |
| Group M | 15% | 0% | 30% | 7. Mercantile (see Section 309): Group M. |
| Group R-1 | 20% | 0% | 75% | 8. Residential - Section 310: Groups R-1 (transient) Boarding houses, Hotels, |
| Group R-2 | 20% | 0% | 75% | Residential: Group R-2 (non-transient) Larger Boarding houses, Hotels, |
| Groups R-3 and R-4 | 2% | 0% | 5% | Residential: Groups R-3 and R-4. Small Boarding Houses, care facilities |
| Group S exclusive of parking garages | 1% | 0% | 0% | 9. Storage (see Section 311): Groups S-1 and S-2 |
| Group S parking garages | 15% | 0% | 30% | 10. Utility and Miscellaneous (see Section 312): Group U. |

https://codes.iccsafe.org/content/IECC2024V1.0/appendix-cg-electric-vehicle-charging-infrastructure

https://codes.iccsafe.org/content/IBC2021P2/chapter-3-occupancy-classification-and-use

# Rebates, Credits and Lower Total Cost of Ownership will Continue to Drive Electric Vehicle Use

# Federal Business Tax Rebate for EVSE - 6% to 30% up to $100,000 through June 30, 2026

- **For Businesses and Tax-Exempt / Government Entities**
- For business use (i.e. depreciable property in a trade or business), the credit is **6%** of cost (up to **$100,000 per item**) as a baseline. Alternative Fuels Data Center+3IRS+3anl.gov+3
- If certain **prevailing wage and apprenticeship** requirements are met, this can be increased to **30%** (same rate as residential) for business / tax-exempt entities. IRS+2anl.gov+2
- Tax-exempt and governmental entities can take advantage of a **"direct pay" (elective pay)** mechanism whereby the amount of the credit is paid directly by the IRS, rather than being limited by a tax liability. IRS+1

- **Timeframe & Expiration**
- The credit is available for **property placed in service after December 31, 2022.** anl.gov+2IRS+2
- Under current law, the credit is set to **expire (or no longer apply)** for property placed in service after **June 30, 2026** (with some sources noting a sunset/phase-out date) unless extended by future legislation. IRS+3homes.rewiringamerica.org+3ics-tax.com+3

# City of Naperville Commercial EVSE Rebate

- Rebate for the installation of a Level 2 or 3 Electric Vehicle Charging Station up to $500 for non-residential use https://www.naperville.il.us/services/electric-utility/powering-our-community-for-the-future/electric-vehicle-charging-systems/
- Commercial Business Details
  - https://www.naperville.il.us/globalassets/media/projects/electric/sustainability-grant-forms/evcs-terms-and-conditions-rev-3-13-25.pdf

# State of Illinois EV Rebates Continue – Lowering Cost of Electric Vehicles

- IL EPA State Electric Vehicle Rebates
- Next Window Oct. 28, 2025 through Jan. 31, 2026.
- Rebate: $4,000 for those meeting income levels, otherwise $2,000 rebate
- $1,500 for Electric Motorcycles
- New or Used Electric Vehicles
- Electric Vehicle Rebate Program - Climate and Equitable Jobs Act
- https://epa.illinois.gov/topics/ceja/electric-vehicle-rebates.html

# Who Benefits From This?

- **Building Owners – *by Lowering future EVSE Installation Costs***
  - Adding EV infrastructure (conduit and sufficient circuit breaker panel space) during construction costs $thousands less than adding it after the structure is built.
  - Vs Trenching, Cutting Concrete, Landscaping, Renovating Later is Expensive!
- **Employees, Students, Under Resourced EV Drivers Benefit**
  - Who drive an EV to Naperville to work every day
  - Who don't have a charger at their home/ apartment / multifamily dwelling
- **Employers Benefit**
  - Offering EV Charging for Employees Makes it a More Attractive Place to Work
- **Naperville Residents, Visitors Benefit**
  - EVs make our air healthier to breathe
  - Each mile driven in an EV charged up here in Naperville saves over 1/3 lb $CO_2$ per mile over an internal combustion vehicle

