Go Green ILLINOIS

January 9, 2024

EVS AND EV CHARGING BASICS
MULTIPLE FAMILY DWELLING FOCUS

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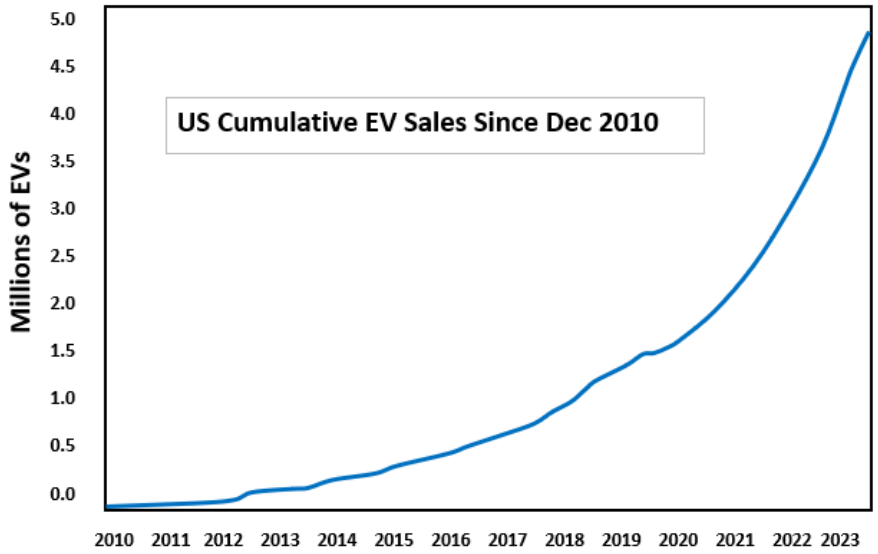
PEV Sales History

- 280 Million total vehicles on the road *globally*
- Plug in EVs (PEV) Counts
  - New US Sales : ***10%*** EVs in 2022 (passenger)
  - 91,000 Illinois (12/2023)
  - Target: IL: 1 million by 2030
- Several major cities, countries, automakers eliminating ICEVs



Source: *Argonne 2023*

PEV = Plugin EV (BEV+PHEV)
BEV = Battery Electric Vehicle
PHEV = Plugin Hybrid Electric Vehicle

