



# NAVIGATING THE JOURNEY TO **EVs**

A FREE WEBINAR  
THURSDAY, DEC. 1 AT 6PM



**comed**<sup>SM</sup>

AN EXELON COMPANY



# Participating Via Zoom

- Participants are in listen-only mode
- Post your questions at any time in Q&A
- Event recording and slides available via email & CACC website
- Please complete event questionnaire

# Speakers



**Samantha Bingham**  
Chicago Dept. of  
Transportation



**Erica Borggren**  
ComEd



**Tim Milburn**  
Green Ways 2Go



**Megha Lakhchaura**  
Illinois Environmental  
Protection Agency



**Angela Tin**  
American Lung  
Association



# National Network of Clean Cities Coalitions

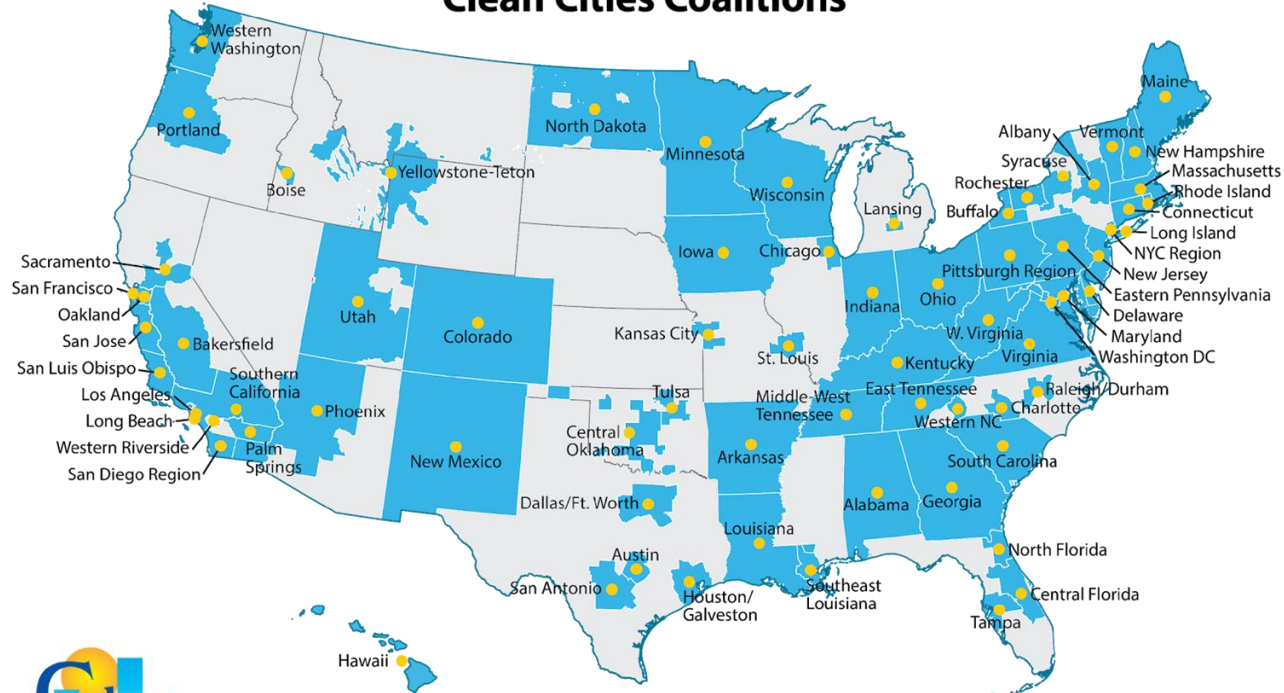
More than 75 active  
coalitions covering nearly  
every state with thousands of  
stakeholders



[chicagocleancities.org](http://chicagocleancities.org)

## Who We Are

### Clean Cities Coalitions



# Thank You Annual Sponsors



Funded by the Illinois soybean checkoff



# Electric Vehicle Types

## Battery Electric Vehicle (BEV):



- 100% electric, completely battery powered
- Plug-in to recharge
- 80-400 miles range

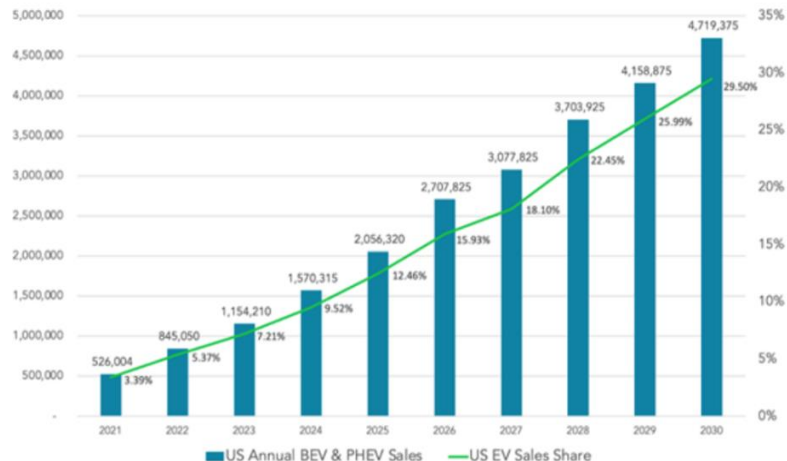
## Plug-in Hybrid Vehicle (PHEV):



- Both electric and gasoline powered
  - Most have an “Electric Only” mode
  - Plug-in to recharge, fill tank when needed
  - 20-40 miles electric range
-