# Example

- 2015
  - Naperville church installed **one** EV charging station during church expansion and parking lot renovation
  - We recommended laying additional conduit for future expansion while ground was dug up and trenches were open
  - Per *contractor*, the extra few hundred dollars was “too expensive”
- 2025
  - The **one** EVSE now in constant demand
  - Church wants to add more stations due to employee demand
  - Cost for charging stations and electrical work **now** requires 300’ of trenching, drilling through wall, cutting concrete sidewalk, relandscaping and labor ($4k - $6k)

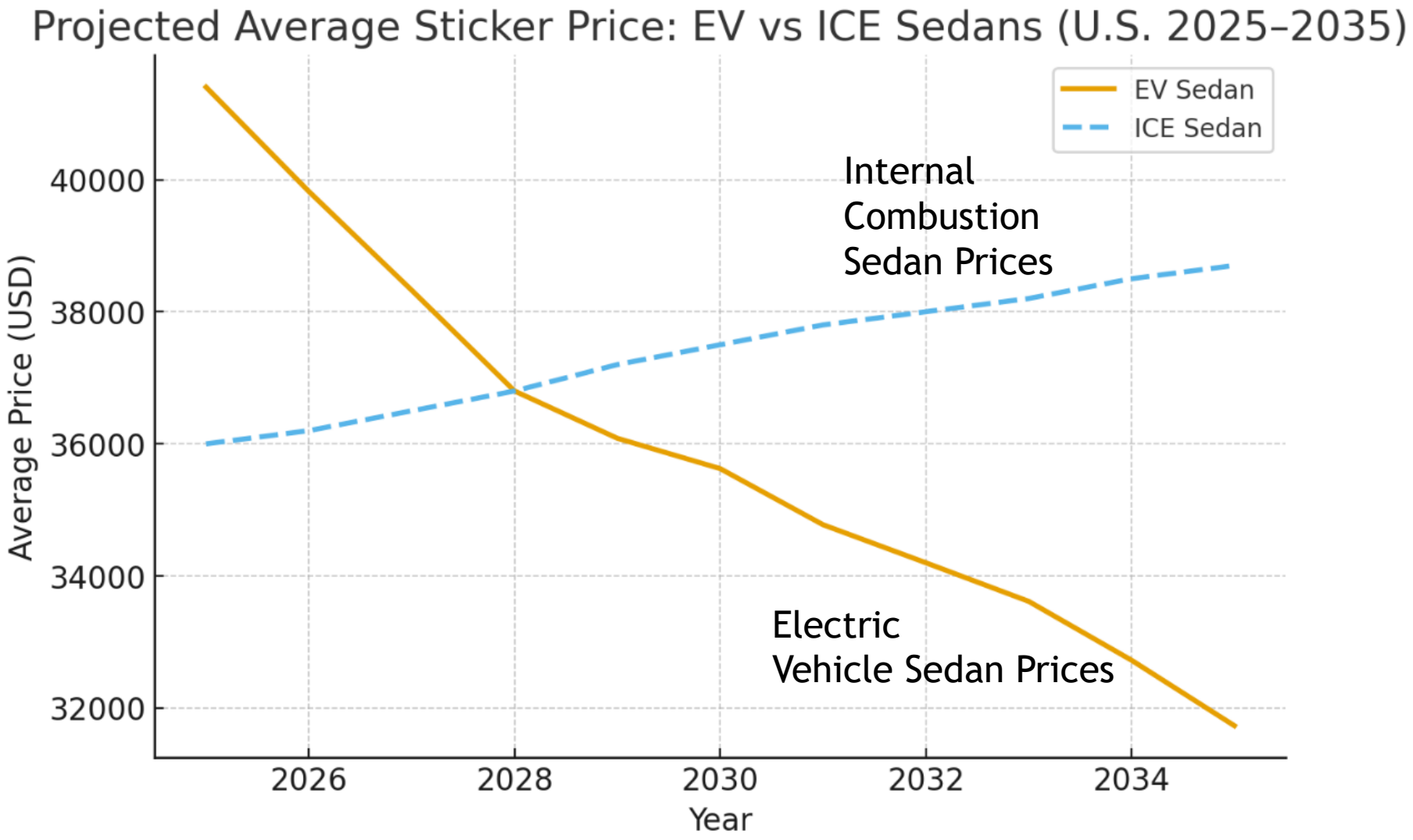
# TRENDS - next 10 years

- EV Battery Electric Vehicle prices are falling
- State of Illinois still offering rebates
- EVs provide lower TCO – total cost of ownership vs. ICE
  - No oil changes, less maintenance, lower cost of fuel
  - More attractive to own
- ICE vehicle prices to rise
- MEANS MORE ELECTRIC VEHICLES COMING TO NAPERVILLE

