



Unraveling the Road to **EV CHARGING INFRASTRUCTURE**

JULY 2023

CTVG
CONVENIENCE TECHNOLOGY
VISION GROUP

We are Convenience Technology Vision Group (CTVG), a group of invited leaders of the convenience industry who have volunteered our time to help our fellow retailers, solution providers and product suppliers. The only reason we gather is to discuss, debate and share our experiences and ideas. Each of us is offering our personal opinions. We are not looking for “group think” — we are promoting problem solving and looking to the future. We make our conversations available to everyone in the industry through CTVG Vision Reports. These reports will help you better understand current challenges, solutions, and opportunities while giving you access to different opinions and perspectives, regardless of the size of your business.

Convenience Technology Vision Group is part of the Vision Group Network, whose mission is to gather the best minds in the industry, put them in a virtual room, and let the ideas and opinions develop.

This **CTVG Vision Report** is comprised of three parts:

CTVG Views provides an overview of the conversation with additional research for extra context — something that cannot be done in real time.

In the Room with CTVG provides you with the entire conversation so that you can be “in the room” with us, rather than simply reading selected quotes and paraphrasing.

C-Store EV Charging is the slide deck from John Gartner, senior director of transparency and insights at the Center for Sustainable Energy, who shared data and insights around EV charging infrastructure.

We highly recommend that you read all three components.

The main topics in this CTVG Vision Report:

Explosive EV growth

The role of utility companies

Government funding programs

Operators moving forward



CTVG welcomes our Ally Supporters



For retailers looking to connect with their consumers in an always-on world, Rovertown's app platform provides the flexibility needed to deliver personalized, meaningful experiences. Unlike our competitors, Rovertown integrates with any technology vendor and goes the extra step to ensure our clients' success through best-in-class implementation and support.

Rovertown was originally founded in 2009 with the goal of helping cost-conscious college students across the United States to access the best discounts for local food and services. By eliminating the need to swipe an ID for discounts, the experience was brought to students' mobile devices in real-time with custom, localized deals.

Rovertown's business has since grown and evolved, but the humble beginnings taught the team the power of personalized experiences delivered through high-quality, branded apps. The Rovertown app platform now powers the mobile experiences of many leading regional convenience retailers.

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W. Capra is a global professional services company focused on helping retailers and solution providers enable secure commerce everywhere. Leveraging our breadth of industry expertise and innovative thought leadership, we help our clients elevate the consumer experience, optimize operations, minimize risk and drive profitability. Our team of experts supports some of the world's most well-known consumer brands with their business and technology initiatives across the full project cycle, through Strategy, Technology, Operations, and Transformation services. No matter the size of the endeavor, our goal is to drive positive change and progress for our clients by providing unbiased, actionable insights and the hands-on experience required for execution.

W. Capra's original and largest service vertical is the Convenience & Energy Retailing industry. We have successfully led and continue to lead a range of U.S. and international projects for c-store operators, fuel distributors, and fuel brands of all sizes.

W. Capra has held or currently holds board or steering committee positions, working committee leads, or general industry participation in industry leading organizations such as NACS, Conexus, National Petroleum Energy Association (NPECA), the Transportation Energy Institute, and the Merchant Advisory Group (MAG).

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C-Store EV Charging

EXPLOSIVE EV Growth



A CONVENIENCE TECHNOLOGY VISION GROUP DISCUSSION

No one expects electric vehicle demand to wane in the year ahead. Quite the opposite, in fact. The Center for Sustainable Energy forecasts roughly 1.75 million electric vehicles will be sold in 2024.

That translates to almost 12% of total new vehicle sales, based on projections from Caret EV Planner, a software tool developed by the Center for Sustainable Energy, a San Diego-based nonprofit centered around clean transportation initiatives and incentives. By 2028, CSE anticipates that number will accelerate to 21% of total new vehicle sales.

While the growth continues to accelerate, EVs will still take a while to dominate the total share of vehicles in the marketplace, said John Gartner, senior director of transparency and insights at the CSE, who shared data and insights during the CTVG meeting on June 2, 2023. The slow transition is largely due to the fact that “there will be ample combustion energy, combustion engine vehicles on the road for many years to come,” he explained.

The bigger question, and one that CSE’s Caret EV Planner forecasting tool takes a shot at addressing, is the charging infrastructure

need in the future as the switch to electric vehicles moves forward. By 2028, based on the projected growth of EV sales, 210,000 public DC fast chargers will be needed to support the anticipated number of EVs on roads. Today, CSE reports roughly 22,000 DC fast charging locations exist in the U.S.

The math clearly doesn’t add up when comparing the forecasted number of vehicles with the number of direct current fast chargers. There will clearly be “a significant deficit,” remarked Donnie Rhoads, director of business development for The Convenience Group LLC.

“The market really does need to keep up,” Gartner noted. The incentives offered by the federal government are designed to do just that: pull the market forward and avoid being in a constant state of catching up to demand. Essentially the government is looking to mitigate the risk for businesses. By assuming the upfront cost, the thinking is the EV charging infrastructure can be established ahead of demand.

The private sector, which extends to a large array of entities that include office buildings,



CTVG Views

In The Room with CTVG

C-Store EV Charging

restaurants, retail stores, c-stores and more, will play a role in EV infrastructure. “There is plenty of opportunity for the private sector to add charging at retail locations,” Gartner pointed out. Indeed, he reasoned that if the private sector does not meet the future infrastructure need, the shortfall would likely mean congestion at the charging locations that do exist.

Dwell time becomes a factor in the EV charging

puzzle: Even with the fastest charging setup available, there is no disputing that charging a car takes significantly longer than pumping gasoline.

Common sense then dictates consumers may opt to recharge at a business they spend more time at than tends to be associated with a gasoline stop. For example, shopping at Target or while dining with friends at a restaurant

may seem the more optimal location to recharge a vehicle. The gas station/c-store visit comes with a shorter dwell time, which consumers may decide is not the ideal spot to recharge. However, the existing locations of c-stores/gas stations make the segment attractive for EV charging companies and fills many gaps in terms of the number of locations (there are still more gas stations/c-stores in a set radius than mass merchandisers, for instance). That’s particularly true for highway locations, which have been deemed essential by many in eliminating range anxiety (a consumer’s fear that their electric vehicle will not have enough charge to make it to their destination). The network of existing gas station locations already established likewise has the potential to reduce charge anxiety (fear of the ability to access a charge point).

C-store operators continue to evaluate the business case for investing in EV charging and many of the dominant players have already added at least a few EV charging stations. Convenience retailers also continue to explore the **federal programs now in play** that incentivize companies to start to build out the infrastructure that will support the anticipated influx of EVs on the road.



EV Charging Equipment Lingo

While the U.S. Department of Transportation breaks down three different charging levels to date, the overarching assumption is that power levels will increase over time, just as EV technology will advance. Charging will likely occur at a faster rate in the future.

Level 1: Charging occurs through a common residential 120-volt AC outlet.

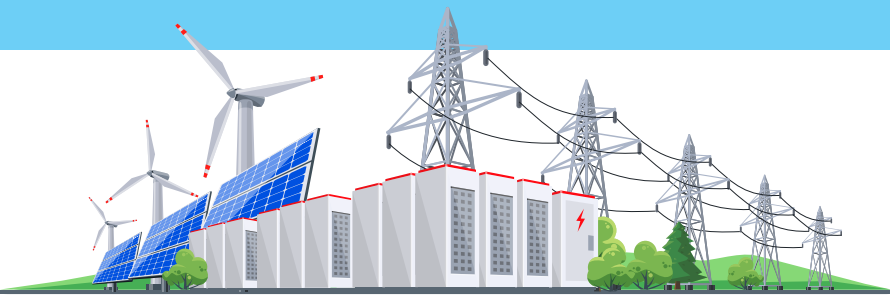
Level 2: Common in home and workplaces, this option can recharge a plug-in hybrid electric vehicle (PHEV) in less than 2 hours and a battery electric vehicle (BEV) in under 10 hours. Charging occurs through a 240-volt residential application or a 208-volt commercial application.

Level 3: Often referred to as direct current fast charging, DCFC equipment enables rapid charging equivalent to under one hour to charge a BEV to 80%. This equipment is becoming more common on highways. Most PHEVs do not work with fast chargers to date.

CTVG Views

In The Room with CTVG

C-Store EV Charging



Will Utility Companies Become Operators?

One contentious topic surfacing as EV charging infrastructure and the related funding sorts itself out across the U.S. is the potential role utility companies may play. Raymond Huff, president of HJB Convenience Corp., noted that in his operating market of Colorado the electric provider, **Xcel Energy, is proposing ratepayers fund the**

Essential EV Vocab

BEV = battery electric vehicle. It has a battery instead of a gasoline tank and an electric motor instead of an internal combustion engine.

PHEV = plug-in hybrid electric vehicle. It has a battery, an electric motor, a gasoline tank and an internal combustion engine.

EVI = electric vehicle infrastructure. The underlying foundation required to meet the growing demand for EV charging.

\$140 million cost to build a statewide Xcel Energy-owned high-speed EV charging network. He questions if this will create a monopoly and if the move would essentially cut out the convenience store operator since Xcel Energy would become an operator. It's a fair question without a clear-cut answer, but a few related developments in other states point to some likely future guidance on the topic.

The role utilities should play in EV charging infrastructure has been a debate in California for years now. Early pilot programs were meant to accelerate adoption of EV vehicles in the state. Then, in January 2023, California declared utility companies cannot own or operate EV charging stations. **Charge Ahead Partnership**, a coalition of businesses and associations that includes NACS along with many state associations and convenience store entities, has called California's former utility ownership a failure and stated that other states should pay attention to the lesson California's regulators learned. It's an ongoing debate in many states as to who ultimately will gain control of EV charging stations.

Other states may be taking notice of California's change of direction. In June, **Xcel Energy withdrew its request in**

Minnesota to use \$197 million in ratepayer funds to develop its own network of 730 EV charging stations. That decision was tied to the Minnesota Public Utility Commission's decision to approve a rate increase that was less than the original request. Xcel stated the decision will limit the company's ability to lead the clean energy transition for its customers.