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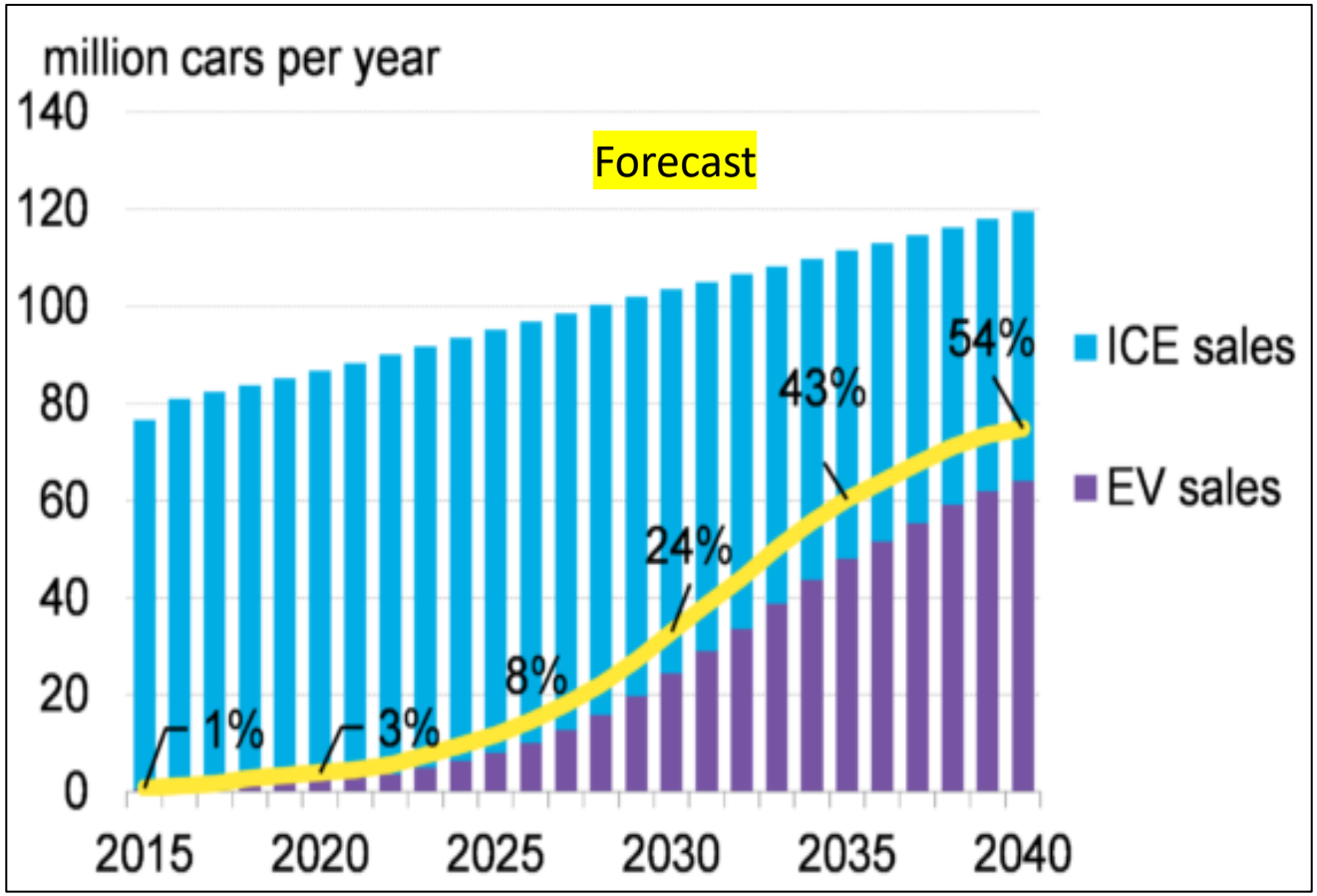
ICEV = Internal Combustion Engine Vehicle

PEV Sales Forecast



Source: Bloomberg New Energy Finance

ICE = Internal Combustion Engine

EV Supply Equipment (EVSE)

Range Miles per Hour Connected

- **AC Charging: AC in AC Out**
  - **Level 1:** 110 Volts — **3 to 5**
  - **Level 2:** 208/240 Volts — **20 to 75**

- **DC Fast Charging: AC in DC Out**
  - 480+ Volts
  - Sometimes called *Level 3* charging

75 to 600

Recharge rate depends on voltage x amperage

AC = Alternating Current
DC = Direct Current

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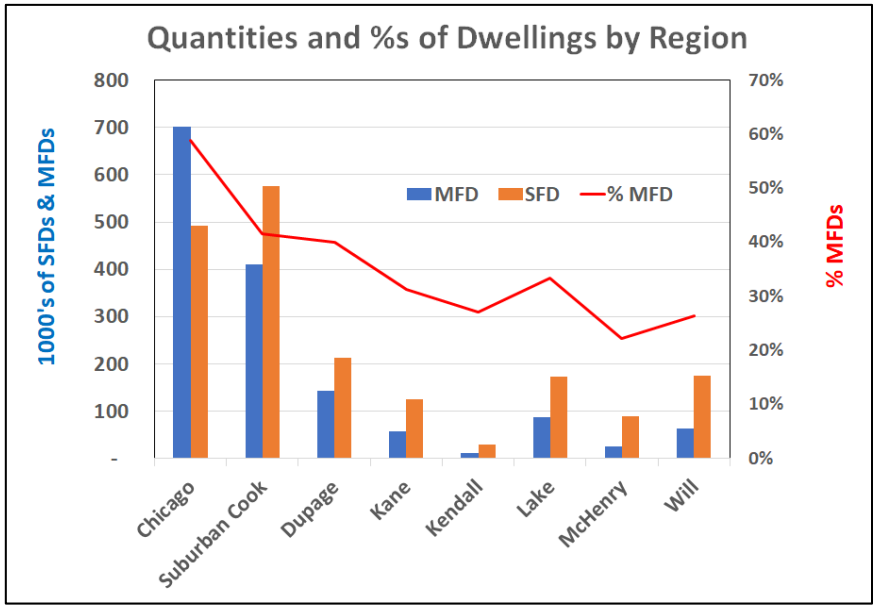
MFD Challenges