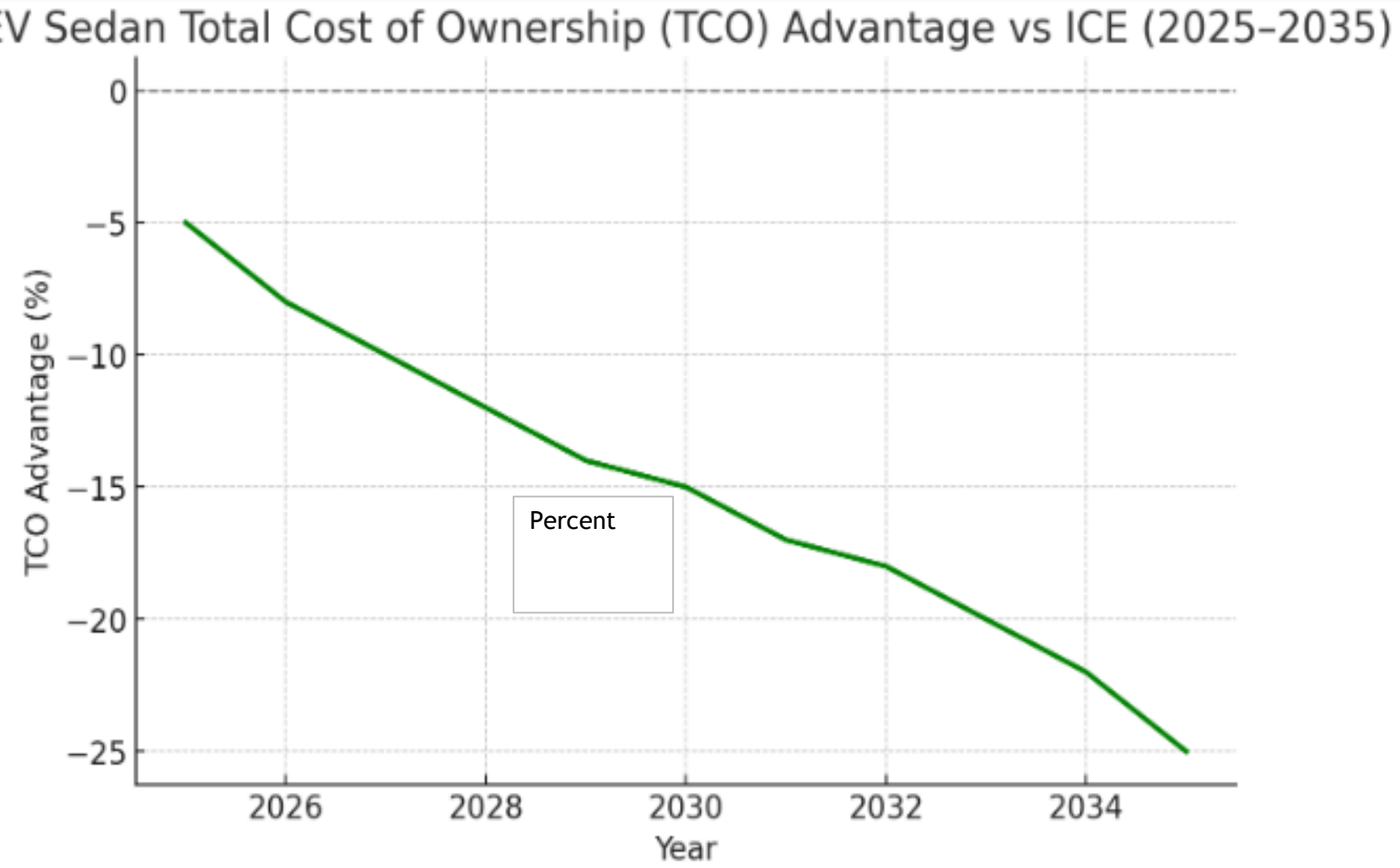
# Sources For Next Several Slides: Electric Vehicle (EV) Versus Internal Combustion Engine (ICE) Vehicles