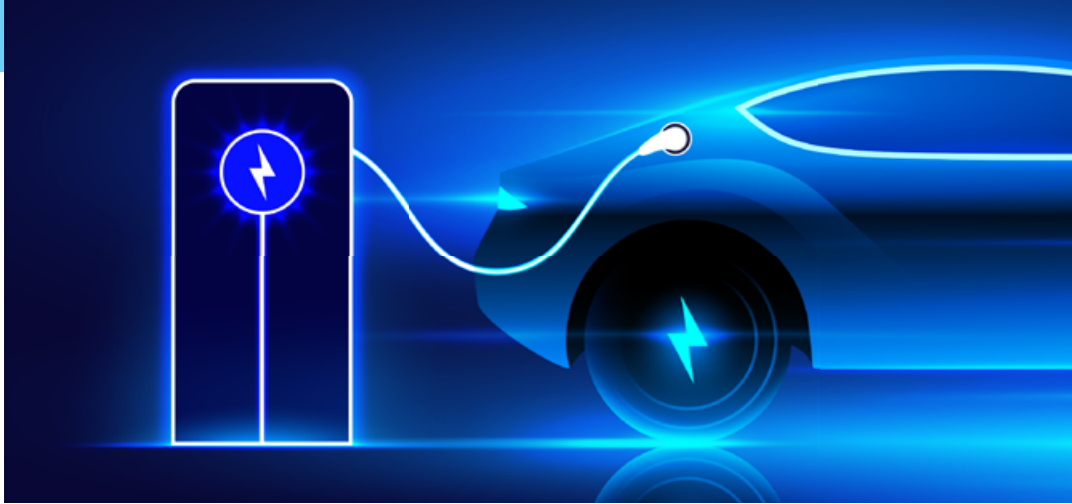
When it comes to developing EV charging infrastructure, utility companies tend to argue is that it is their legal obligation and responsibility to provide power to customers. If that customer happens to own an EV and they do not have a place to charge it, the utility company may view it as their duty to provide a place to charge, Gartner explained.

The role power companies will play in the development of EV infrastructure is an ongoing debate that swings in both directions, Gartner said, with no blanket rule for the whole country. There are different schools of thought on the topic and different utility commissions interpret it differently, but he does not feel utilities are pursuing a monopoly scenario. Involvement ranges from the full spectrum of hands-off to having a duty to serve. "I don't think it's going to be answered in one direction or another for quite some time," he added.

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In The Room with CTVG

C-Store EV Charging



Two Government Funding Initiatives

NEVI In-The-Know

The National Electric Vehicle Infrastructure Formula Program is the most widely used source of funding for EV charging infrastructure. **The Joint Office of Energy and Transportation** houses free recorded webinars online about the program and updates funding information regularly. Anyone can also sign up for new alerts; it's a comprehensive resource for tracking developments with NEVI.

Some states have already released plans for this funding. In other states Gartner noted that "the clock hasn't even started ticking yet" and no program details have been released.

"I think now is the time to really be investigating this," Gartner told CTVG members. "Because if convenience stores are not looking at it, many other retail locations are lining up." It amounts to a real estate race in his view. Where will charging occur? Restaurants? Stadiums? Businesses? "Any place that a car is going to stay for an hour or more is a potential location," he said, adding that there are many types of public and private entities that

all want to be part of the solution of charging infrastructure in the future.

Englefield Oil has already started the process of working with the NEVI program. Jason Collins, director of IT at Englefield Oil, shared that the Ohio-based fuel distributor and c-store owner is currently waiting to hear from the state regarding five locations the company submitted for NEVI back in January. He expects some locations will be awarded this summer with additional sites awarded in another round of funding under NEVI.

"It's a long process," Collins said. Assuming the five locations come through, he believes it will be 2025 or 2026 before the sites are installed and up and running.

CFI Basics

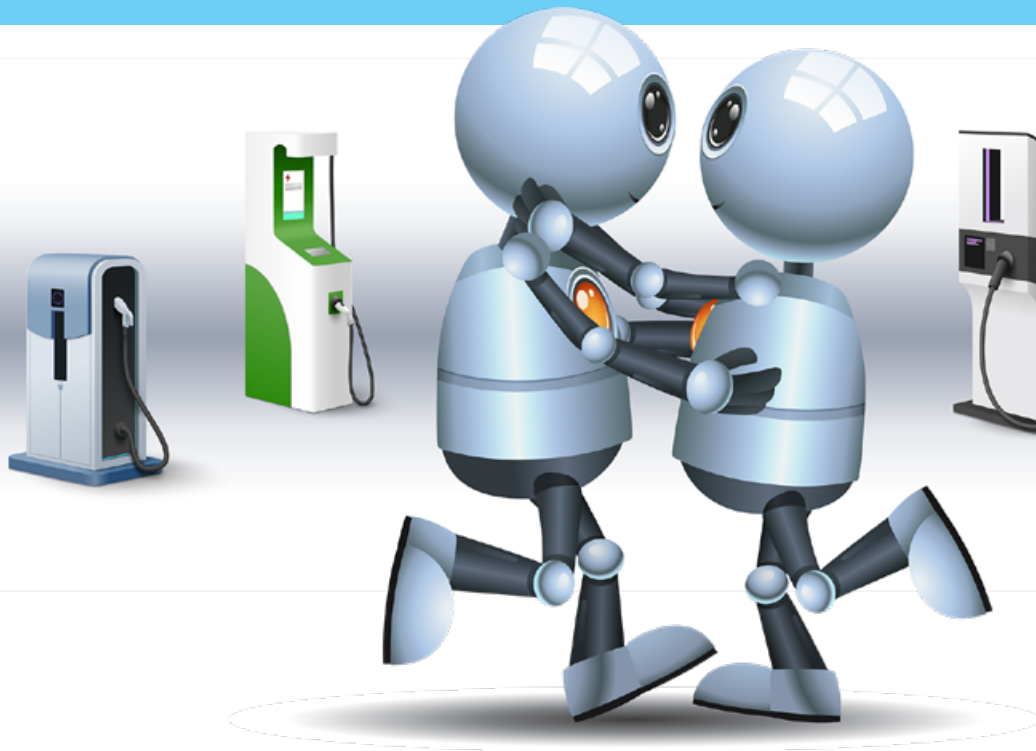
Another approach to funding EV infrastructure is with the **Charging and Fueling Infrastructure Grant Program**. The community charging piece of this prioritizes rural areas. In this case, a c-store retailer would first engage with their local municipality or a local public entity to process the application for funds, which would be passed along to the private applicant (for example, a c-store operator) for installation.

CSE has been working with a city that is doing just that: The city is putting in the application and then lining up a number of private entities. In this case, the city has no existing public charging sites, Gartner noted. The city is therefore reaching out to private entities, including office buildings and restaurants, etc., to pull the private and public sector together to build EV charging infrastructure in that town. In this scenario, he explained the city will decide the number of chargers, which locations will host charging sites, and who the operators will be.

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In The Room with CTVG

C-Store EV Charging



Who Leads?

In a partner dance, one person faces forward and the other winds up dancing backward as the pair travel across a dance floor. One leads, one follows. In the dance of EV charging developments, which entity is currently taking the lead is still up for grabs.

The answer is sometimes the utility company, sometimes the government, sometimes an EV manufacturer. As c-store operators continue to expand their knowledge, they are becoming more in tune with not only the speed at which they want to dance but what melody makes sense for them.

Take Casey's for example. The Midwest-dominant c-store retailer has roughly 40 EV charging stations in place throughout its network of 2,400-plus stores. Largely regarded

as a digital-forward company, Casey's takes the lead in the digital experience. Now, as EV charging has entered the picture, Casey's Director of Digital Guest Experience Mike Templeton, wants to understand how to connect it all together for the consumer. He sees this as the beginning of digital and loyalty programs in the EV era.

The charging experience for guests right now is a bit disconnected in Templeton's view. "We've had some conversations internally at Casey's to say 'Hey, we've got a robust loyalty program and robust digital experiences: What does it take to connect that to these charging experiences?' Because we know it works for us when we've got that there. But, so far, the charging experiences for guests are disconnected from that."

To date, there is often the brand identity of the c-store retailer, then a different brand identity at the EV charging station. Casey's has a long history of selling Casey's branded gasoline versus flying the flag of a Major Oil. Will we see proprietary branding for EV charging in the future?

CTVG Views

In The Room with CTVG

C-Store EV Charging

In a similar vein, Scott Smith, senior director of IT at Parker's Kitchen, is interested in figuring out the right incentives to entice EV charging station users to come into the store. In internal studies, he has found most EV charging station users sit in their car while it charges and then leave. Or maybe they come into the store to use the restroom and purchase a fountain drink. "We are not seeing the majority of [EV charging] customers come in and use the actual store experience that we have," he said. [Parker's Kitchen CEO Greg Parker shared additional insights on the topic

in a **The Business Case for EV Charging: Is It For You?**, a CLVG Convenience Retailing Vision Report.]

As technology progresses with EV charging stations, Smith believes how to integrate with the equipment — and ultimately the customers using them — will become an important question. "How do we say, charge with us and get a free coffee when you buy a breakfast sandwich?" he wonders.

Whether it's an EV charging customer or traditional gasoline customer, drawing them

into the store is critical, agreed Rance Wells, vice president of IT, Toot'n Totum Food Stores LLC. "It's all about getting the person from whatever they're doing at the dispenser into the store, always," he said.