# EV Market Growth is Accelerating

## U.S. Electric Vehicle Sales Share Forecast

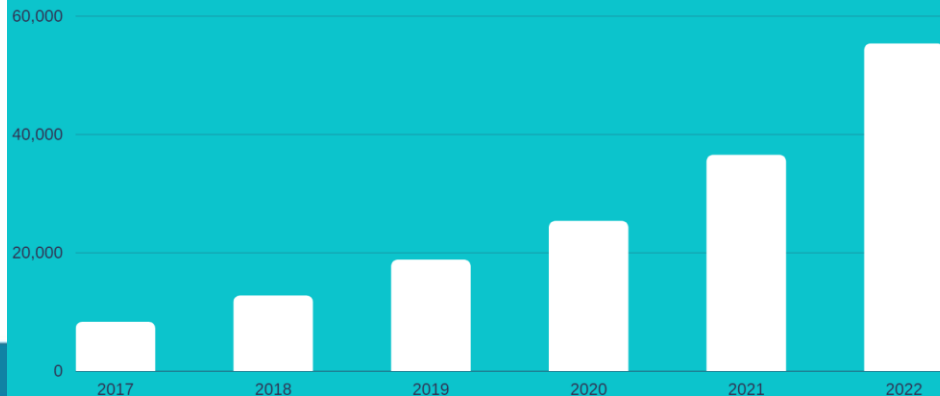


Historical Sales Data: GoodCarBadCar.net, InsideEVs, IHS Markit / Auto Manufacturers Alliance, Advanced Technology Sales Dashboard | Research & Chart: Loren McDonald/EVAdoption

- 2 Million+ EVs in the U.S.
- 4.6% of all car sales in Q1 2022

## ILLINOIS EV REGISTRATIONS

55,333 EVs registered through 11/15/22  
52% Increase in EV registrations '21 to '22  
Goal: 1 million EVs on the road by 2030



- Data source: Illinois Secretary of State.  
[bit.ly/3EYxnOg](https://bit.ly/3EYxnOg)



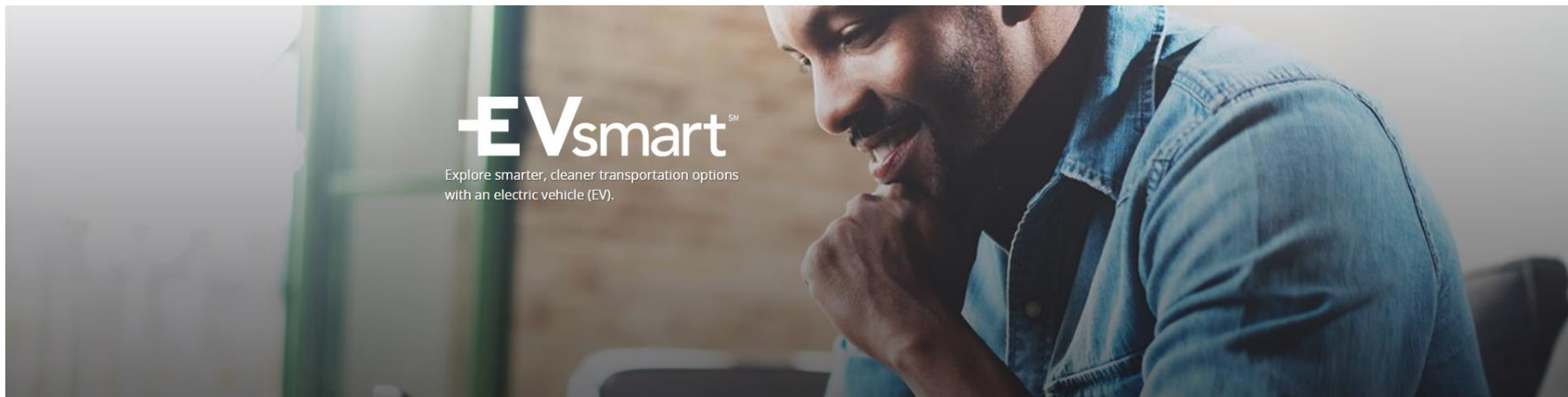
December 1, 2022

# Navigating the Journey to EVs: Using ComEd's EV Toolkit!

Erica Borggren, VP of Customer Solutions, ComEd



# ComEd's EV Toolkit



- Whether you're already an EV driver or considering buying an EV, our ComEd EV Toolkit serves an all-in-one resource to prepare consumers no matter where you are in the journey.
- Explore your options at [ComEd.com/EV](https://ComEd.com/EV)

# How do I know if an EV is right for me?

Explore our tools and resources to review your options and make an informed decision



## Savings, Benefits & Incentives

Discover the environmental and health benefits related to EVs, and calculate your personalized cost savings. [Learn More](#)



## Find Vehicles and Chargers

Review the latest EV brands, models and charger options. [Learn More](#)



## Search for Public Charging

Find a public charging station near you or wherever you may go. [Learn More](#)



Explore your options at [ComEd.com/EV](https://ComEd.com/EV)

# Calculate your personalized fuel cost savings estimate

Calculate your potential fuel cost savings when switching from a gas vehicle to an EV – using current fuel and market costs:

- Price for a gallon of gas near you
- Gas vehicle you currently own
- EV that you are interested in
- Number of miles you personally drive each year on average
- Current electric rate

## The calculator estimates:

- How many more miles you can drive an EV for the price of a gallon of gas vs. your gas vehicle
- How much you potentially could save in fuel costs annually and over 5 years

[Learn more](#)

Savings Calculator

Commute Savings

EV Benefits & Facts

Savings & Benefits

Estimate your Potential Savings

How far does **\$4.35** drive your car?