| | |
|---|---|
| 1. Bloomberg NEF — battery pack price findings and forecasts (BNEF battery pack price briefs). Bloomberg NEF | https://about.bnef.com/insights/commodities/lithium-ion-battery-pack-prices-see-largest-drop-since-2017-falling-to-115-per-kilowatt-hour-bloombergnef/?utm_source=chatgpt.com |
| 2. IEA — Global EV Outlook / Batteries reporting on pack cost trends and market context. IEA+1 | https://www.iea.org/reports/global-ev-outlook-2025/electric-vehicle-batteries?utm_source=chatgpt.com |
| 3. Reuters reporting on Gartner analysis that EVs could be cheaper to produce than ICE by ~2027. Reuters | https://www.reuters.com/business/autos-transportation/evs-will-be-cheaper-produce-than-gas-powered-vehicles-by-2027-gartner-says-2024-03-07/?utm_source=chatgpt.com |
| 4. EDF / WSP Total Cost of Ownership analysis and other TCO studies (used to judge ownership economics). Environmental Defense Fund | https://www.edf.org/sites/default/files/2023-07/WSP%20Total%20Cost%20of%20Ownership%20Analysis%20July%202023.pdf?utm_source=chatgpt.com |
| 5. Kelley Blue Book (KBB) / industry ATP data for U.S. average new vehicle price context. Cox Automotive Inc. | https://www.coxautoinc.com/insights-hub/december-2024-atp-report/?utm_source=chatgpt.com |