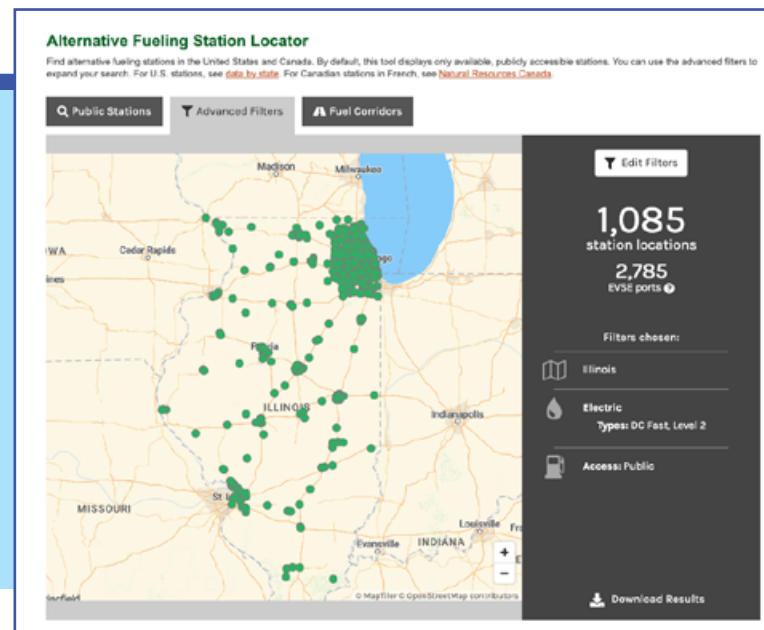
The range of where c-store retailers are in the process of thinking about EV charging infrastructure and customers varies greatly. More common may be the group of c-store retailers currently taking an install-and-watch approach to EV charging.

"It's really early on and we want to just see how this plays out," said Cheryl Szczesniak, executive vice president of human resources at Spinx Company. So far, she has been pleasantly surprised by the amount of people using the two Tesla charging stations Spinx installed. The six charging ports at one of their South Carolina stores are frequently in use at the site near a beach exit, she said. The company hasn't committed to aggressively expanding beyond what they have already installed, however.

Alternative Fuel Stations Data

The U.S. Department of Energy maintains a detailed database of alternative fuel station locations by state. This map shows station locations and details the number of electric vehicle supply equipment (EVSE) ports in Illinois — 2,727.

Source: U.S. Department of Energy



CTVG Views

In The Room with CTVG

C-Store EV Charging



SIDE VIEWS

Consider Maintaining Control

In the future, retailers may want control over EV charging station payment systems, loyalty program options and any kind of screen consumers would access. Patrick Raycroft of W. Capra Consulting suggested retailers keep that in mind when formalizing contractual agreements to ensure they have control and access to those items on the forecourt since they will be part of the overall brand experience.

Data Requirements

Check the data sharing agreement when working with a charging network operator. Federal programs have specifics on the data that must be shared to earn the funding dollars and the technological sophistication of some EV charging network companies do not match the requirements. Tread carefully in the language on any agreement. The federal government wants to acquire analytics through the programs being funded.

Think Bigger

Fresh off the NACS Convenience Summit Europe, Eva Strasburger mentioned that in Norway, many operators regret not increasing capacity for EV charging stations early on. "They didn't put in enough capacity because they didn't realize how much the EV market would explode," she noted. In Europe, the lesson learned was around location. There, installations happened closest to where the electrical sources were as that was most convenient for suppliers and retailers, she explained, but not the most convenient for customers.

CALeVIP

Robinson Oil Corp. worked within the **CALeVIP program** for its two chargers. While Erin Graziosi, president of the 36-store chain, said CALeVIP was fairly easy to deal with, she added one challenge was that "their timelines don't match up with how slow cities are. So you have to ask for a ton of extensions." The question becomes, will you get both the extension and the grant money?

Integrating Loyalty with Charging

Robert Hampton with Jacksons Food Stores is very high on integrating loyalty programs with EV charging stations as they roll out charging infrastructure. Jeffry Harrison with RoviTown sees now as the time to create standards for integrating the digital experience with the charging experience rather than playing catch-up. Steve Morris with Retail Management Inc. agrees that loyalty, in general, is moving incredibly fast and retailers struggle to keep up.

CTVG Views

In The Room with CTVG

C-Store EV Charging

VALUABLE EV-RELATED READS

The quantity of reading materials on EV charging infrastructure would make for an insurmountable bedside table pile. To help you navigate through the masses, here are four articles worthy of making your must-read list.



Ed Collupy:

Some thoughts around this [article about the acceleration of future EV development](#): The view here provides additional and broader insights to the EV world that is expected to be around us in the times to come. This article looks beyond most EV points of view and discusses other aspects of technology that we'll come face-to-face with EVs — software defined vehicles, IoT, and China's role. I have become more convinced that there will be something to learn about EV each and every day for a long time to come.



Myra Kressner:

According to this [June 2023 WSJ article](#) that declares Tesla the winner of the EV-charger war, we should expect to see fallout among independent charging networks as the Tesla charging market grows. GM and Ford are adopting Tesla's charging standard. Starting next year, GM customers will be able to recharge their vehicles on Tesla's Supercharger network. I'm intrigued with this comparison from the article: "The competition between the two standards echoes previous battles over new technologies, such as between VHS and Betamax for videotapes."



Eva Strasburger:

I was drawn into this [Boston Consulting Group](#) paper as it offers a perspective from non-operating retail experts. It highlights the growing interest in our industry from a new wave of consultants and external advisors, primarily due to the rise of electric vehicles. This heightened awareness can have a significant impact on our industry as a whole. It's not just about catering to EV owners; it's fascinating to gain insights into how outside consultants perceive the challenges of the convenience store industry and their recommendations on how to address these disruptions. Another captivating piece from [BCG](#) [talks about EV owner expectations](#). Among 14 different categories, consumers ranked the integration of charging stations with convenience stores as the 9th most important factor. That's positive news to me.



Roy Strasburger:

Although this [article focuses on the installation of EV charging stations in Dublin](#) (where Eva, Myra, and I recently attended the NACS Convenience Summit Europe) and is a bit of a long read, I found it very interesting in how it presented the various methods of analysis and modeling used to determine optimal locations. I think we often overlook many of the variables that go into making such long-term and capital-intensive investments — especially in trying to deal with a developing technology such as EVs. The value here is in seeing the level of complexity that national, state and local governments are having to understand in making public policy decisions, which ties into the Caret modeling that John was talking about in his presentation.

CTVG Views

In The Room with CTVG

C-Store EV Charging

TWO MORE THINGS

U.S. Public Electric Vehicle Charging Infrastructure Deployment Survey By WSP

In early July 2023, after our CTVG meeting in June, the **Environmental Defense Fund released comments** supporting an **EPA rule** proposed in April that would further accelerate the need for EV charging infrastructure.

A related survey conducted by WSP, an engineering, environment and professional services firm, set out to quantify the extent of the government and industry investment in public charging for EDF. That analysis showed 58,000 existing public EV charging stations in the U.S. as of June 2023.

Those stations reportedly host 155,700 ports

that provide electricity to vehicles, the bulk of them offering Level 2 charging (78%).

WSP estimates that based on public announcements, the total investment dollars announced since 2021 has reached \$21.5 billion and will yield more than 800,000 new charger ports coming online before 2030. That would mean quintupling the number of ports in the U.S. in seven years.

Based on CTVG member discussions for this report, the current rate at which c-store retailers are adding charging points will need to drastically increase if the convenience segment is to remain the leading energy provider and become the main character in the EV infrastructure story.

Unprecedented New Charging Network to Emerge

A joint venture was announced in late July that will significantly expand high-powered electric vehicle charging in North America. The seven automakers banding together to

create this charging network include BMW Group, General Motors, Honda, Hyundai, Kia, Mercedes-Benz Group, and Stellantis NV.

With a goal to install at least 30,000 high-powered charge points in both urban and highway locations, these EV charging stations would likely make an impact on “range anxiety” among electric-car drivers.

The news comes with huge potential implications to the convenience retailing segment as the announcement did not include any kind of partnership with existing convenience retailers or oil companies. Indeed, per a press release, this network of stations will “be in convenient locations offering canopies wherever possible and amenities such as restrooms, foodservice and retail operations nearby or within the same complex.” A select number of locations, dubbed flagship locations, will include “additional amenities,” which were not clearly defined in the **press release**.

This marks the largest announcement of EV-related expansion that presents itself as a major disruptor to the existing convenience landscape.

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In The Room with CTVG

C-Store EV Charging



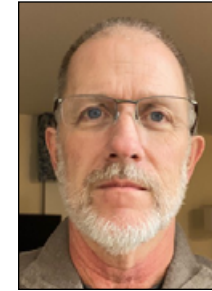
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In The Room with CTVG

C-Store EV Charging

IN THE ROOM WITH CTVG:

Unraveling the Road to EV Charging Infrastructure



Convenience Technology Vision Group (CTVG) invites you to join us **In The Room** to experience our meeting on June 2, 2023. We are providing you with the entire conversation so that you can be “in the room” with us, rather than simply reading polished sound bites.



CTVG Views

In The Room with CTVG

C-Store EV Charging

Agenda

- 16 Topic Reference Key
- 17 Welcome and Meeting Rules
- 20 The Introductions
- 24 The Presentation: John Gartner,
Center for Sustainable Energy
- 26 The Discussion
- 53 Closing Thoughts



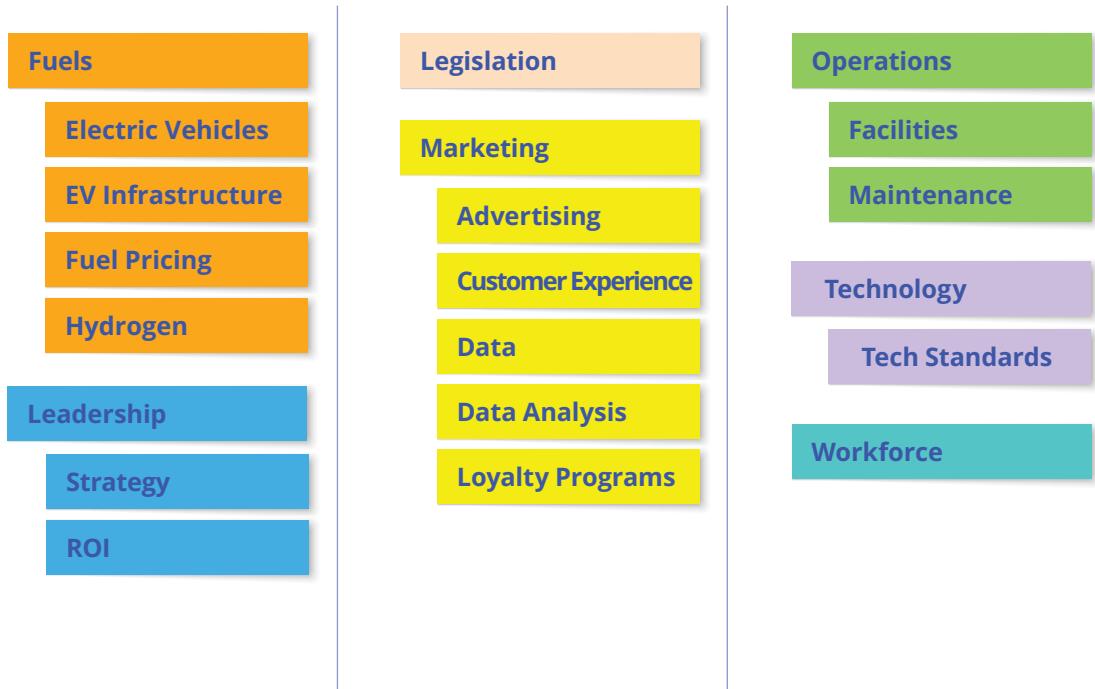
CTVG Views

In The Room with CTVG

C-Store EV Charging

Topic Reference Key

CTVG's mission is to increase the institutional knowledge of the retail industry by sharing ideas and perspectives. For your convenience, we have placed topic indicators throughout the dialogue. Below is a key to the list of topics.