Select the rate that applies to the time you will charge.

☐ Rate BES (ComEd default fixed-price rate)

\$ .115/kWh\*

☐ Rate BES-H (Hourly Pricing 24-hr avg price)

\$ .111/kWh\*\*

☒ Rate BES-H (Hourly Pricing overnight avg price)

\$ .074/kWh\*\*\*

EV gets you this many more miles for the price you pay for a gallon of gas.

**203 mi**

Gas

24 miles

EV

227 miles

Local fuel price/gallon

\$ **4.35**

Est. MPG of gas vehicle

**24.00**

Est. mile/kWh for EV

**3.870**

Utility kWh rate\*

\$ **0.0740**

2015

2022

Honda

Tesla

Accord - Automatic (S6)

Model 3 Long Range AW

RESET ALL

How much should it cost to drive **15,000** miles per year?

A year of driving, a year of saving.

Average annual driving estimates vary across the U.S. but the EPA and DOE use 15,000 miles/year as the average for most fuel use estimates. This estimate is based on the above inputs.

Switch to EV and save big on fuel. Estimated annual savings:\*

**\$ 2,431**

# Find an All Electric or Plugin Hybrid EV that's right for you

- **Enter your search priorities** in order of importance
- **Review the list of EV models** that may be appropriate for you
- **Receive information** on price, range, and currently available Federal Tax Credits by model

Learn more

All-Electric Models

Plug-In Hybrid Models

EV Chargers

## All-Electric Vehicle Model Information

This list is intended to provide general information about electric vehicle models. These prices are only estimates, actual prices may vary significantly based on dealership, geographic location and vehicle option packages. This list may not include all available electric vehicle models and does not include hybrid electric vehicles (HEV) or plugin hybrid electric vehicles (PHEV). Please consult local dealerships and manufacturer websites for additional information.

Year ☐ 2020 ☐ 2021 ☒ 2022

Manufacturer	Price Range*	Range per Charge	Battery Capacity (KWH)
<div>All Brands</div>	<div>Lower to Higher</div>	<div>Longer to Shorter</div>	<div>Lower Capacity</div>
Sort Order ?	<div>1234</div>	<div>1234</div>	<div>1234</div>
Efficiency (kWh/Mi)	<div>More Efficient</div>		
<div>1234</div>			

2022 Nissan Leaf (40 kW-hr battery pack)

Estimated Price: **\$20,000 to \$30,000**

Technology: **All-Electric EV**

Range: **149 miles/charge**

Battery Capacity: **40.0 kWh**


kWh Consumption/100 miles: **30.4**

**New Vehicle Federal Tax Credit\***

If purchased/delivered before 8/16/2022:  
Up to **\$7,500**

If purchased/delivered 8/17/2022-12/31/2022:  
Up to **\$7,500**

If purchased/delivered after 1/1/2023:  
Up to **\$7,500**



source: Nissan Media

# Find an EV Charger that's right for you

- **Enter your search priorities** in order of importance
- **Review the list of EV Charger models** that may be appropriate for you
- **Receive information** on estimated price, charger type, plug type, and if it is WiFi Enabled by model
- **Select models are available for purchase** directly on the ComEd Marketplace

Learn more

## Level 2 Charger Information

We're providing basic information about electric vehicle Level 2 240-volt charger models to help you understand the various performance attributes to consider when making a purchase. We try to keep the information up to date, but models and attributes change frequently. Please refer to manufacturers for additional details.

Manufacturer	Price Range*	Amperage	Wifi Enabled
Enel x	Lower to Higher	Lower to Higher	Show all Models
Sort Order	1 2	1 2	
ENERGY STAR Certified			
Show all Models			

Model: JuiceBox Pro 32 WIFI

Charger Type: **Level 2**  
Estimated Price: **\$400 to \$700**  
Plug Type: **SAE J-1772**  
Voltage: **240**  
Amperage: **32**  
Primary Use: **Residential**  
Connectable/WiFi Enabled: **Yes**  
ENERGY STAR: **Yes**



PURCHASE



Enel X

Model: JuiceBox 40 WIFI

Charger Type: **Level 2**  
Estimated Price: **\$400 to \$700**  
Plug Type: **SAE J-1772**  
Voltage: **240**  
Amperage: **40**  
Primary Use: **Residential**  
Connectable/WiFi Enabled: **Yes**  
ENERGY STAR: **Yes**



PURCHASE



Enel X

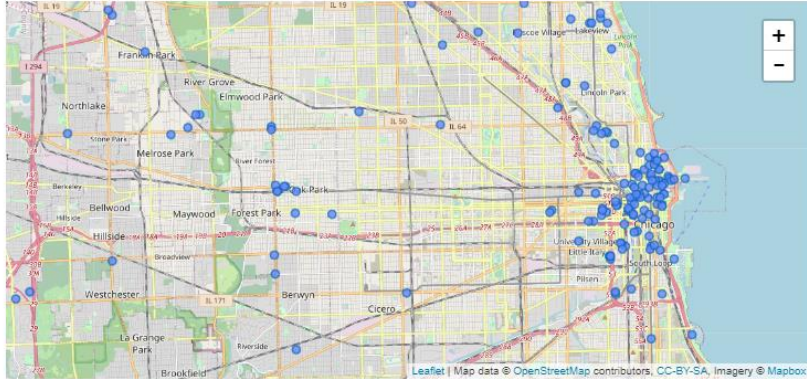


# Ready to hit the road?

Find a public charger near you

- Our tool allows you to **find public chargers by zip code**
- **See locations** on a map and individual listings

