BOMA/Chicago
EV Charging Outlook

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charge everywhere

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EV adoption is happening much faster than anticipated — EV US sales projections for 2030 more than doubled, adjusted from an estimated **21% to 53% in the past 4 years.**
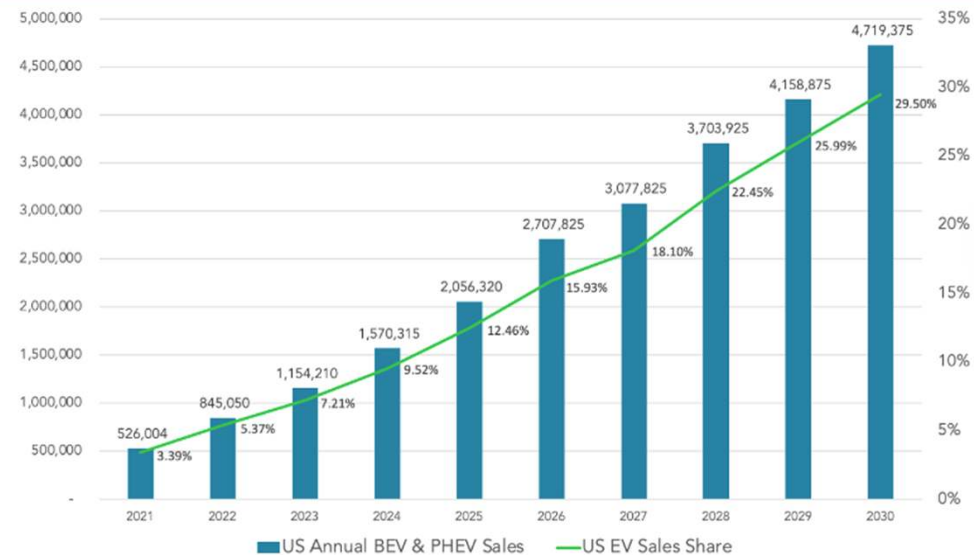
— Boston Consulting Group

EVs = 53% CAR SALES
2022 Report

EVs = 21% CAR SALES
2018 Report

Annual EV Sales - US

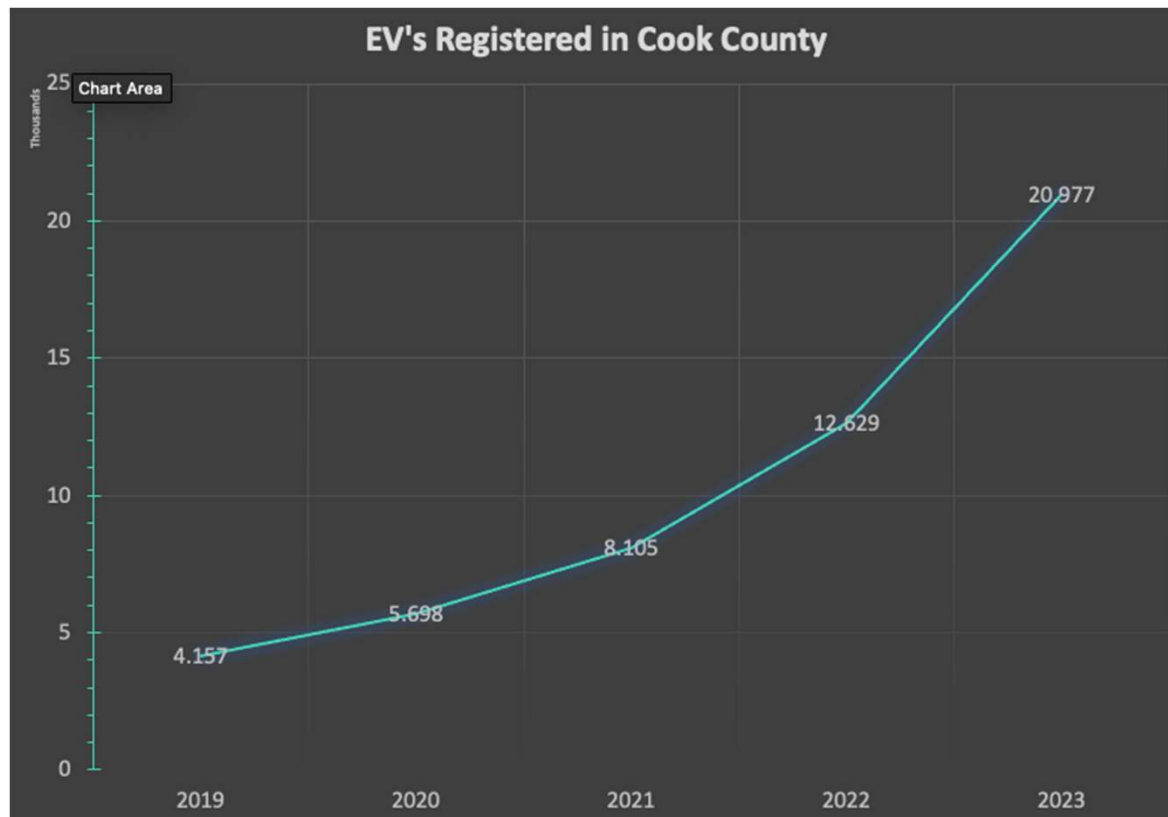US EVs (BEV & PHEV) Sales & Sales Share Forecast: 2021-2030