Ed Collupy

Welcome and Meeting Rules

Welcome and good afternoon to everybody. On behalf of the Convenience Technology Vision Group, Co-Founders Eva Strasburger, Roy Strasburger and Myra Kressner, each one of us really welcomes you to our second CTVG meeting. Myra, as some of you heard, is on her way back from the NACS International Conference in Dublin, and hopefully she'll join us if her flight arrives on time in New York this afternoon.

So, with that, I want to have Angie put up the antitrust screenshot. This screenshot reminds all of us of the antitrust statement and the publication acknowledgement that each one of us has signed. [Antitrust statement and publication release shown on the screen]

We are recording this discussion. And a few other reminders: Please use your camera and keep it on as much as possible. And conversely, please keep your audio on mute unless you're speaking so we are not bothered by ambient noise. And, as we discussed, for those of you who were in the last meeting, since we want frank and diverse discussion, if anyone wants to make an off-the-record comment, just let us know that what you're about to say or have said is off the record. So, that's very simple. We'll respect the confidentiality within the group as well as the confidentiality when the Vision Report is published, which is a good time to remind everyone of the CTVG and CLVG Vision Reports.

Hopefully everyone has seen our first Vision Report on CTVG Tech Trailblazing that was distributed to the industry about a month ago. We've seen since then a number of media articles referencing this report. I hope you've seen them as well, and that you've shared those with colleagues at your company as well as folks out in the larger world where you may go for social media or other meetings such as this.

The Vision Report covering this meeting will be distributed in about six weeks. So watch for that and we'll keep you informed as time goes on with that. And by the way, the Convenience Leaders Vision Group will be issuing its next Vision Report on artificial intelligence, which was a big part of our discussion the last time we met. So watch for that. It's just around the corner.

The following members have sent their regrets about not being able to attend today. As we know, this is an all-volunteer organization of retail members. So things get in the way at the last minute, both on the business and personal front. Nick

CTVG Views

In The Room with CTVG

C-Store EV Charging

Peters from Campbell Oil, Janeth Falcon from Circle K, and Sorin Hilgen from EG Group all send their regrets and let me know that last minute things have come up and they won't be joining us today.

We're thankful to Nick for his endorsement quote of CTVG that appeared in some of the media coverage. And I did have a chance to correspond with Sorin a little bit regarding the news out of EG Group this week. And he tells me that, although things in the U.S. operation remain unchanged, his role as the chief digital officer across the globe for EG Group has kept him quite busy and he got pulled into some meetings, but things are planning to stay the same here with their U.S. operations.

Skip Potter from R.L. Vallee and Maplefields called me a couple weeks ago to inform me that he'd be unable to attend today's meeting. He was really disappointed he would not be able to be with us, but he will be back in September. Two other things, Majors Management has gone through an IT leadership change, and they'll be represented in future meetings by their vice president of IT, Tom Valeri. And then Scott Smith told us he will be joining us in a short while.

So, with that update on where some of our other members are, I'd like Roy to take a few minutes to introduce our Ally Supporters that are joining CTVG. Roy.



Roy Strasburger

Thank you, Ed, and good afternoon everyone. Welcome to the second CTVG forum and get together. Eva, Myra and I are really proud to welcome our two new charter Ally Supporters: Rovers town and W. Capra Consulting.

Rovers town is being represented by Jeffry Harrison. Rovers town is a leading developer of mobile apps for the industry. Patrick Raycroft is with W. Capra Consulting. W. Capra Consulting provides IT consulting and services through the convenience store industry and for others around the country.

Both of these fine gentlemen will introduce themselves in just a moment. And they are joining our forum as participants, they're not joining us as salespeople. So, we look forward to their participation and are happy to have them as Supporters helping us support CTVG and the work that we're trying to do to get the word and education out to other retailers in the industry.

So welcome Patrick and Jeffry. We're really glad to have you on board. Thank you.

Thank you.



Jeffry Harrison

CTVG Views

In The Room with CTVG

C-Store EV Charging



Patrick Raycroft

Ed Collupy

Thanks, Roy.

Thanks, Roy. And thank you Jeffry and the Rovertown team and Patrick and the W. Capra Consulting team. I know from conversations I've had with each of you over the years that you'll both be really valuable contributors to our discussion. And I'll come back to you shortly to let you introduce yourselves to the team.

I'd also like to welcome a new retailer with us today and let him introduce himself. And like on our first call, Jason, we did an icebreaker. So I'm going to ask you, as part of your introduction about yourself, to find something that's within reach of you, and then tell us a quick story about what it means to you.

And Patrick and Jeffry, you may want to get ready for that. But it's good to have Jason Collins from Englefield Oil, operators of the Duchess stores throughout Ohio joining us today. So thanks Jason. Go ahead with your introduction.

 **NEXT: The Introductions**

CTVG Views

In The Room with CTVG

C-Store EV Charging

The Introductions



Jason Collins

Hi everybody, I'm Jason Collins. I'm a director of IT at Englefield Oil. Been here for 23 years at Englefield. So family-run company, started 60-plus years ago by Mr. Englefield. His sons now run the company and Mr. Englefield's grandchildren are heavily involved in the organization.

With any family run company, we wear many different hats. Director of IT in title, I always say title only. I could be everything from gas pumps to point of sale, to helping operations solve issues and loss prevention. So we do everything here.

Before I worked in Englefield, I grew up in the state of Maine. My next-door neighbor in Maine owned two convenience stores. I helped him run those two stores. That's kind of where I learned this industry. Did everything from hiring, firing and all the paperwork, to making pizzas and deli sandwiches for those stores.

On a personal note, last year I got married. So one year anniversary is this month. I have stepchildren from that. Grew up in Maine, so avid Boston fan for all the sports. I know Ed likes that.

Ed Collupy

There we go.

Jason Collins

And then an icebreaker for something that's close by, here we go [holds up basketball]. Signed basketball by the head coach of the Buckeyes basketball team, Chris Holton. He hosts a radio show every week during the season and we get to go sometimes as a nice work perk since we are a sponsor of the team, get to go hang out and watch the radio show. So, that's a little something about me.

Ed Collupy

Well, thanks a lot Jason. I'm glad you reminded everybody about being a Boston fan, and we're all looking forward to your insights and thoughts in our discussions.

Jeffry and Patrick, back to you guys. Please take a moment to help our members get to know you with an introduction and same deal with the icebreaker. Jeffry, why don't you start?

Jeffry Harrison

I was going to say this is pretty easy for me because Patrick's basically my convenience store brother, so I was very excited to hear that he was a part of this group as well. So, excited to see everybody. I know I know a couple faces in the crowd from everybody, so it's good to see some friendly faces as well.

CTVG Views

In The Room with CTVG

C-Store EV Charging

Just want to start by saying thanks to Ed, Roy and the team for having me. It was a cool invite. Learned more about this program a couple months ago and obviously wanted to throw our hat in the ring just to be there. And everyone knows that we're totally agnostic and work with all types of technology companies. So, if you pull me aside sometime, I'll tell you the good, the bad, the ugly about people. So just let me know, happy to help, happy to contribute.

Couple quick things about us that you might like. I have two things, if that's OK, nearby, if I can do two items. One is a leftover Christmas card that we sent out. This is a picture of my family. [holds up Christmas card.] You can see we've got three little kids. I don't know if you guys can see that well, but three kids, four and under. So I stay kind of busy there, but it's awesome. Look forward to seeing everyone at NACS.

I'll tell you guys a little story about the company. And some of you might have this [holds up pack of socks], I think Rance, you might actually be wearing these socks right now. So we are known for handing out socks at conferences, and we say "knock your socks off" because we try to always impress and exceed expectations.

But the quick war story behind this that you guys might actually appreciate is when we got started in this business about five years ago, I cold-called Denise Jenkins from UDF, literally called UDF's 800 number, got transferred to Denise Jenkins and they let us into their RFP [Request For Proposal]. Long story short, I'm brainstorming ways to stand out ahead of the big boys like PDI and all the other huge companies because we were very small back then. And I told my wife that I was going to spend some money on our personal credit card, and I went to Men's Warehouse and I bought 10 pairs of purple argyle socks and I went to a local seamstress in St. Louis and I had her hand stitch UDF on the top of all the socks.

And we went to the presentation, and we had the binders ready and we introduced ourselves and I said, "Hey, we're R overtown. You've never heard of us before, but we're about to knock your socks off so we brought you a fresh pair." And that's why we hand out socks. So you might get a pair of the future. Thank you.

Ed Collupy

Very good. Thanks, Jeffry. And I've gotten a pair of socks, so I'm glad about that. Patrick.

Patrick Raycroft

Always hard to follow Jeffry and the knock your socks off story, but I'll do my best. Nice to meet you all. I'm one of the partners and owners of W. Capra Consulting Group.