Learn more



Leaflet | Map data © OpenStreetMap contributors, CC-BY-SA, Imagery © Mapbox

CHARGER LEVEL:

Level 1

Level 2

DC FAST:

CCS

CHAdMO

Tesla

Showing 1 - 25 of 152

PREV

1

2

3

4

5

6

7

NEXT

**MILLENNIUM GRGS**  
5 S Columbus Dr  
Chicago, IL, 60601  
888-758-4389

**ACCESS:** Public  
**NETWORK:** ChargePoint Network  
**PLUG TYPES:** NEMA520  
**PRICING:** Free  
**HOURS:** 24 hours daily

**INTERPARK**  
17 E Adams St  
Chicago, IL, 60603  
888-758-4389

**ACCESS:** Public  
**NETWORK:** ChargePoint Network  
**PLUG TYPES:** J1772, NEMA520  
**PRICING:** Free  
**HOURS:** 24 hours daily

# I've purchased an EV – now what?

Get the most out of your EV with our available resources.



## Prepare for Charger Installation

Review the checklist to help make sure your charger installation goes smoothly. [Learn More](#)



## Find the Right Rate for You

Explore available rate options and see what works best for you. [Learn More](#)



## Register Your EV

Register your vehicle with ComEd to help us assess your electric service needs and maintain the reliability of electric service in your community. [Learn More](#)



# Thank you

Visit: [www.comed.com/ev](http://www.comed.com/ev)

# Consumer Considerations for EV Charging

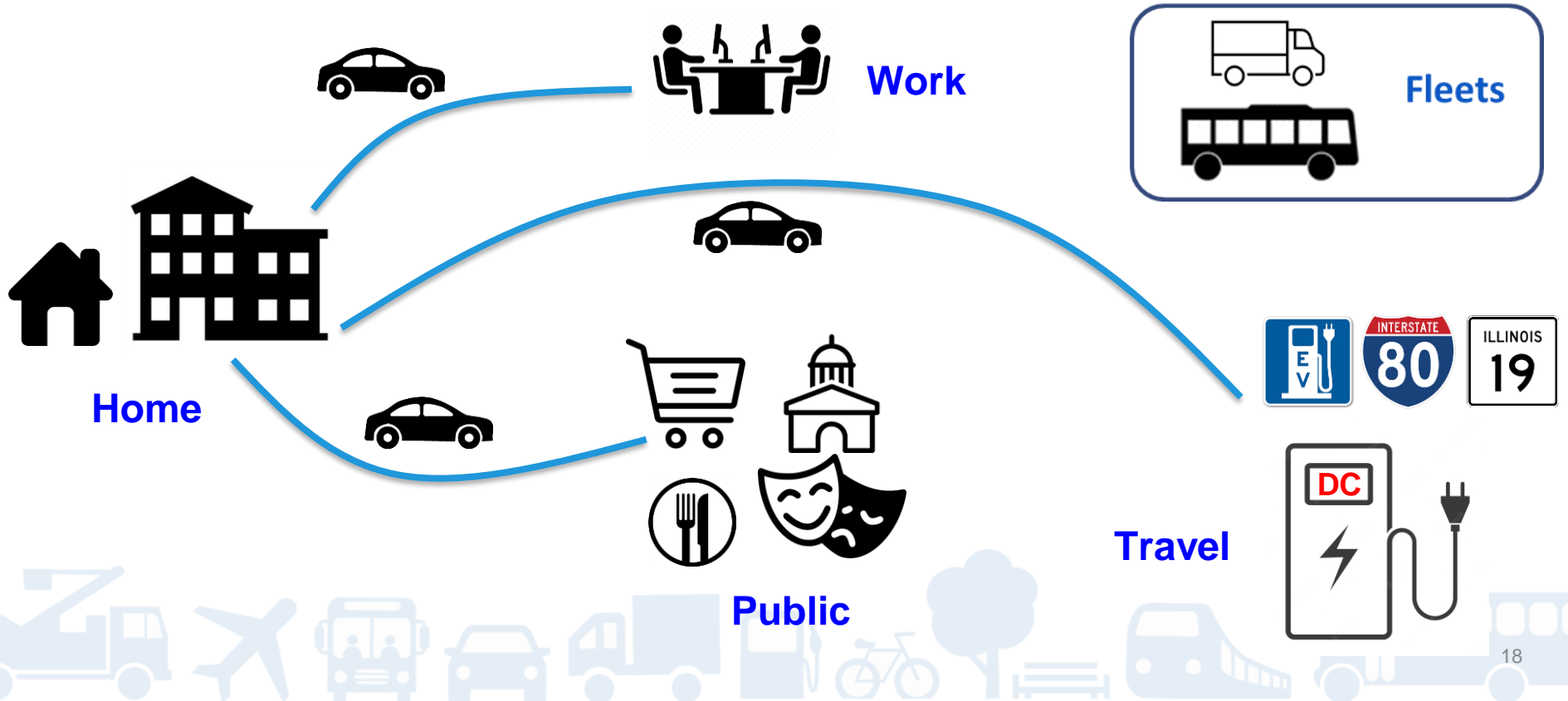
TIM MILBURN



December 1, 2022



# EV Charging Ecosystem





# EV Supply Equipment = EVSE

Equipment that delivers electrical energy from an electricity source to charge plug-in EVs