Goal: reduce climate change by electrifying transportation

- *Challenges* –
  - **Getting MFD residents to buy EVs**
  - **Justifying investments**



MFD = Multiple Family Dwelling
SFD = Single Family Dwelling

MFD Type Defines EVSE (Typical)

HPA = Home Owner Association

MFD Variables

- Cost Sharing – facility vs. resident/ EV Drivers
- Cost Recovery methods
- Affordability of EV infrastructure goals
- Incentives
- Facility vs. resident incentives : who gets, how much
- Metering and billing – automated, semi- automated, manual, none?
- Rate structures: consumption and demand fees
- Phased solutions – smart investing

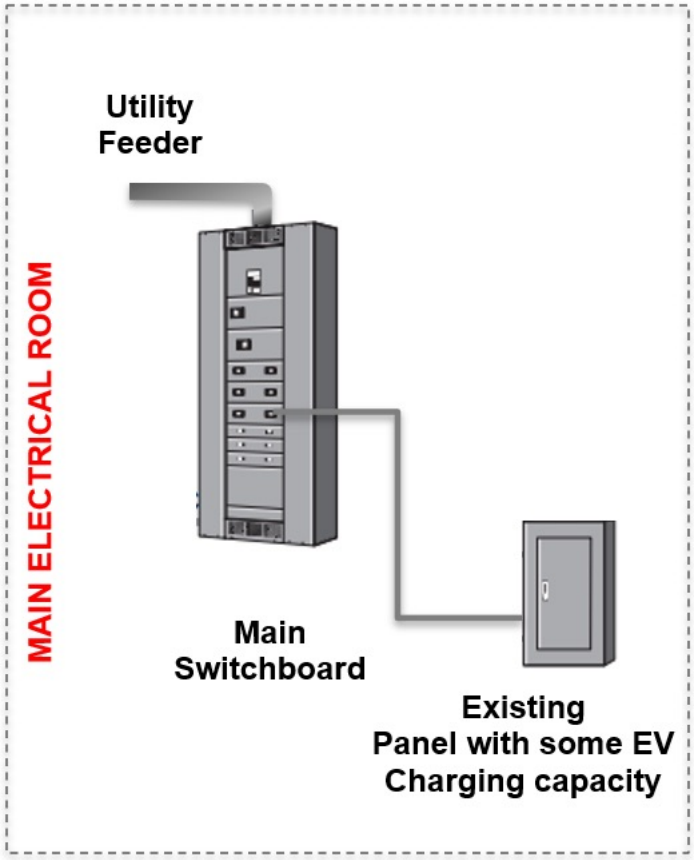
Supply and Demand

Power supply must be ≥ power demand

- Power demand
  = # of EVs x charging rate
  (kilowatts, kW)
- Facilities need to plan supply based on assumptions in growth in demand