Through Q2 2022 there were 1.7 Million EV's on the road in the United States, compared to ~400,000 through Q2 2018.

Source: Evadoption.com

Local Outlook (EV Registrations in Cook County)

EV's Registered in Cook County

- 2019: 4,157
- 2020: 5,698
- 2021: 8,105
- 2022: 12,629
- 2023: 20,977

Data through July of each year.
Source: Illinois Secretary of State.

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Chicago Code: New Construction & EV Charging

- April 2020, The Chicago City Council approved an ordinance requiring new construction of residential and commercial buildings of certain sizes to ensure at least **20% of any supplied parking spaces are ready for electric vehicle (EV) charging equipment to be installed.**

- The new rules apply to:
  - Residential buildings with five or more units
  - Commercial buildings with 30 or more parking spaces.

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Illinois Senate Bill 40: Electric Vehicle Charging Act

❑ *Illinois will see the new Electric Vehicle Charging Act go into effect on January 1, 2024. The regulation forces new multifamily properties to offer EV charging for all residents.*

❑ For newly constructed large multifamily buildings or large multifamily buildings being renovated, 100% of parking spaces need to be "EV-capable."

❑ What does "EV capable" mean?

  ❑ EV-capable means the electrical capacity has to be established in the building, and conduit runs must be completed for future installation of EV chargers.

❑ The law requires enough capacity for dedicated 40 amp circuits with a minimum of 208 V or 240 V unless you have load management in place. Detailed electrical planning is advisable, with load management becoming a tool to reduce cost.

❑ Will Chicago update it's 2020 code?

Where will EV Charging Happen?

- The majority of EV charging will be done at home and work, <u>not gas stations</u>.

- Charging infrastructure should be sized according to use case and dwell time, in order to minimize costs.

- EV charging is becoming a standard amenity expected by residents, tenants, employees and guests.

- Networked charging provides the best experience for EV owners in buildings with fixed capacity constraints.

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Types of EV Chargers

	Level 1	Level 2	DC Fast
Charge Time	5 Miles/hr	20-30 Miles/hr	75+ Miles/hr
Amperage	15A	32A - 80A	25A – 350A
Output	1.8 kW	6.7 kW – 19.2 kW	25 kW – 250 kW
Cost	$500 - $1,5K / charger	$1K–10K / charger	$15K - $200K / charger
Connection Type	SAE J1772	SAE J1772	CCS & CHAdeMO
Setting / Use Case	→ Extremely low use	→ Multi-unit residential → Commercial → Public & retail	→ Highways → Retail & high-traffic public settings

Type	Capacity	Input	Estimated Mileage Added	Connection
L2	32A	240V	25 Miles/Hr	Wi-Fi or Cell
L2	40A	240V	30 Miles/Hr	Wi-Fi or Cell
L2	48A	240V	36 Miles/Hr	Wi-Fi or Cell
L2	80A	240V	60 Miles/Hr	Wi-Fi or Cell

Level 2 Charging – Range by Capacity

Type	Capacity	Input	Estimated Mileage Added	Connection
DCFC	60kW	480V	150 Miles/Hr	Cellular
DCFC	90kW	480V	275 Miles/Hr	Cellular
DCFC	120kW	480V	350 Miles/Hr	Cellular
DCFC	180kW	480V	500 Miles/Hr	Cellular

DCFC Charging – Range by Capacity

EV Charging: Amenity, Tenant Attraction and Retention

By adding electric vehicle (EV) charging stations to commercial buildings, we are:

- Promoting sustainability and reducing our carbon footprint.