## ➤ EV Charging Stations



Level 2 EV Charging Stations

## ➤ Portable EV Chargers

- Plug into standard (NEMA) outlets



Level 1 Portable  
EVSE & 120 V Outlet



Level 2 Portable EVSE  
& 208/240 VAC Outlet

NEMA – National Electrical Manufacturers Association



# EVSE Levels



Level	1	2	DCFC
<b>Main Applications</b>	<ul style="list-style-type: none"> <li>- Residential</li> <li>- Workplace</li> </ul>	<ul style="list-style-type: none"> <li>- Public</li> <li>- Fleets</li> <li>- Single Family</li> <li>- Workplace</li> <li>- Retail</li> <li>- Multi-Family</li> </ul>	<ul style="list-style-type: none"> <li>- Charging Businesses</li> <li>- Fleets</li> </ul>
<b>Options</b>			
<b>Mobile / NEMA plug</b>	✓	✓	No
<b>Hardwired</b>	✓	✓	✓
<b>Retractable Cord</b>	Uncommon	✓	✓
<b>Networked</b>	None or WiFi	None, Cell and/or WiFi	Cell
<b>Metering/ Billing</b>	Home Meter/ On Bill	Home Meter/ On Bill Manual to Automated	Automated

# Acceptance Rate

*Not all EVs charge the same!*

- When providing AC or DC power, the **EV regulates** the amount that goes to the battery

**= Acceptance Rate**

- EV Chargers with more power capacity will only charge at the rate the EV allows
- **Influences what EV and what EVSE you buy**

EV	Battery Capacity kWh	Acceptance Rate, kW	
		AC (L2)	DCFC
Chevy Volt	25	3.3	N/A
Nissan Leaf	40	6.6	150
Chevy Bolt	66	7.2	50
Tesla X/S	100	14.4	200
Ford Mach E	100	10.5	150
Nissan Ariya	99	7.2	100
Ford E-Transit	67	11	130
Lucid Air	113	19.2	350

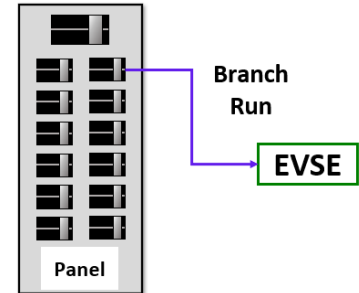


# EV Charging Infrastructure (EVCI) Terms

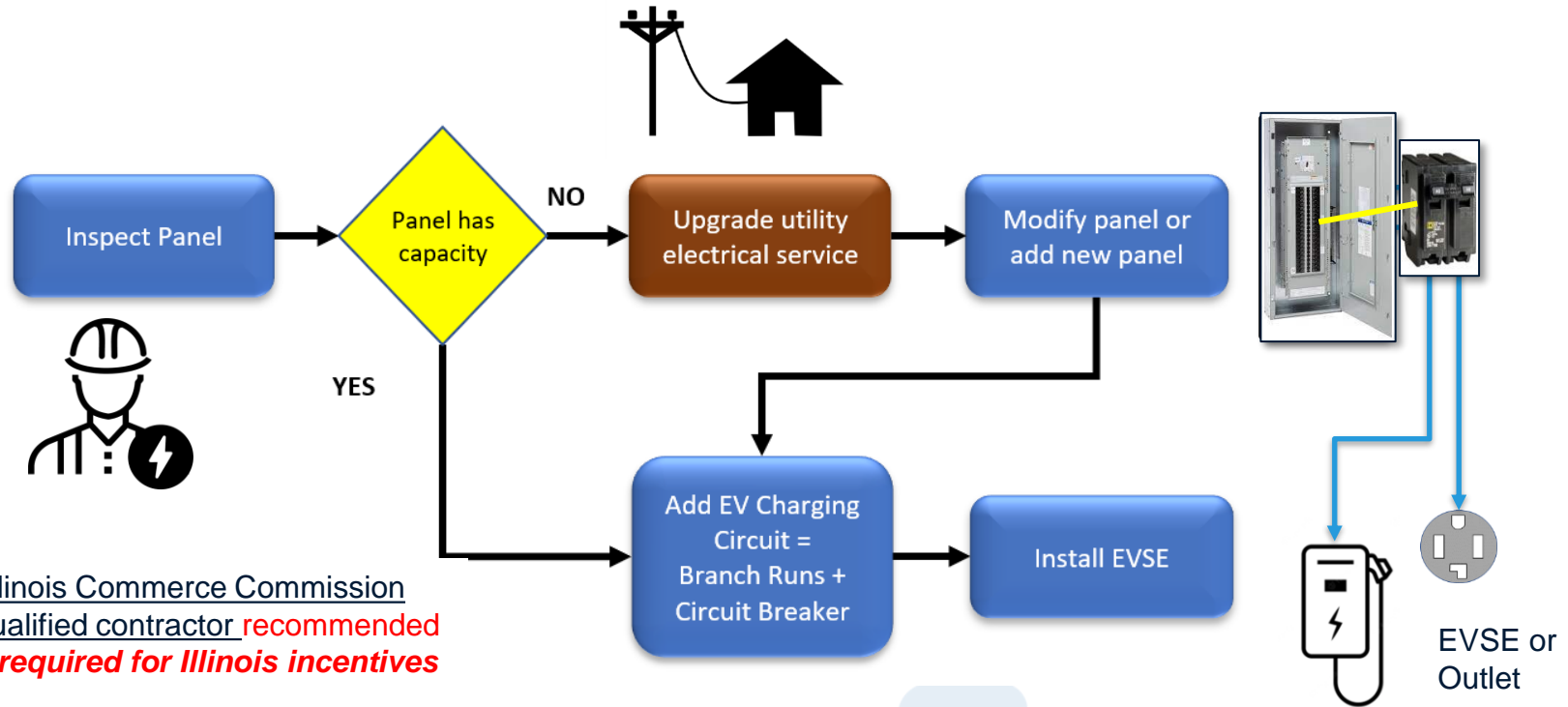
1. Electrical panels - circuit breaker panels
2. Electrical load – amount of amperage used when EV is charging
3. Circuit breaker - safety device set to trip at 125% of load
4. Branch run = conduit and wiring *branching* from panel to EVSE
5. Networking - cellular and/or WiFi wireless communication to manage billing and reporting