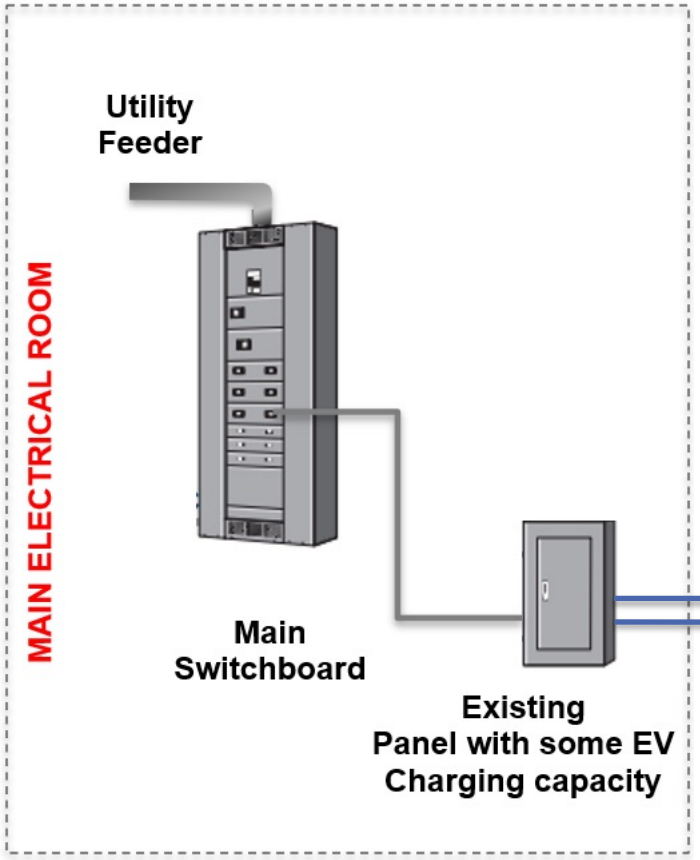
Supply AS-IS Example

Existing Electrical Infrastructure



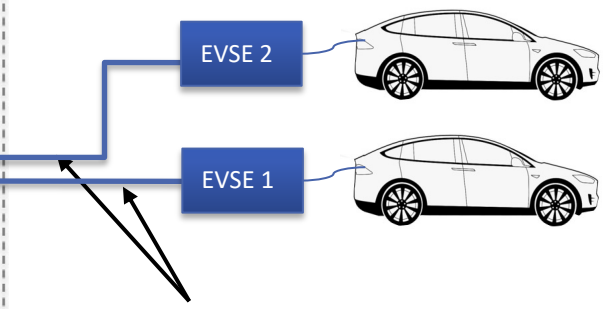
Supply: Using Existing

Existing Electrical Infrastructure



New Electrical Infrastructure

In MFDs, typically – there is capacity for a *few* EV charging circuits



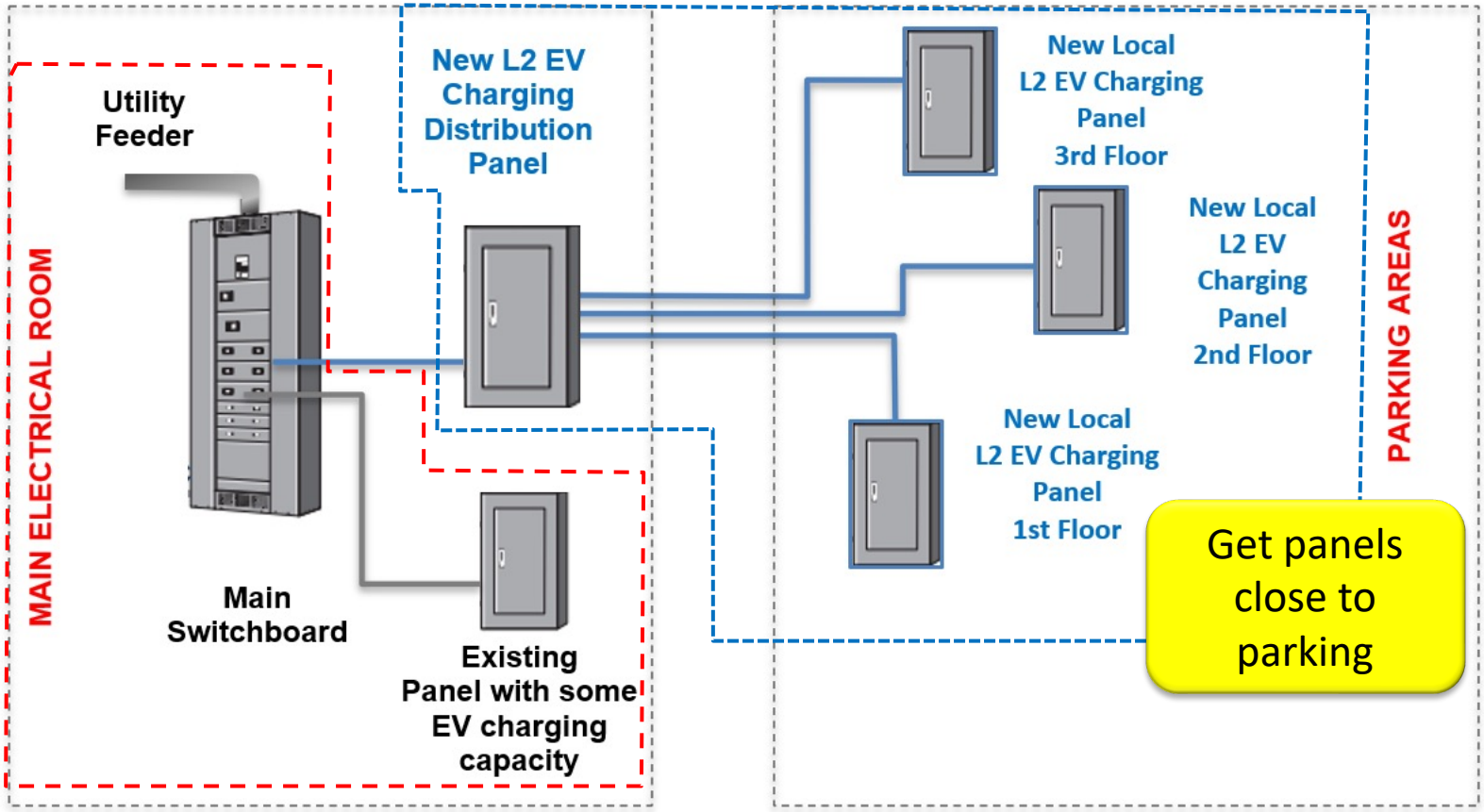
Branch Run Circuits

EVSE = EV Supply Equipment

Supply: Adding Panels

Existing Electrical Infrastructure

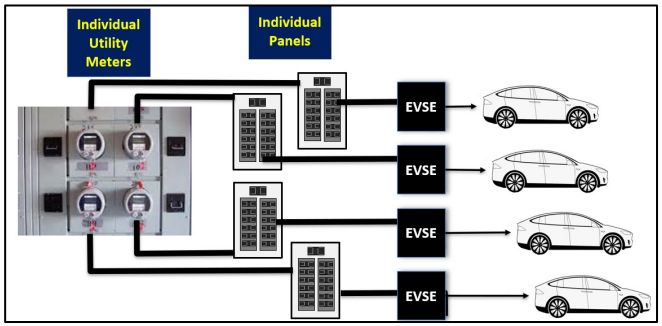
New Electrical Infrastructure

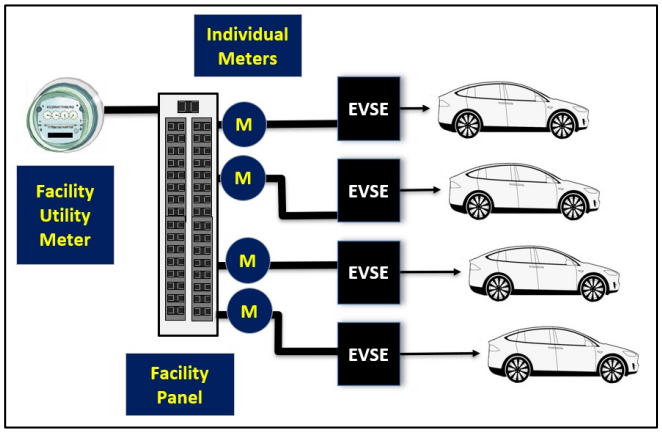


Also called "Make Ready" Infrastructure

Metering & Billing Choices

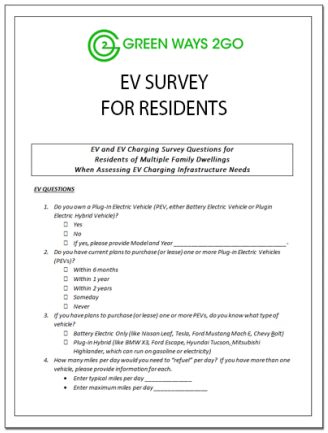
- *Resident's meter*
  - Part of monthly bill
- *Facility's meter*
  - Must separate EV charging from other uses
    - EV charging station meter
    - Manual metering & billing
    - No Metering – agreed upon payments (or free)





Determining Demand Profiles

- Resident surveys recommended
- Educate stakeholders
- Interest grows with knowledge
- Keeping up with the Joneses – advertise “EV Ready”
- Illinois new construction of MFDs require ALL spaces to be EV Capable: 1-1-2024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EV SURVEY
FOR RESIDENTS

EV and EV Charging Survey Questions for Residents of Multiple Family Dwellings When Assessing EV Charging Infrastructure Needs