For those that don't know us or haven't run into us before, we've been around the industry for 23 years. And for those that might know us, you might recognize that I share a name with somebody who looks somewhat like me, but definitely a little bit older. Our firm was started by four individuals that came out of Amoco Retail after the '90s and following the

CTVG Views

In The Room with CTVG

C-Store EV Charging

acquisition of BP started W. Capra. One of them was Pat Sr. so that's the reference there.

Within the firm, I primarily oversee our convenience and energy retailing vertical as well as our digital technology services. I was excited when Myra and I got connected at the CONEXXUS conference recently and through Ed as well to hear about what the Convenience Technology Vision Group is doing and really honored to be invited.

My thing behind me is I have a Shohei Ohtani Bobblehead with a lightsaber in it. I grew up in the Midwest, so for the Boston fan, I have the occupational hazard of being a Cubs and Notre Dame fan, which means I can commiserate with the olden days of the Red Sox. But I now live out West a couple miles from both Disneyland and the Anaheim Stadium. So, I keep that up there as a reference two of my favorite pastimes being a nerd of Star Wars and a baseball fanatic.

Our story on our origin's a little bit longer than Jeffrey, so I won't go into it because it'll take some time. But if you're ever in Chicago and you're around lower [Michigan Avenue] or the Mag Mile, there's a fantastic burger and bar joint called the Billy Goat Tavern, and that has a pretty rich part of our history embedded in it. So, suggest you go there. And if you do, give me a call.

Back to you, Ed.

Ed Collupy

All right, thanks Patrick. I won't give away the Billy Goat story then. I'll let you do that another time. I want to welcome Rance Wells who's joined us, and then I see one other person that's joined us, it looks like by phone. Could you just let us know who you are?



Myra Kressner

Yes, it's Myra.

Ed Collupy

Ah, Myra. Very good. Well, welcome.

Myra Kressner

Believe it or not, we left on time, got in early from Dublin, and I'm at JFK right now, so I'm able to be on the call. It's my pleasure to be here, and thank you everyone. I'll get back on silent.

Ed Collupy

Super. Thank you, Myra. And, again, thank you and welcome to our three new members that are joining us today. And as a reminder, as we get underway, please use the raise your hand icon as often as possible for conversation flow. And unless members are clearly in a back-and-forth discussion, it's best that we use that. And especially for today's discussion with our guest speaker, John Gartner.

CTVG Views

In The Room with CTVG

C-Store EV Charging

The conversation is intended to be interactive. As I mentioned in the email that I sent you a couple days back, John's set to take your questions, your comments, your opinions, your challenges throughout his presentation. You won't be interrupting. And to go back to the CTVG mission, it's about sharing information with others throughout our industry who cannot be on the call. So your input is very important.

And one last thing before we get underway, if you need to leave the meeting for any reason, you can either write a short note in the chat or just leave and return when you're able. Cheryl, thanks for letting me know that you'll be heading out for a graduation toward the end of the meeting. Appreciate that. But let's get going.

John Gartner is the senior director of transparency and insights at the Center for Sustainable Energy. It's a nonprofit group that's based in San Diego. And he brings 35 years of experience in research and consulting, focused on emerging technologies with a focus on electric vehicles, charging infrastructure and vehicle to grid integration over the past 14 years.

At CSE, he leads a team of 37 data scientists, analysts, and software developers. Trust me, his presentation won't be all that technical, but enough technical to keep our interest and to keep the conversation going. John is a participating member in the EV Council. And he's just back from a Transportation Energy Institute meeting — that's the former Fuels Institute. He was at that meeting, and he'll share some news that came out of that meeting.

So, John, welcome to the CTVG meeting. Thanks for being with us. The floor's yours. And I'll be watching for our members as they raise their hands, and we'll call on them to chime in throughout the presentation.

Great, thank you. Good afternoon everyone. And yeah, Ed, if you could definitely help me out by trying to get my attention if I'm not responding to the questions or raised hands quickly. I've got my presentation on my screen in front of me so I can't see everybody's faces while I'm presenting. So, just feel free to ping me, let me know that. I'll pause for any questions.

Sure will. And Mike, welcome to you as well. I missed seeing you earlier. Thank you.

All right. And hopefully now everybody can see my screen.

I think so.



John Gartner

Ed Collupy

John Gartner

Ed Collupy



CTVG Views

In The Room with CTVG

C-Store EV Charging

The Presentation

John Gartner

Great. All right. As was mentioned, I work for the Center for Sustainable Energy, which is a 27-year-old nonprofit. And our bread and butter as we got started is in administering rebate programs, incentive programs largely in the transportation sector for electric vehicles, charging infrastructure. We also work on projects for distributed energy resources such as solar energy storage, and then other things such as combined heat and power and energy efficiency.

And through that we've gained a lot of intelligence about the buyers and the effectiveness of incentives, consumer attitudes and participation in different programs. And I lead the research team part of that. We have 280 employees overall. As was mentioned, the research group that I head up is 37 strong. I've been there for about three years. I was really happy to join because, as someone who spent his career in research and analyzing data, to have 20-plus years of actual data about consumers was a real thrill for me to join the organization. Because oftentimes as researchers, you're struggling to buy data, find data, and here we just have a treasure trove of data. And so it's really fun to come to work every day and get to do that analysis and share it with the state programs that we run, as well as with our private clients who include utilities, charging network operators, as well as the federal government.

As mentioned, we focus on **clean transportation**, which is probably about two thirds of our programs we run. And then we also work in the built environment and the technology convergence space. One of the things we do is also develop software tools. And from that, again, based on all of our understanding and analysis of both public data as well as the data we've accumulated for the programs we run, is to understand the market for electric vehicles as well as for charging infrastructure or EVI.

And so here are some numbers from one of our **software tools**. We call the platform Caret. And this is the Caret EV Planner. We developed this at the request of some senators who were working on a **federal program** that eventually became Build Back Better and then the Inflation Reduction Act. And they asked us to understand what would EV penetration be with different incentives levels. We hired a team of researchers and developers and came up with this suite of tools called Caret.

Electronic Vehicles

Data Analysis

Legislation

CTVG Views

In The Room with CTVG

C-Store EV Charging

Data Analysis

EV-EVI Forecasts: United States

Year	Annual New EV Sales (Estimated States %)	Existing EVs (Estimated States %)	Annual New Public DC Chargers ¹	Total Public DC Chargers
2020	1,100,000 (1.1%)	1,000,000 (1.0%)	100,000	100,000
2025	3,500,000 (3.5%)	8,000,000 (8.0%)	250,000	500,000
2030	8,000,000 (8.0%)	15,000,000 (15.0%)	450,000	1,000,000
2035	12,000,000 (12.0%)	25,000,000 (25.0%)	600,000	1,600,000
2040	15,000,000 (15.0%)	35,000,000 (35.0%)	700,000	2,300,000

¹Projections including impact of U.S. EPA and LHA policies produced by CAVT EV Planner[®]



EV Infrastructure

This is one of the **outputs** [see slide] that I had my team run recently, just looking at how fast is the EV market growing, and then what is the resulting need in charging infrastructure? And as you can see here from the numbers, for next year, 2024, we're anticipating that about 1.75 million new vehicles sold will be either plug-in hybrids or battery electric vehicles. And that'll surpass 11, almost 12% of total new vehicle sales.

Of course, we know the fleet, overall, light-duty fleet is very slow to turn over. And so even though annual sales, as you can see here, are soon to be 12% getting up to 21% by 2028, the overall percentage of the fleet that is electric will take a lot longer to turn over given the length that people retain their vehicles and the fact that there's going to be ample combustion engine vehicles on the road for many years to come.

And our software tool also produces forecasts for how much charging **infrastructure** is needed based on the number of EVs that are going to be on the road. And so you can see that column for annual new public DC chargers, that's just one slice. Obviously, there are privately held fleet chargers, there's residential home charging, and then there's Level 2 or Level 1 public charging.

For this output we're just looking at, particularly relevant to retailers who might have shorter dwell times, where public DC chargers are most appropriate, we came up with these forecasts that show basically substantial year-over-year growth, and that by 2028, 210,000 public DC fast chargers are going to be needed to support the level of electric vehicles that are forecasted to be on the road at that time. And you might ask, that's a lot of chargers, just DC chargers, let alone what's going on with Level 2 and residential charging. But part of the reason why you might see that number jump out as compared to the number of gas stations, fueling stations out there, is the fact that charging takes significantly longer, even with the fastest chargers than fueling stations. And so therefore, the turnover is a lot less. And so the vehicles will need to be parked there for longer periods of time, which means a greater need for that infrastructure.

CTVG Views

In The Room with CTVG

C-Store EV Charging

The Discussion

Roy Strasburger

John, two questions. One, just a clarification question. When you talk about fleet share, is the fleet in this case the total car population in the United States?

John Gartner

Light-duty vehicles, yes.

Roy Strasburger

So, the fleet is all light-duty vehicles. And the second thing is, on the total public DC chargers, is it possible to have more than one charger in a location?

John Gartner

Yes, absolutely. In most cases, you will. Oftentimes they're minimally paired, but there can be four or more. Certainly Tesla, which has been the leader in installing chargers, often put eight to up to a few dozen in a location for one of their large charging hubs. And so, yes, there can be multiples at locations, at an individual location. And in fact, the **federal programs** that are incentivizing EV chargers, which we'll talk about in a few minutes, they require a minimum of four chargers at any location for any applicants who want to receive public funds, want to take the federal money for that.

Legislation

Roy Strasburger

And so follow-up question, in theory, the last box in the bottom right-hand corner, 210,000 public DC chargers, if, hypothetically speaking, if there could be four per location, that means that there's roughly 55,000?

John Gartner

Locations, yeah.

Roy Strasburger

55,000 locations where people can charge.

John Gartner

Correct. And again, it can vary significantly. Most places want to put at least one in for some kind of redundancy, but it can be well over four or more, just depends on space that's available, et cetera.

Ed Collupy

Robert. Go ahead.

Robert Hampton

Yes, thank you. Just clarification, your last column, that's what you expect to have on the year indicated, the number of chargers?

John Gartner

That's the need.

Robert Hampton

OK.



CTVG Views

In The Room with CTVG

C-Store EV Charging

Legislation

John Gartner

That's how much charging infrastructure would be needed to service that number of vehicles.