- Improving tenants day-to-day.

- Eliminating tenants need to search for public charging stations, which saves time, and provides peace of mind.

- Differentiating your building from competitors to attract new tenants, while also retaining current tenants by providing a valuable and convenient amenity.

- Providing an additional source of revenue for the property.

How do drivers find charging stations?

Provider Specific Apps

- Network providers offer apps that show their nearby charging stations in a map format.

- The app allows the driver to create an account and save payment information for easy charging transactions.

- Drivers can favorite chargers along their usual route for easy wayfinding in the future.

- Competitors stations will not be listed.

Third Party Charger Map Apps

- Third party applications like PlugShare offer a complete map of electric vehicle stations.

- These apps are vendor agnostic, so all brands and providers will show up on the map as long as the stations are publicly available.

- EV drivers use these applications similarly to google maps and yelp to find and navigate to charging stations and leave reviews on their experience.

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Generating Revenue:
What to Charge for EV Charging

There are a variety of options for revenue generation, and no one right answer.

The most common pricing models**:**

- Pay-per-use: kWh Consumption or Time
- Flat Fee
- Free Amenity
- Access fees: Weekly or Monthly

What if my building doesn't have parking?

- Tenants are likely parking in a nearby garage. Send out a survey:
    - How important is EV charging access?
    - Do you park nearby? Which garage?
    - Does the garage have EV charging access?

    Together we can advocate for the parking garages your tenants utilize to add EV charging for their convenience.
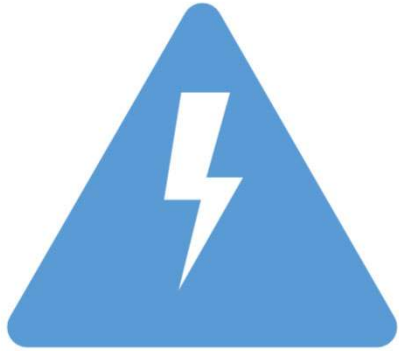
EV Charger Maintenance

Level 2

- Electrical Issues
- Connectivity Problems
- Cable and Connector Maintenance
- Environmental Factors
- User Error

DCFC

- Cooling System Maintenance
- Electrical Issues
- Battery Maintenance
- Cable and Connector Maintenance
- User Error

Networked EV Charging – Key Principles

Open Charge Point Protocol compliant hardware and software avoids the risk of stranded assets