EV QUESTIONS

1. *Do you own a Plug-In Electric Vehicle (PEV, either Battery Electric Vehicle or Plugin Electric Hybrid Vehicle)?*
   - ☐ *Yes*
   - ☐ *No*
   - ☐ *If yes, please provide Modeland Year _____.*
2. *Do you have current plans to purchase (or lease) one or more Plug-in Electric Vehicles (PEVs)?*
   - ☐ *Within 6 months*
   - ☐ *Within 1 year*
   - ☐ *Within 2 years*
   - ☐ *Someday*
   - ☐ *Never*
3. *If you have plans to purchase (or lease) one or more PEVs, do you know what type of vehicle?*
   - ☐ *Battery Electric Only (like Nissan Leaf, Tesla, Ford Mustang Mach E, Chevy Bolt)*
   - ☐ *Plug-in Hybrid (like BMW X3, Ford Escape, Hyundai Tucson, Mitsubishi Highlander, which can run on gasoline or electricity)*
4. *How many miles per day would you need to “refuel” per day? If you have more than one vehicle, please provide information for each.*
   - *Enter typical miles per day _____*
   - *Enter maximum miles per day _____*

Investment Cost Recovery

- ***Dedicated*** Charging (deeded, LCE Parking)
  - Make Ready Investment Recovery for EV Charging Infrastructure:
    - Upfront costs paid for by HOA or 3rd parties
    - Investments recovered:
      - ***Per parking space***: one time assessment fee
      - ***Per participant***: as EV drivers install EVSE