Panel and Circuit Breaker



# Basics of EVCI Planning



- Use of Illinois Commerce Commission (ICC) Qualified contractor **recommended**
- ***May be required for Illinois incentives***

- Circuit should be dedicated to EV Charging (even Level 1)
- More complicated for larger facilities



# EV Charging Decision Steps

1. Work with consultant / installer
2. Identify EVSE **location(s)**
3. Determine charging level(s) (L1, L2, DCFC)
4. Determine building **power capacity supply** and any need to increase
5. Identify **acceptance rates** of EVs using EVSEs
6. Determine whether EV charging will be **dedicated and/or shared**
7. For shared facility power
  - Estimate **demand**
  - Determine scope and cost sharing splits

# EV Charging Decision Steps

## 8. Define **how electricity costs are paid** *for shared resources*

- Who pays what?
- Automatically?
- Using network?
- Methods of cost recovery, if applicable?

## 9. **Select EVSE**

## 10. Determine applicability of Federal and State **incentives**

## 11. For networked solutions, assess **signal strength**, needs for **signal boosting**

## 12. Determine **parking area modifications** (trenching, striping, signage, bollards, ADA compliance)

## 13. Consider comprehensive **Site Evaluations** to assess facility electricity **supply** and **investment** scenarios

## 14. **Plan for future** - power and space

# Cost Ranges for EVSE and EVCI

EVSE Costs				
Level	Type	Networked?	Low Cost	High Cost
L1	Mobile	NO	w/EV	\$ 300
L2	Mobile	NO	\$ 500	\$ 700
L2	Hardwired	NO	\$ 700	\$ 1,200
L2	Hardwired	YES	\$ 2,000	\$ 6,500

- Key cost variables: branch distance, power level, utility upgrades
- Wide variation in amount of new infra needed for multiple space parking
- Power sharing can be used to extend EVCI, reduce costs

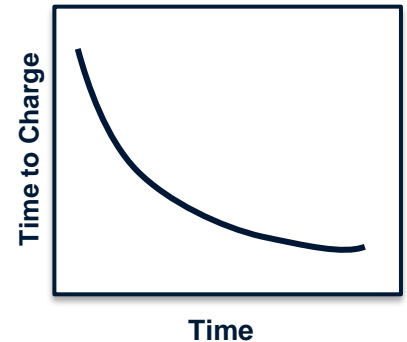
EV Branch Run Costs			
EV Charging Branch Runs	Host	Low Cost	High Cost
Level 1 Branch Run	SFD	\$0	\$1,500
Level 2 Branch Run	SFD	\$800	\$2,000
Level 2 Branch Run	MFD, Workplace, Public	\$2,500	\$12,000
Other EVCI Costs (new panels, transformers, etc.)			
Level 2 other EVCI - per space	MFD, Workplace, Public	\$3,000	\$7,000

SFD= Single Family Dwelling, MFD = Multi-Family Dwelling

TOTAL EVSE AND EVCI: per EVSE					
Level	Type	Facility	Networked?	Low Total Cost	High Total Cost
L1	Mobile	SFD	NO	\$0	\$1,800
L2	Mobile	SFD	NO	\$1,300	\$2,700
L2	Hardwired	MFD, Workplace, Public	NO	\$3,200	\$21,400
L2	Hardwired	MFD, Workplace, Public	YES	\$4,500	\$ 25,000

# Trends in EV Charging

- Ubiquity on major roads – Federal Programs: DCFC every 50 miles
- Higher power EVSEs
  - **Level 2 Charging**: up to 22 kW (*~80 range miles per hour*)
    - Still charge older EVs
    - Newer EV Acceptance Rates increasing to suit
  - High Powered DCFC **up to 350 kW**
    - 200 miles in 10 minutes if acceptance rates allow
    - Recharge larger EVs



# Trends in EV Charging

- **Integration of EV Charging with:**

- Renewable energy
- Energy storage
- Vehicle to Grid (V2G) Integration
- Grid load optimization



- ☐ Reduced Consumer Costs
- ☐ Reduced emissions

= ***Beneficial Electrification***





# THANK YOU!



**Tim Milburn**

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**[www.greenways2go.com](http://www.greenways2go.com)**



*Equitable, **M**obility, **P**owering **O**pportunities for **W**orkplace Electrification **R**eadiness*