# Purchase Price of EVs To Drop 2025 - 2035 vs. ICE Prices to Rise

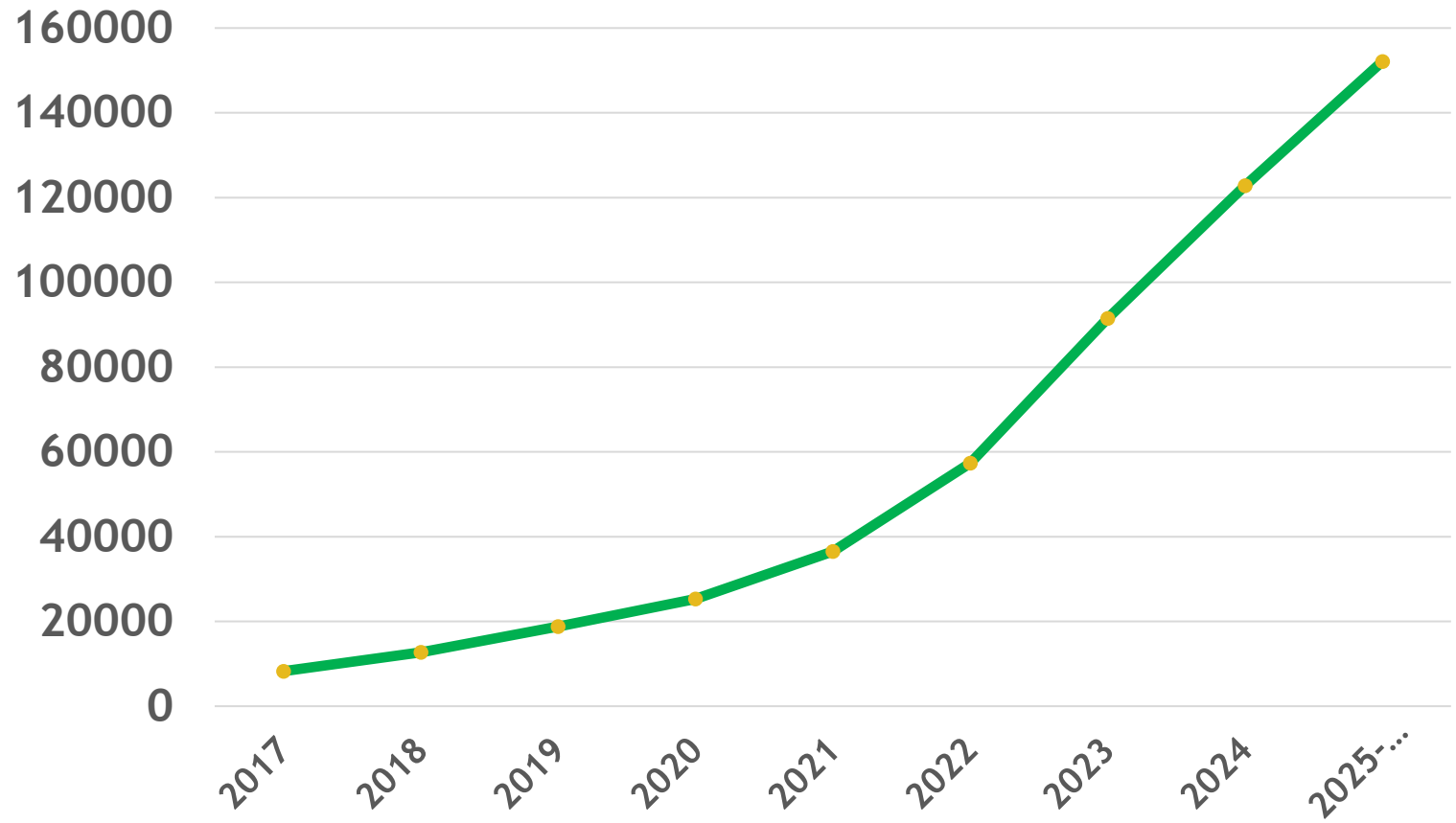


# Total Cost of Ownership (TCO) Advantage for EV versus ICE -5% to -25% Over Next 10 Years



# Registered EVs in ILLINOIS to Grow Quickly

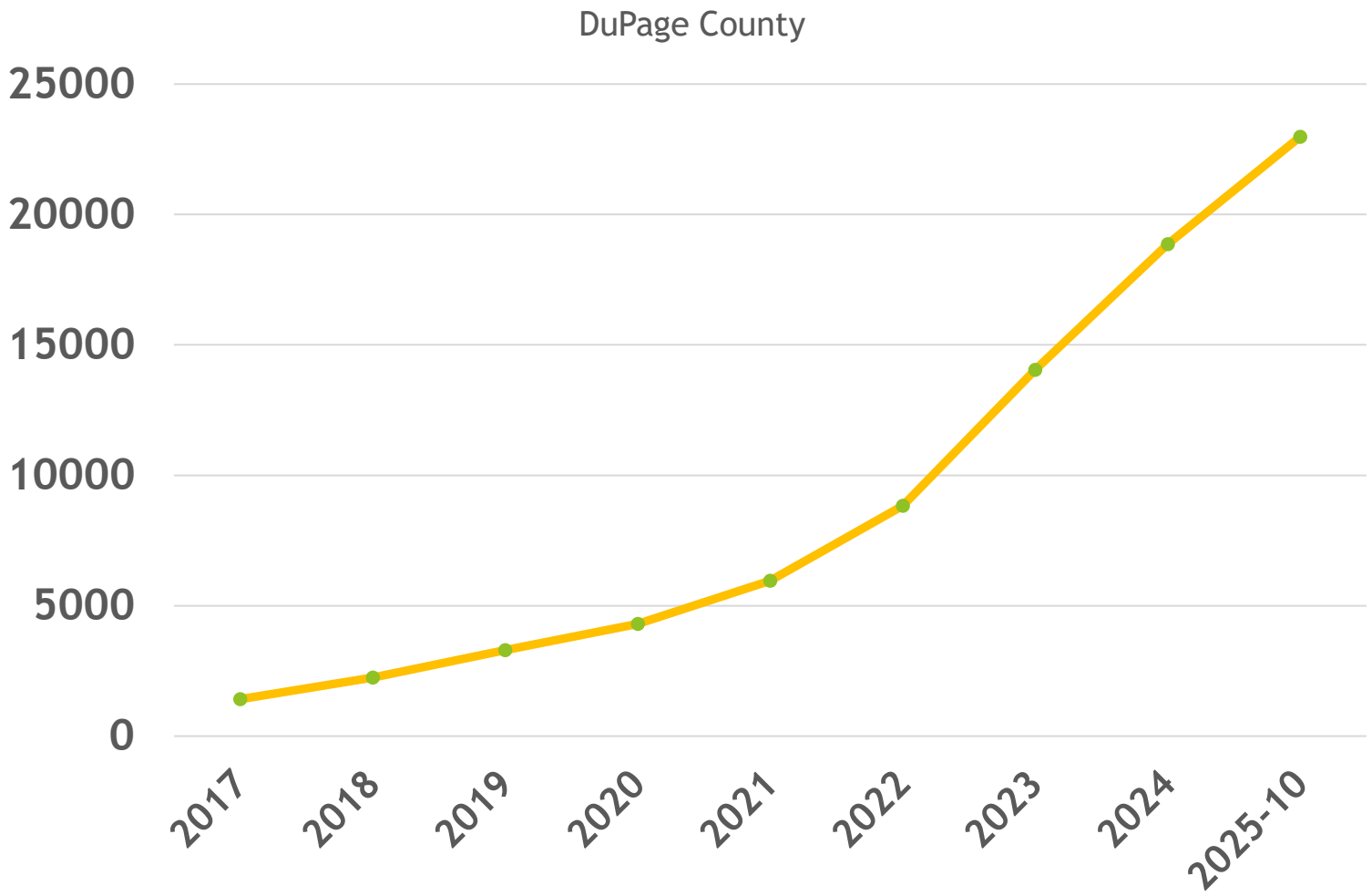
## 2017 – Sept. 2025




| Registered EVs in IL | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-10 |
|---|---|---|---|---|---|---|---|---|---|
| IL | 8255 | 12713 | 18769 | 25319 | 36482 | 57311 | 91451 | 122775 | 152106 |