Robert Hampton

OK, perfect.

John Gartner

So hopefully the market will rise to that demand. Certainly, as you know with the **federal program**, they want to have 500,000 public chargers. The federal government is incentivizing it, hoping to reach that number by 2030. But, yes, that's what the need is. So obviously, if the private market doesn't step up, then there could be a shortfall and lots of congestion at those charging locations.

Robert Hampton

Do you have the data that shows what is currently available? That would be helpful to have in here.

John Gartner

Yes. So, currently there are, I think the last numbers I saw were like 22,000 and change, public chargers total, as you can see. So the total number of 89,000 would be what's needed by the end of next year. So obviously, new chargers going in the ground every day. Great resource is the alternative fuels database that the federal government operates that has not only the volume, but also the locations of those chargers. It's all public chargers, and you can also filter between level two and DC fast chargers, AC versus DC through that resource. So I'd highly recommend checking that out.

Robert Hampton

Thank you, John.

John Gartner

You're welcome.

Ed Collupy

There's a question in the chat from Steve. So Steve, you might want to help here. He was asking about when you talked about light duty, is it excluding commercial fleets if they're using light duty?

John Gartner

No, it includes commercial light-duty vehicles as well.

Ed Collupy

OK, great. And then Raymond, you're up. And Eva, we'll get to you next.

Raymond Huff

OK, so I'm looking at your numbers. When you define public chargers, you're not adding in Tesla, is that correct?

John Gartner

No, that's all public chargers. They're open to the public, obviously, if you have a Tesla and soon to be if you have a Ford vehicle. Basically, public means not behind the fence. So not a fleet charger that is not accessible by the general public.

Raymond Huff

OK. Right now, in Colorado, and I don't know if you're aware of it or not, our electric provider, Xcel is proposing that the ratepayers pay for them to put in electric chargers. Are you aware of that?



CTVG Views

In The Room with CTVG

C-Store EV Charging

Legislation

John Gartner

Raymond Huff

Yes. And in fact, I'm based in Colorado as well. I'm just north of Denver. So I participate in the **Electric Vehicle Coalition** for the state of Colorado as well, which Xcel is a member of.

With Xcel putting these charges in, doesn't it sort of cut out the convenience store operator and it makes it more monopolized, just like our utility companies are now as a monopoly, we don't really have a choice. So is that a position that the Center for Sustainable Energy would take, that Xcel should do it, or Xcel shouldn't do it? This is the only state where it's happening right now. In California and the other states, it's not happening. And they went the privatization route where convenience stores and other places could put in the chargers. Any thoughts on that?

John Gartner

EV Infrastructure

Well, there are a number of actual utilities around the country that are installing **charging infrastructure**. It's not just in Colorado. Portland, Oregon, actually has pioneered this with Electric Avenue, where they put a series of chargers in the downtown area. There are many utilities, including some in California.

It's been a very contentious topic. And as you mentioned, it's kind of swung in different directions. Initially, California said you can't, you're a utility, that's not your job. You cannot own and operate. Many **state jurisdictions** have followed that path. However, some utility commissions allow utilities to petition for the right to rate base that charging infrastructure. However, in most cases, the volume of chargers is so small relative to the need, the expectation is that it's not going to really interfere in any meaningful way with the private market.

So there are different schools of thought, different utility commissions, depending on who's lobbying them, et cetera, have different opinions. The utilities, many of them have successfully petitioned saying, "Well, our duty, our responsibility, our charter is to provide power to customers. If that customer happens to own an EV and they don't have a place to charge it, then we have a duty to provide them with a place to charge." So it's a different interpretation. Again, it depends. Very different rulings on the jurisdiction where the utility commission operates and what their philosophy is.

But again, with these large numbers and the cost of the chargers, utilities are not trying to get a monopoly on this at all. In most cases, they offer **incentive programs** where they will pay a portion, either of the make ready to get the chargers in the ground for the private sector to then pay for the equipment and offer the service, or they can incentivize just any private sector company to install chargers, and they can defray some of that cost, maybe the cost of the capacity upgrades or meter installation. And generally, they're supporting it. And we actually work for one utility in my hometown of Philadelphia. The Philadelphia Electric Company has a small Level 2 makeready, and that's for the private sector. And

Strategy

CTVG Views

In The Room with CTVG

C-Store EV Charging

so they just pay a portion of the program just to do any power upgrades, bring the power to the site of where the charger would go. And there are dozens of programs across the United States of utilities where they're doing that.

So there isn't really one blanket rule for the country. Again, different states, even different utility commissions and different utilities have different views on what level of involvement they should have. And it really ranges the full spectrum to hands off to we have a duty to serve, and we need to provide those. So yes, I don't think it's going to be answered in one direction or another for quite some time.

Raymond Huff

OK. Thank you.

Ed Collupy

Go ahead, Eva.

Eva Strasburger

You mentioned how many public charges there are out there at the moment. Do you know what percentage of those are in convenience stores and of those who are actually using public charges, what percentage share do convenience stores have of those users?

John Gartner

We don't have that filtered out yet. As was mentioned, we're going to be expanding a relationship with the convenience store industry where we'll be able to share that data with you before too long. I would also recommend, like I said, the **Alternative Fuels Data Center**, which has a lot of very granular data for that. But we don't know exactly how many of those are at convenience stores today, but we will be working on that in conjunction with the Transportation Energy Institute, newly renamed.

Data

Ed Collupy

Donnie.

Donnie Rhoads

Hi. So regarding the chargers we have now, what was that number again?

John Gartner

There's about 22,000 fast charging locations in the U.S. today. Some of them have multiple ports. That's the number 22,000 and change.

Donnie Rhoads

And I'm getting the implication from this chart is that if we only get 23,000 new chargers next year, but the demand for charges is 89,000, we're going to have a significant deficit.

John Gartner

Yes. So the market really does need to keep up, which is part of the reason why the federal government took their financial resources to pass the **IRA Act** last year, which incentivizes the charging infrastructure to try and pull the market forward

Legislation

CTVG Views

In The Room with CTVG

C-Store EV Charging

so that it's not always playing catch up. And so obviously retailers want to make money, right? And can't just incur very significant expense today in the hopes that the chargers will be used a period time later, right, two, three, four years.

And so the incentive is that the federal government and states such as California and others are providing, are seeking to mitigate that risk by incentivizing so that most of the upfront cost is covered so that the chargers will get in the ground earlier so that they'll be available as new EVs get on the road, as opposed to being reactive and waiting until the year after and say, "Oh, OK, how many EVs do we have on the road in our state now? OK, we should have had this many chargers during that same time period already." So it's really trying to incentivize and pull the market forward. It's definitely a possibility that there will be a shortage. So plenty of opportunity for the private sector to add charging at retail locations.

Ed Collupy

Patrick, go ahead and then Jeffry, jump in after Patrick.

Patrick Raycroft

John, what assumptions are made about the DC fast chargers? I mean, Level 3 power ranges from 60 to, was it 360 kilowatts? Did you guys just pick a range that you expect the level of certain chargers to be and use that across the board? Or do you envision that as locations are deploying more advanced DC fast chargers getting closer to that 240 or 360 mark, that we might actually be able to solve more of the market with less chargers?

John Gartner

Correct. So there was an assumption about the existing **technology**. Obviously, as you mentioned, the most powerful chargers that are available for light-duty vehicles are up to 350 kilowatts. Only a few vehicles today can handle that.

EV Infrastructure

And so there are assumptions made that over time that power level will increase, also as the vehicles will increase in their technology and be able to handle more and more power. It's really an average across what's in the ground versus what's likely to be coming. I mean, you don't see too many 50-kilowatt chargers being added any more. The market has really moved at least closer to the 100-kilowatt range and higher just because want to get the cars charged faster. There are more and more vehicles that have higher charging capacity. Some of the earliest EVs that were out in the early 2010s were limited to 50 or 75 kilowatts. So charging technologies are trying just to stay one step ahead.

Patrick Raycroft

OK. Thanks.

Jeffry Harrison

Just to piggyback on what you were saying about the **federal government** subsidizing and getting involved to catch up with the demand for EVs, with the news about the debt ceiling vote and so forth, does any of that affect it, just out of curiosity, with the bill?

Legislation

CTVG Views

In The Room with CTVG

C-Store EV Charging

John Gartner

I haven't heard that there's been any attempt to retract any of the funding for that. I think because it was so hard fought for, I think that those who helped support it would've taken their vote to prevent that from happening. So I haven't heard anything that there's any provisions for removing any of that funding.

Jeffrey Harrison

OK. Good to know. Thank you.

Ed Collupy

John, just as predicted, we had a lot of questions based on that first slide, but why don't you proceed?

John Gartner

Yeah, that's great. Thank you for all those great questions.

Ed Collupy

Keep them coming.

John Gartner

All right, so let's move on. As we already started talking about **incentive programs**, very essential for reducing the upfront cost and in some cases the ongoing cost of operating charging equipment. And so this is just a very small example of some of the incentives that are out there [\[see slide\]](#). That same website that I mentioned, the Alternative Fuels Data Center, also keeps track of all of the federal, state, local and utility charging infrastructure incentives. So here's an example of a federal program we mentioned the **NEVI program**, which was just passed last year, the National Electric Vehicle Infrastructure program that provides up to \$5 billion in charging infrastructure.

The chargers for that program have to be located within one mile of an alternative fuel corridor exit or on ramp. And so it's really meant to bolster longer distance travel in electric vehicles so that on any of the major highways that the federal government has designated, you will have a charger available to you every 50 miles at a minimum to reduce some of that range anxiety. And that program will cover up to 80% of the total project cost. And it's a five-year program, and as I said, it's up to five billion.