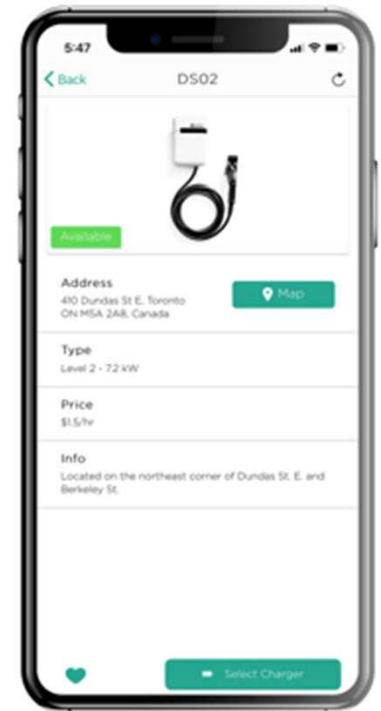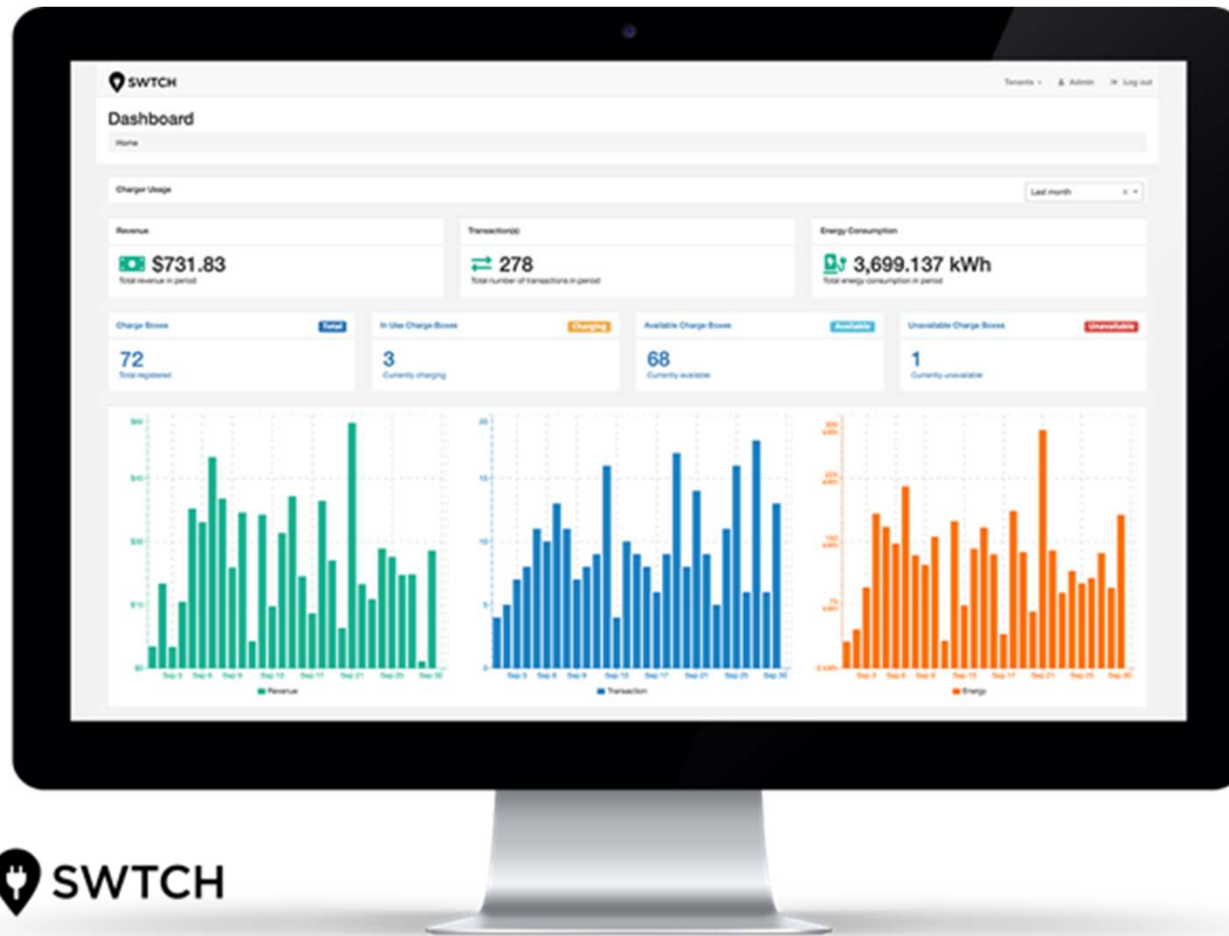Dynamic load management responds to driver, building and grid demands

Scale-able networked solutions meet immediate and future demands, while minimizing infrastructure costs

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Data Transparency

Dashboard with relevant data and metrics (transactions, energy usage, revenue, uptime/status)

Key Software Features

Precise access control

Customizable charging rate structures

Loitering enforcement

Real-time charging insights & comprehensive reporting

Turn-key driver billing & charging fee remittance

Why is OCPP-compliant EV charging equipment important?

Hardware benefits

When you select an OCPP-compliant hardware provider, you are open to certain freedoms that are unavailable to non-OCPP stations.

✓ Choose the EV software that is right for you

✓ Switch your EV software at any time

✓ Stimulate competition in the market

Software benefits

With OCPP-compliant charging management software, you get access to features that non-OCPP software cannot provide.