# EMPOWER

## WORKPLACE CHARGING

**Angela Tin**

*Co-Coordinator & Board Member*

*Chicago Area Clean Cities*

*December 1<sup>st</sup>, 2022*



# EMPOWER Workplace Charging Program Overview

- National Workplace Charging focused project
- Workplace outreach, education, and technical assistance
- Partnership between 32 Clean Cities Coalitions, utilities, data partners, and other stakeholders
- Address barriers to reliable access to a charging station
- 40% of outreach, commitments, and installations must occur within underserved communities or at employers that benefit those communities



**EMPOWER**  
WORKPLACE CHARGING



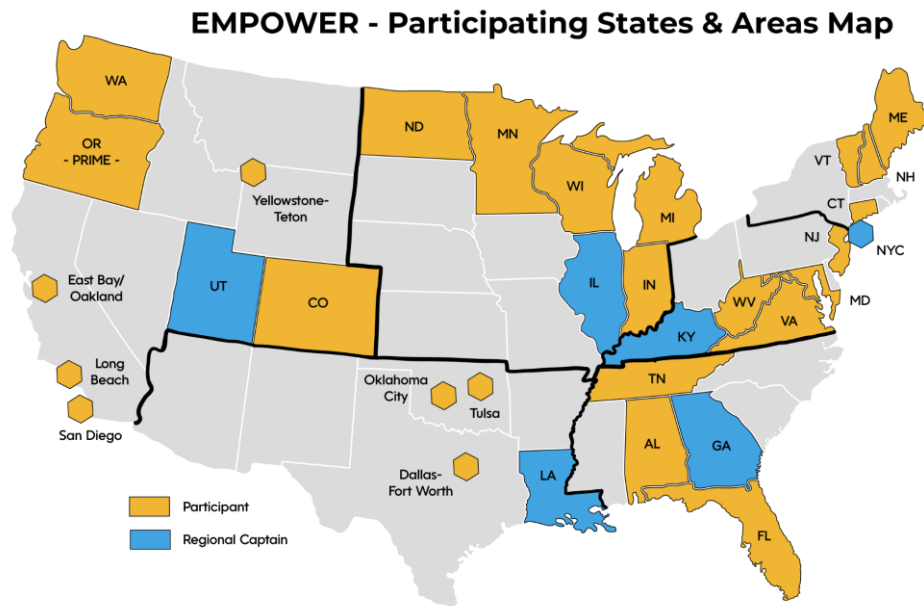


# EMPOWER

## WORKPLACE CHARGING

### Six Regional Captains

- Utah
- Louisiana
- Georgia
- Kentucky
- Illinois
- New York



2022-2025



# EMPOWER Workplace Charging Program Goals and Objectives

## *Illinois Specific Goals*

- ✓ **80** workplaces contacted
- ✓ **50** workplaces engaged
- ✓ **30** workplace commitments
- ✓ **24** EVSE ports installed
- ✓ **40%** of project benefiting underserved communities

- Advance workplace charging
- Advance EV charging research
- Advance access to EVSE technician education

# EMPOWER Workplace Charging Program Benefits

## *Employer*

Reduce range anxiety for your employees, increased employee satisfaction

Maximize benefits from federal and state incentives

Demonstrate company's commitment to sustainability and public health benefits

## *Employee*

Increased fuel efficiency

Potentially reduce maintenance costs from using all-electric over conventional vehicles

Reduce home charging time and energy costs



**EMPOWER**  
WORKPLACE CHARGING





# EMPOWER

WORKPLACE CHARGING



**Angela Tin**

Co-Coordinator & Board Member

**Chicago Area Clean Cities**

[Angela.Tin@lung.org](mailto:Angela.Tin@lung.org)



**Tara Brooks**

**Chicago Area Clean Cities**

[Tara.Brooks@lung.org](mailto:Tara.Brooks@lung.org)

Please contact Angela Tin or  
Tara Brooks if you or  
someone you know is  
interested in engaging with  
the **EMPOWER** project.

**Thank you**







# Federal Incentives: Inflation Reduction Act

## EV TAX CREDITS

### 2023 - 2032

- Clean Vehicle Tax Credit eliminates manufacturer sales cap, adds vehicle MSRP and household income limits, minimum battery capacity of 7kWh, and requires domestic critical sourcing and battery component manufacturing and assembly.
- Pre-Owned EV Tax Credit becomes available

### 2024

- Clean Vehicle Tax Credit expected to make “on the hood” tax credits available at time of vehicle purchase





# Federal Incentives: Inflation Reduction Act

## Tax Credits for New EVs

- Up to \$7,500
- Vehicle eligibility:
  - Must meet Critical Materials requirements
  - Must meet Battery Components “ “
  - MSRP must be \$80,000 or less for vans, SUVs, pickups
  - MSRP must be \$55,000 or less for all other vehicles
- Modified adjusted gross income must be below:
  - \$300,000 for joint filers
  - \$225,000 for head-of-household filers
  - \$150,000 for single filers

**Critical Minerals:** To be eligible for the \$3,750 critical minerals portion of the tax credit, the percentage of the value of the battery's critical minerals that are extracted or processed in the United States or a U.S. free-trade agreement partner or recycled in North America, must increase according to the following schedule:

Year	Critical minerals minimum percent value requirement
2023	40%
2024	50%
2025	60%
2026	70%
2027 and later	80%

**Battery Components:** To be eligible for the \$3,750 battery components portion of the tax credit, the percentage of the value of the battery's components that are manufactured or assembled in North America must increase according to the following schedule:

Year	Battery components minimum percent value requirement
2023	50%
2024 and 2025	60%
2026	70%
2027	80%
2028	90%
2029 and later	100%

[afdc.energy.gov/laws/409](https://afdc.energy.gov/laws/409)

Additional requirements may apply. Further guidance is forthcoming.