Complementary to that is the **Community Funding Infrastructure Grant** and the **Corridor Programs** also from the federal government, and those go beyond the highways. And that incentivizes at the same level, up to 80% of the program cost for community charging. That is really focused on disadvantaged communities, rural and tribal areas, or environmental non-attainment zones. And it's not restricted in an area with any proximity to the highway. One of the catches, the caveats to that, is the applicant to get those funds has to be a state, sub-state, municipal or local entity, or a tribal entity or multiple agencies who've partnered together like an air quality district or councils of government around a city or any of those kind of sub-state level, nonprofit government or tribal type agencies, rural cooperative, et cetera. So

Legislation

Incentive Programs Reduce Costs

Federal Programs	Local Programs
• NEVI (\$5 billion) • CFI and Corridor Programs (\$2.5 billion) • Investment Tax Credit	• State programs • CHLH-2 and CALeVAP (CA) • Platts program (CO) • Utility programs • SCE Charge Ready • PECO L2 make-ready

Center for Sustainable Strategies



CTVG Views

In The Room with CTVG

C-Store EV Charging

they have to be the applicant, even though they can certainly put the chargers on privately held land, and they're certainly expected in many cases to engage with the private sector.

So it doesn't mean that the private sector is not going to play a big role in this. It's just the applicant has to be one of those types of public type entities. And we're in fact working with a few organizations supporting their applications for this program, for which the clock is ticking — June 13th is the date that these applications have to be in for a total of 2.5 billion in incentives that are available for those programs.

So they're five-year programs, a portion of the money is released each year for the Community Corridor programs. There's \$700 million available. And so certainly, again, there's a chance for **retailers to partner** with any of those types of organizations in the future in years two through five, again, just by basically allowing the applicant to install chargers at your location, you could be the site host. It can still operate, it's just the applicant itself, the overall recipient of the funds has to be one of those public entities. And the good thing about these programs is they also do cover the full project cost, including if the economic case can be made for solar or storage, that would reduce the overall operational cost of the project, then that can be part of the application. So if you're at a place where electricity is either hard to get or highly expensive with high demand charges, then as part of that application, those additional costs can be part of the application.

Ed Collupy

Patrick?

Patrick Raycroft

John, I had actually heard of this recently, so I just want to read back to you what I think I heard in a very practical sense, and you let me know if I'm understanding it right.

John Gartner

Yep.

Patrick Raycroft

If a retailer, a c-store retailer wanted to go after CFI funds, more or less, they would have to **engage** with their local municipality, their local government, their local entities that are in the public sphere that they're interacting with to process an application on their behalf for the CFI funds. The funds would then be issued to that public entity and could be passed through to the private applicant for the applicant to actually use up to 80% of funds to do the install. Is that the practical read back of what you were saying there?

John Gartner

Yes. For the community funding, there's a separate part, which is the corridor funding, which sort of goes beyond just the alternative fuel corridors, but there's still a restriction for having proximity to interstates and highways, major thoroughfares. [For] that you can actually be a private sector applicant directly.

Strategy

Legislation

Patrick Raycroft

So there's two in there.

John Gartner

Yeah. There's two in there.

They call it the CFI, the community funding where it is just that. And for example, again, I mentioned we've been talking to a lot of organizations there with our experience and understanding, what it takes to get charging infrastructure in the ground. We're working with a city that is putting in an application and they're lining up a number of private entities. So they said there's basically no public charging in their city. And they're doing a combination of public buildings, libraries, office buildings, government buildings, city office buildings. And then **they're also reaching out to retailers** — restaurants, stores, etcetera— and saying, "Hey, you can all be part of our bid." As you said, they would administer the funds, but they work and basically pull the private and public sector together to come up with the numbers they need to say, "Hey, if we really want to electrify our town, let's say we need 40 chargers, then it's open to anybody." But it's really that **municipal agency** that gets to decide how many chargers, who's in, who they want to invite in as both a charging network operator to actually run the chargers or as the site host. Again, certainly open to private entities.

Ed Collupy

John, I don't know whether you can say which city that is in case we have a member that is interested.

John Gartner

I'll have to check on that one. I know they're looking for partners right now, and I'll see if I can get the approval to do that. I just wouldn't want them, if there's lots of enthusiastic folks on the call, to have them be overrun, but I'll see if I can release that information.

Ed Collupy

Yeah, I was going to ask the group too, if anyone in the group on the retail side has worked with anyone on CFI?

Ed Collupy

Silence means maybe not. So..

Roy Strasburger

Not yet. The more we find out about it, the more likely that might happen.

Rance Wells

We've tried to get state dollars and stuff along corridors, but we always seem like we're late to the dance. I mean, we'll do it the morning it goes live, but I don't know.

John Gartner

Yes. So these are **five-year programs**. Some of the states on the NEVI funding haven't even released their plans yet, so the clock hasn't even started ticking. Other states have, but it's just the CFI and the Corridor Programs, that's the June 13th deadline. Next spring, there's going to be another allocation of between 500 million and 700 million. Again, the NEVI program is to get that minimum of 50 miles apart. There's going to be additional funding for that program that goes beyond



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C-Store EV Charging

that minimum requirement. So you might have a fueling station that's 30 miles from the closest charger on the highway. That might still be eligible in a year. Basically the states have to attest to the federal government and say, you know what, we're covered, we got the whole 50 miles thing under control. There's still money available. And so then it's up to the state to decide, OK, where else can those chargers go? So it's still very early days, even though there are initial deadlines today.

Ed Collupy

Rance, I saw your hand up. Rance is asking where's the best place to stay informed about available funds?

John Gartner

The federal government set up what's called the **joint office** specifically to distribute and oversee this project, these projects, plural, and it's a joint office between the Department of Transportation and the Department of Energy. And if you just search under DOE joint office, you should be able to find it, and you can just get on their mailing list. And it's at least once a week, they send out some information. They have webinars. In fact, there's one coming up on June 6th that talks about data requirements or recipients of the funds for these programs.

Legislation

Ed Collupy

Good. And we got a couple of thumbs up with that response. So thanks, John. And then Jason from Englefield is saying that they're waiting to hear for the state of Ohio on the five locations they've submitted for NEVI.

Ed Collupy

So that same place can keep them updated, I would imagine.

John Gartner

Yes. And as I said, some states haven't even released their programs, so you can't even apply yet. But I think **now is the time** to really be investigating this again, because if convenience stores aren't looking at it, many other retail locations, they're all lining up. So Big Box stores, parking garages, I mean, that's sort of the great equalizer in this, which may not be as positive from the viewpoint of fueling stations today, you don't need to have a fuel pump. Anywhere you can get a significant amount of power to distribute, and a parking spot that meets the criteria, that can be the electric fueling station of the future.

Strategy

And so it's really a real estate race right now to challenge where charging is going to occur. And it can be restaurants, stadiums, parks, any place that a car is going to stay for an hour or more is a potential location. And so that's the real sort of existential question for the convenience store industry is how quickly are we going to race to go after the public funds and to add this capability to our locations, because there's lots of other organizations, other types of public and private entities that all want to be part of the solution of charging infrastructure in the future.

Ed Collupy

Jason, you had a comment?

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In The Room with CTVG

C-Store EV Charging

Jason Collins

I was just adding on, the state of Ohio where we submitted everything in January, I guess they're going to award locations this summer for the first round and then the next round where we have more locations on the secondary highways here in the States. So we were hoping to get more locations in on the next round of funding under NEVI. But yeah, we might have these locations and stuff, but if we get awarded, we're looking at 2025 or 2026 to have them installed and up and running. So it's a long process.

Ed Collupy

I think John will talk about that. Go ahead, John.

John Gartner

I will mention there's another entity we're working with that's also applying for CFI funds. They also operate in California. If there's anybody that has convenience stores that's interested, you can just email me directly and I can see if I can get approval, pass the names along. So again, June 13th, time's coming short, but this is just year one. Also to mention there are **state programs** as well. There's a California program called CHILL-2, which is just an acronym for Convenient High Visibility, Low-Cost Level 2 Charging. In California, there's Plazas program that has aggregations to DC fast chargers along the major highways connecting Colorado with the greater Southwest. And then there are utility programs, as I mentioned, PECO in Philadelphia, Southern California Edison has a charge ready program. And in many cases, these are just **incentives** that either pay for the makeready or they will pay for a portion of the actual equipment.

But part of that is, the string attached to that is they will require the data reporting about the utilization from the chargers. So utilities are really trying to understand the impacts of EV charging on their grid operations. And so they're willing to spend money to incentivize chargers if they can get the data that'll say, what is the 24-hour charging pattern at those locations? How much energy is being delivered? What's their frequency of usage? So we'll be talking more about data in a few minutes, but I just wanted to throw that out there that utilities are in the game again, as I said, and these are just a few examples of different types of programs.

So how do you **identify profitable locations**? Where are the best places to put chargers? You see that at the top of this picture [\[see slide\]](#), again, there's the Caret logo. This is another software tool that my team created. It's called the Caret EVI planner. And we've used this in four states to help state agencies figure out where to add charging infrastructure. And as you can see, this is kind of a color-coded map. Dark blue means less desirable locations, brighter yellow means more desirable locations. This tool brings in 80 different factors into what would make for a good location for charging. And as you can see here, we got a sample, just a small subset of these variables.

Legislation

Strategy



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C-Store EV Charging

Data Analysis

ROI

So we have distance to an alternative fuel corridor. We have the highway vehicle miles traveled in the area, non-highway, so local VMT. The existence of non-Tesla DC chargers for anybody who's looking to serve the non-Tesla population of EV drivers, the distance to the nearest ramp, and then the medium income level. So there's 80 different options. And this sample algorithm that we created is focused more on this NEVI funds where proximity to a highway is weighted. But then also, as you can see, there's two different weights for the existence of DC chargers. And you can see on this map here, hopefully you can see these kind of greenish blue dots. That's where the existing DC chargers are in San Diego, and this is San Diego County. We did a project for them.

So **this weight is saying**, let's find places where there is traffic, where there's a higher median income level, where there's both highway and local traffic, but let's avoid where all the existing charging infrastructure is today. And so that's it. You can see that the areas, there's some highways out there heading east through San Diego where there's just not any charging infrastructure. And so they're along the highways. So those were more recommended locations. We've used this tool, as I said, for utilities and state agencies in four states so far. And the one thing I can share, as was preannounced, is we're working with the former Fuels Institute, the Transportation Energy Institute. They are going to be using this tool to kind of become the de facto tool to work with the convenience store industry and all their members in siting chargers.