      - Is EV charging an amenity (like a swimming pool) and paid for equitably or should *only* those participating pay?
  - Resident commonly pays for **branch run and EV Charging Station**
  - Facilities should consider future value of EV Charging Infrastructure
    - Integrate in resale value of EV Ready spaces, if applicable
    - Advertise as amenity to future residents

Investment Cost Recovery

- ***Shared*** Charging (rentals, Co-Ops, assigned parking)
  - Make Ready Investment Recovery for EV Charging Infrastructure:
    - Upfront costs paid for by facility owner
    - Investments recovered:
      - Through usage fees – margin on facility's electrical cost
      - Through participation fees – one-time fees to support EVCI
        - » Participation fees may benefit from lower cost electricity

Incentives

- EVs
- EV Charging Stations
- EV Charging Infrastructure
- EV Energy (electricity)

EV Incentives

- Electric Vehicle Rebate Act (IEPA)
  - 2 tranches of $4000 incentives released
    - Next one TBD (2024)
  - Applies to new a nd used ***BEVs***
  - Residency requirements
  - 12 months ownership
  - 90 days after application
- IRS income tax credit
  - Up to $7,500 / EV – US manufacture, up to $80k
  - Up to $4,000/ used EV
  - Up to $40,000 /commercial EVs
- New 2024: Beneficial Electrification EV rebates (ComEd) – for fleets