✓ Make your stations visible to a wider audience

✓ Manage all your EV charging hardware in one place

✓ Provide the best user experience

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Networked Chargers with Load Management

Available electrical capacity is shared among a group of chargers.

Smart energy management ensures that valuable electrical capacity is never sitting idle, supporting the greatest number of EV owners, while maintaining driver satisfaction and minimizing infrastructure costs.

Support up to 8x more EV owners with load management
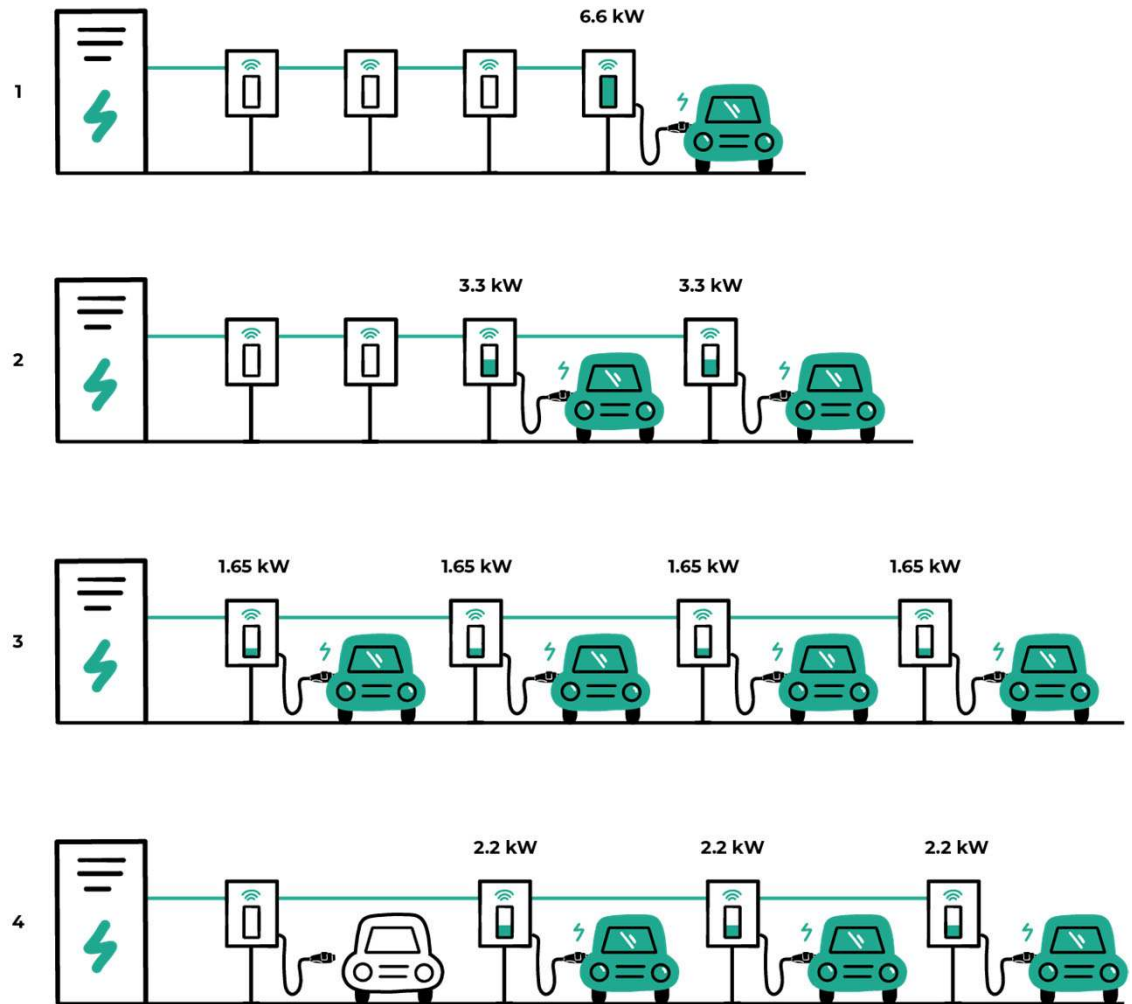
Discussion
and Thank You.

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