- https://www.ilsos.gov/departments/vehicles/statistics/electric.html

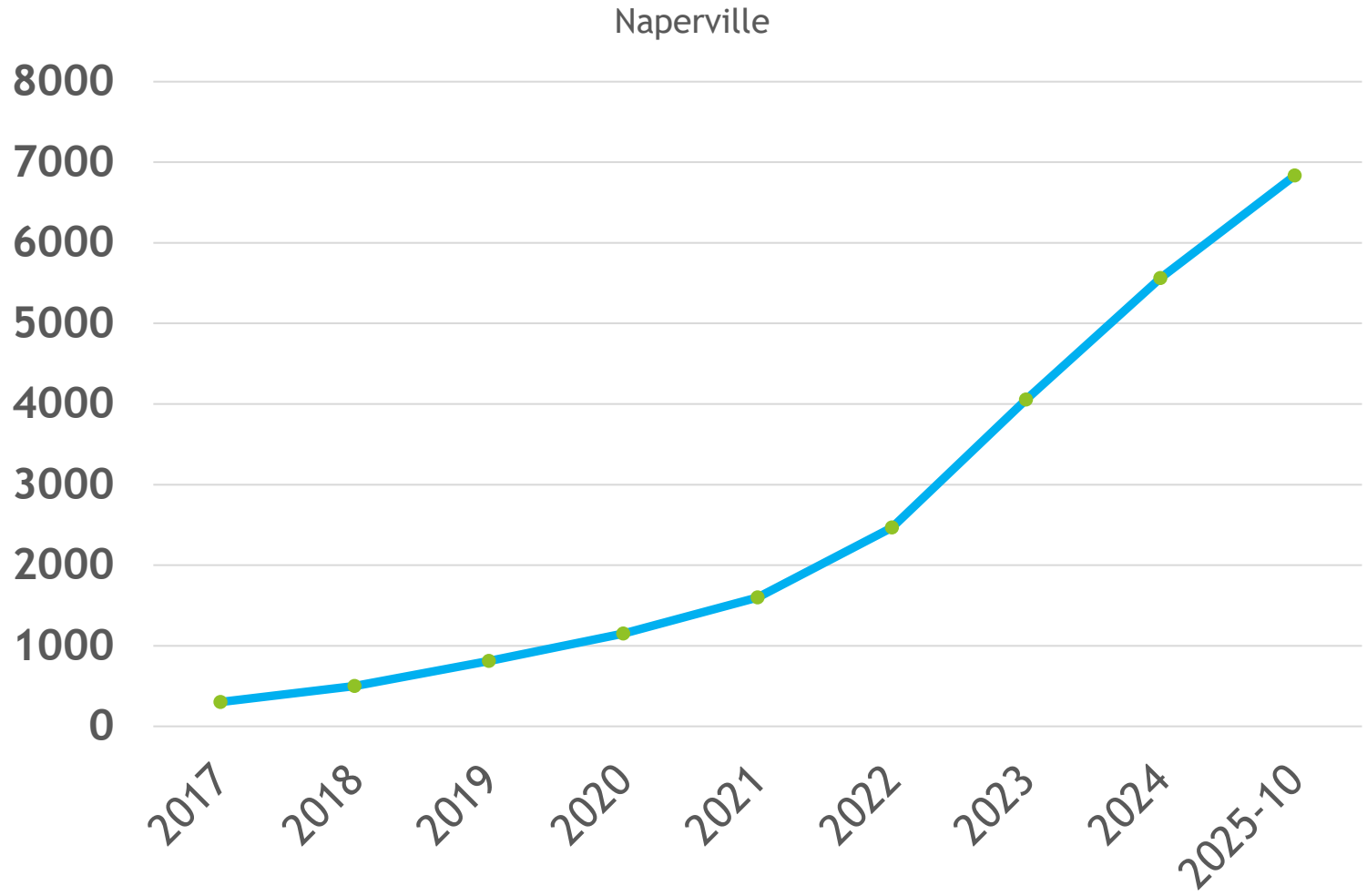
# Registered EV Growth in DuPage County




| Registered EVs in IL | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-10 |
|---|---|---|---|---|---|---|---|---|---|
| DuPage County | 1416 | 2241 | 3299 | 4304 | 5955 | 8832 | 14043 | 18861 | 22980 |

- https://www.ilsos.gov/departments/vehicles/statistics/electric.html

# Registered EV Growth in Naperville




| Registered EVs in IL | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025-10 |
|---|---|---|---|---|---|---|---|---|---|
| Naperville | 302 | 500 | 812 | 1150 | 1600 | 2466 | 4056 | 5562 | 6835 |

- https://www.ilsos.gov/departments/vehicles/statistics/electric.html

# CONCLUSION - Recommended for Naperville:
## Add Commercial EVSE (Charging Station) Ordinance Based on Stretch Codes

- PURPOSE:
- Helps **Building Owners** Save Money
  - During construction or renovation of parking areas
  - Lay conduit and charging station infrastructure - much LESS expensive
  - Than trenching, remodeling later when VERY expensive and disruptive
- Helps Company **Employees** Save Money
  - Don't have or can't have EV charging stations at home or
  - Live in condos / townhouse / apartments etc. w/out charging
  - Commute into Naperville
  - Many are under-resourced

# The End

Join us on Facebook! Facebook.com/NaperSustain or Web: www.SustainNaperville.org

# NEST – Transportation Committee Chair Electric Vehicle & Charging Station Resource

- Bruce Jones
- Naperville resident 35 years
- Passion for Renewable Energy, EV owner, converted car to PHEV, installed home EVSE
- Fox Valley **Electric Auto Association** since 2009, President – 5 years, Secretary – 11 years
- Career - Telecommunications industry – IBM 12 years, AT&T 11 years
- Renewable Energy Solutions Manager 3 years at SAIC
  - Utilities Consultant for Renewable Energy Solutions,
  - Three Rivers Cities Electric Vehicle Readiness Plan in Texas for Austin Energy
    - **With EVSE Ordinance** Toolkit, Multifamily Housing Recommendations
    - Ran the 4 Stakeholder Meetings, coordinated, tracked results, Ordinance Toolkit
- Helped Kane County prepare **EVSE Ordinances** 2012
- Speaker at Four Conferences on EVs, EVSE topics
- Managed **EVSE** install, Church 2014-15