Climate and Equitable Jobs Act

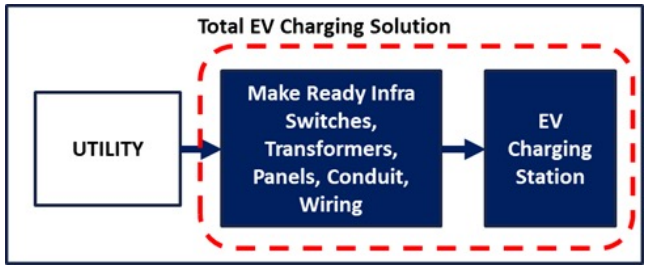
Date	Rebate Amount
7-2-2022	**$4,000**
7-1-2026	$2,000
7-1-2028	$1,000

EV Charging & Infrastructure Incentives

- **Electric Vehicle Charging Rebate Act (IEPA)**
  - November 2023: 1st tranche: Public charging stations
  - "Up to" 80% of make ready infrastructure
  - So far does not apply to MFDs

- **Residential IRS income tax credit**
  - 30% of costs up to $1,000, for income qualified

- **National infrastructure investments – 2024 through 2028**
  - $15 billion funded in EV charging infrastructure and EV charging stations
  - Covering 80% of investment costs
  - Goal – real ubiquity, capacity and remove range anxiety – like gasoline vehicles



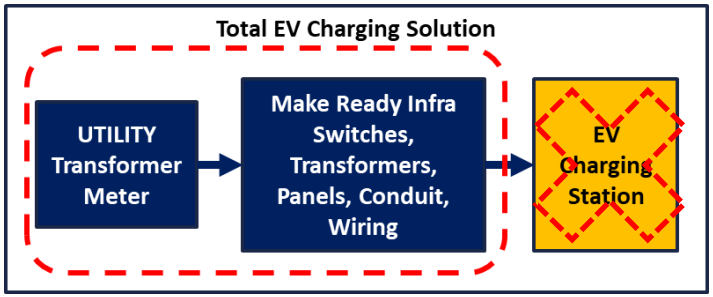
EV Charging Infrastructure Only Incentives

- **Beneficial Electrification**

  (ComEd Q1 2024)

  - Rebates for ***MFD*** Make Ready EV Infrastructure
    - Up to $5,333 per port
    - Up to $8,000 per port for income qualified
  - EV Ready scope – from utility to parking space
  - No EV Charging Station

Climate and Equitable Jobs Act



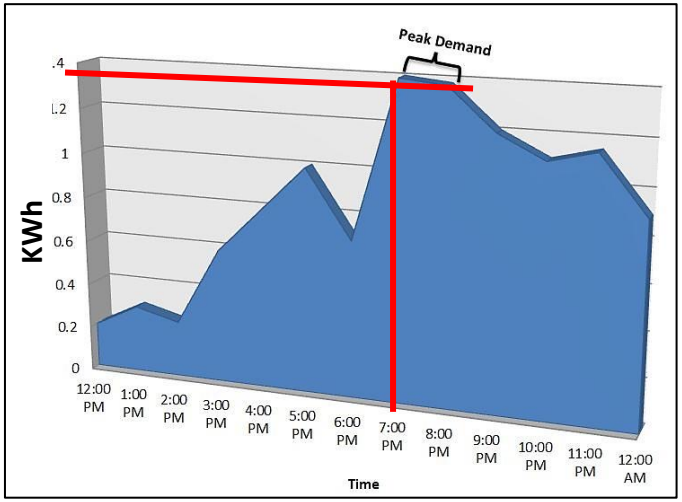
Energy Incentives

- **Beneficial Electrification**

  (ComEd Q1 2024)

  - **Bill for electricity consumption ONLY = kilowatt hours (kWh)**
  - **No peak demand charges**
  - **Requires dedicated meter for EV Charging**
  - **Works well in MFDs**

Climate and Equitable Jobs Act



THANK YOU

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