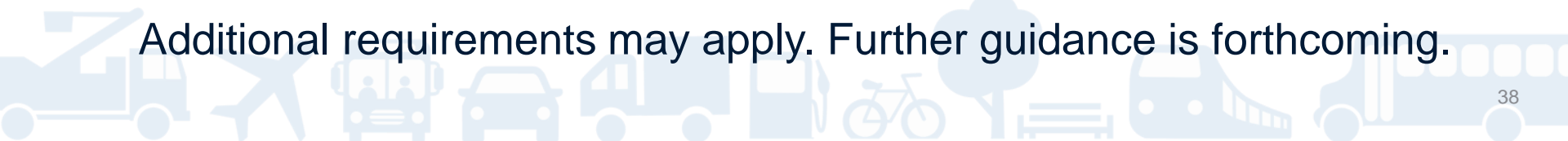
# Federal Incentives: Inflation Reduction Act

## EV TAX CREDITS

### Pre-Owned EVs

- Up to \$4,000
- Vehicle eligibility:
  - Must be at least two model years old
  - Purchase price must be \$25,000 or less
  - One tax credit available per vehicle
- Individual eligibility:
  - Gross annual incomes must be below:
    - \$150,000 for joint filers
    - \$112,500 for head-of-household filers
    - \$75,000 for single filers
- May only claim one pre-owned vehicle tax credit in a three-year period

Additional requirements may apply. Further guidance is forthcoming.





# Federal Incentives: Inflation Reduction Act

## EV TAX CREDITS

### Clean Vehicle Tax Credit Beginning 1/1/23

- Further guidance forthcoming
- [afdc.energy.gov/laws](https://afdc.energy.gov/laws)

#### Alternative Fuels Data Center

FUELS & VEHICLES

CONSERVE FUEL

LOCATE STATIONS

LAWS & INCENTIVES

Maps & Data

Case Studies

[EERE](#) » [AFDC](#) » [Laws & Incentives](#)

#### Federal and State Laws and Incentives

Find federal and state laws and incentives for alternative fuels and vehicles, air quality, fuel efficiency, and other transportation-related topics.



Federal

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[Key Federal Legislation](#)



State

[Recent State Updates](#)

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select a state ▼



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by category or keyword



See All

in summary tables

[Bipartisan Infrastructure Law](#)

[Inflation Reduction Act](#)

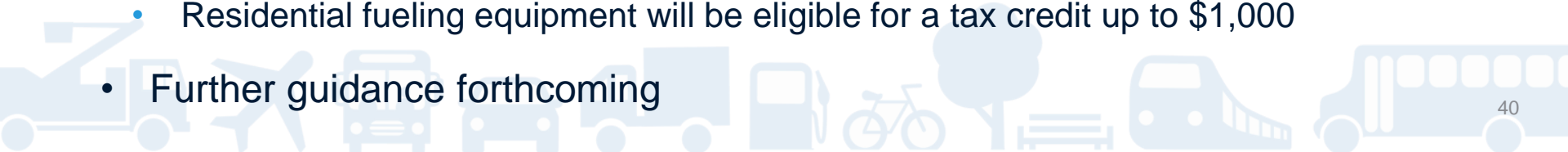
Clean Vehicle Credit: Learn about the [electric vehicle tax credit](#) and find [EVs assembled in North America](#).



# Federal Incentives: Inflation Reduction Act

## EV CHARGING TAX CREDITS

- **2023 - 2032**
  - Eligible fueling equipment **MUST** be installed in locations that meet census tract requirements:
    - A population census tract where the poverty rate is at least 20%; or
    - Metropolitan and non-metropolitan area census tract where the median family income is less than 80% of the state medium family income level.
  - Eligible projects must meet apprenticeship and prevailing wage requirement
  - Residential fueling equipment will be eligible for a tax credit up to \$1,000
- Further guidance forthcoming





# EV Resources

ComEd: EV Model Information

US Dept of Energy

- EV Basics
- Maintenance and Safety of EVs
- EV Emissions

American Lung Association Sponsored US EV Info List





# EV Charging Resources

ComEd: EV Charging Readiness

CACC Webinar: Electric Vehicle Charging for Multi-Unit Dwellings

US Dept of Energy

- EV Charging Station Locator
- EV Charging Infrastructure Trends

Illinois Commerce Commission: EV Charging Station Qualified Installers

Forbes: Best Home EV Chargers for 2022







# EV & Charging Incentives

## ILLINOIS

- EV Rebate Program (11/1/2022 - 1/31/2023)
  - CACC Webinar: Illinois EV Rebate Program

## FEDERAL

- Inflation Reduction Act (IRA, Nov 2022)
  - **Income qualified** tax credits on EV Charging
  - Up to \$7500 tax credit – **Buy America requirements**



## What is Your Role?

Quickly access the right resources for you.



Resident



Apartment building management



HOA

**CACC Webinar: EV Charging Solutions for Multi-Unit Dwellings 10/19/22**

**EVCI solutions for Multi-Unit Dwellings**  
**[www.VCI-MUD.org](http://www.VCI-MUD.org)**

# Questions



**Samantha Bingham**  
Chicago Dept. of  
Transportation



**Erica Borggren**  
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**Tim Milburn**  
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Illinois Environmental  
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American Lung  
Association



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**Chicago Area Clean Cities Coalition**