And for that, we will be developing custom algorithms based on the priorities of the customer, of the convenience stores to say, OK, what matters most to you in terms of trying to get the highest **return on investment**? And the good thing is we have this visualization that can include all different data sources. So we can include, for example, is there a local incentive available from the utility or from an air quality district? That can be added as a factor and weighted. Is it a designated rural or tribal area?

Our platform is flexible. So basically any kind of **data** set you have for locations can be added here and visualized and weighted. And one of the big things we're doing, I don't have it demonstrated here, but we also have an amenities layer. And so we have a database of hundreds of thousands of amenities across the U.S., and it's all categorized between things like arenas and stadiums, restaurants, religious facilities, convenience stores, fueling stations, supermarkets, pretty much any kind of commercial category you can imagine. And so we can add that in as a way to say, "Oh, yeah, well these locations are great, but there's no retail around there, so let's not consider them as heavily as those that have amenities." And so we'll be working on this multiyear project with the Transportation Energy Institute and producing custom maps for them

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C-Store EV Charging

and their members that'll highlight the locations on where to put chargers. So we're just about to kick off that project, but we just did announce it last week at the Fuels Institute Conference in St. Louis.

Ed Collupy

And John, you mentioned that there are four states that you've done projects like this for them. Is that available through either states or utility companies for people to get ahold of?

John Gartner

No, these are all basically private engagements.

Ed Collupy

OK.

John Gartner

So one, we're doing work right now for the state of Massachusetts. We've done one for San Diego County. This sample map is not the exact map we produced for them, but it's in their service territory. We've done one in New Mexico, and then we actually helped the state of Louisiana with its NEVI plan in figuring out how much charging infrastructure they're going to need. So those are all private customer engagements. If somebody wants to engage with us to produce a map for the public, we could certainly do that. It's just the way the tool is being used so far is for these customer specific engagements.

Ed Collupy

Very good. Eva.

Eva Strasburger

If I was looking at this map along with maybe 50 other people, and we all saw the bottom right spot was the best place to put in a charger and it takes two or three years maybe to get your application through and get the site up, how would I know that those 50 other people haven't also started to look at that specific location? Because this is where you're telling us to look at putting in a charger. Is there information that would say there have been other applications for this place as well?

John Gartner

Right. So what we do is we make our technology available as software as a service. So what we do is we maintain the maps and we update them every month with **data** about newly placed chargers. And I would imagine that the federal government is probably going to make that data available at some point as well, at least for the NEVI funds. And so that's why we suggest when we're working with an organization to basically subscribe to our service so that we can continue to update. Again, Louisiana, they just wanted a sort of future looking plan, but generally when we engage with an organization, we will provide this as a service where we'll constantly be updating these maps to know how many more EVs are being sold each month, as well as where the new chargers are going, and then just refresh the maps all the time. And then it can also be refreshed with different criteria, if there's different things that grow in importance.

Data

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Facilities

Ed Collupy

John, you mentioned amenities, and I think all of us in the convenience store industry know how important **restrooms** are. In fact, I think it was a subject of a topic at the international NACS meeting this past week. Is restrooms one of the amenities? And can a site have multiple amenities?

John Gartner

Yes, they can.

Ed Collupy

Great.

John Gartner

Data Analysis

It's really limited to the data that's provided. So I did want to mention, we can also do **custom maps** just for an individual retailer. For example, we've talked to many organizations about, well, let's do a map, but I only care about my stores. And so we come up with a custom algorithm for them. We look at it compared to where all the other charging infrastructure is that surrounds their stores. And then we just wait and say we've got 300 stores in the Southwest, which are the best ones to go for first and only those with consideration of where all the other chargers are at our competitors or other kinds of locations. So if we have the data that says how many parking spaces, or if it has restrooms, or if it has a restaurant or gift shop, whatever, those things, if we can get that amenity data, then we'll map it and include it. So it's really only limited to what we're given on the front end as the data set.

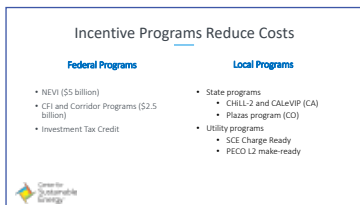
Ed Collupy

And then are there public funding programs available to have a retailer have one of these done for their regions?

John Gartner

Well, the NEVI fund does include an option for planning, and so that's why we're working with some groups on their CFI plan. Should they win, should their application be approved, then we would help them figure out exact locations. I know it's sort of loose language like, "Hey, tell us where you're going to put the chargers." It doesn't mean necessarily if you're going to put 100 chargers, the exact street address of all of them. We will be helping them, if any of these applications are successful, to pinpoint those locations. Again, separate from any of those things, we can work with any retail sort of on a private basis to figure out where those locations are and if the locations are eligible for any of these programs and then weight accordingly. So if you have 500 stores, 200 of them are eligible for either a state or a NEVI or utility incentive, then you may want to go after those first and then prioritize the other locations that are not incentive eligible at a later time.

So this is just an example. As I mentioned, we run many of these EV and charging **incentive programs**. This is an example of a slide [\[see slide\]](#) we put together for the California Charger Incentive Program known as CALeVIP. This just talks about the cycle of getting chargers installed and how we work on that project going through the various steps in the incentive process. Application has to be filed, has to be reviewed, has to be qualified. Technical assistance can be given. Need to get



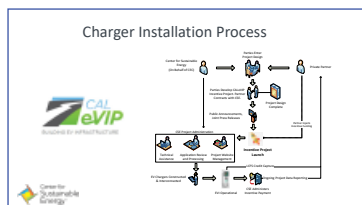
Strategy

CTVG Views

In The Room with CTVG

C-Store EV Charging

Legislation



Ed Collupy



Erin Graziosi

John Gartner

Ed Collupy

Robert Hampton

Ed Collupy

the permits, you need to get the utility plan, engineering plan in case any additional capacity is needed. Then follow through when the chargers actually get the interconnect. Then in this case, California has required, and the federal government's going to require, basically when the chargers go live that they start to send data that is recognized and collected. So the states for the **federal program** are all required to send in charger data to validate that the incentive should be fully redeemed because it's gone through this entire process. Obviously this can take a long time.

The California program, this California eVIP program has been running since 2017 and it's a \$700 million program. It can often take minimally 12 months, but often 24 months, between when the applicant files to when the charger is actually in the ground operational and the network operator sends us data that says, "Yes, the charger is online." [See slide] Some states, it's somewhat on the honor method to say, "Yes, you have to provide us charging data." But the rules are getting much more restrictive, especially in the federal, that the money can be withheld if the chargers don't go live and they can't be validated by sending data. The Philadelphia utility that we're working with, the final payment only happens after the charger has sent the signal that says, "Hey, we're live. We're all good." Then that's the last piece of the incentive process.

I was going to ask Erin if she's familiar with this program, and I know you have some EV charges installed. Did you take it through this process?

Yes. We went through CALeVIP. We have two chargers. CALeVIP actually is pretty easy to deal with. It's more that their timelines don't match up with how slow cities are. So you have to ask for a ton of extensions. And so the question is will you get the extension and actually get the grant money?

And permitting is a big part of that, right? As you said, from the city. So California did pass a law that requires all counties to streamline their permitting processes to help alleviate some of that bottleneck. I think they have a year sometime in the early 2024 to comply. In fact, they're prioritizing locations, counties with their funding that have this process already streamlined just because yes, if it's not the permitting agency, it's the utility. I'll talk about that next, that can be the bottleneck.

Before you move on, I was just going to ask Robert. You also have stores in California. I don't know whether any of them have charging stations at this point, and have you been through this.

We have not been through this. We do have a couple with charging stations, but they came through acquisition.

Got it. Thank you.

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John Gartner

EV Infrastructure

Utilities Influence Pace of Installation

- Data showing capacity availability usually not shared
 - PUC rules can complicate sharing of data
- Upgrades can take 12-24 months
- Incentive program applicants drop out due to delays



So our friends, the utilities, they have a great influence to put it mildly on the pace of the installation. So you can use our tool, looking at where's a great place to put a charger and all those factors might be positive. There's going to be lots of traffic. You get lots of turnover at your location. It's higher income indicating more likely EV adoption. There's maybe people with shared housing, so they would have a greater need for public charging. All those factors can be great. Then you go and say, "OK, well let's do a site assessment. How much **capacity** do we need to house these additional chargers that we want to put in?" The utility can say, "Well, you don't have enough. We're going to have to put in a new transformer or even more substantial at a substation, or one of the feeders might need to be upgraded." Depending on how complicated that additional delivery of power is, it can be 12, 24 even more months than that to get that power in those locations.

So we've seen with CALeVIP, a number of applicants have dropped out of the program largely if it's not the permitting, it's the utility says, "Yeah, we don't have enough capacity and it's going to take at least two years until we can give you the upgrade to make that happen." So understandably, many applicants may not want to wait that long to wait for the incentive. They may go ahead and do it themselves or just hold off on installing chargers and maybe put them at other locations where the grid has more capacity. So what I'm showing here [\[see slide\]](#), this is also a screenshot from our tool, we've loaded in the capacity data that San Diego Gas and Electric makes available. As you can see here, red means less than a megawatt of capacity. So you kind of want to have that, if you want to talk about putting in 450-kilowatt chargers, another 600 kilowatts plus of power. So most of San Diego, the grid is fairly under stress already. Very few areas that are highlighted yellow and just a trickle that are green.

So this is something that would be great if utilities made this data more readily available, certainly for the applicants. It'd be much easier to know, if you know where your location is, is this an easy or a hard location? It also is very differentiated between location as to how much data the utility is willing to or even can share. Some public utility commissions have said, "Well, if we make any of this data available to one organization, we have to make it to everybody so we're not going to make it available to anyone." Or there's concerns about any bias in that, or they feel like maintaining this data on a day-to-day basis is really expensive and hard to do. As you always are, they're always adding capacity or adding new loads. So it's kind of hit or miss, but we are working with utilities to try and get this data for some of the regions in where we're working to help alleviate that to give site hosts better indication as to will they or won't they have a faster path to getting chargers installed.

Ed Collupy

Patrick, you have a question or comment?

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C-Store EV Charging

Patrick Raycroft

Hydrogen

John Gartner

Strategy

Patrick Raycroft

John Gartner

EV Charging Business Models

Model	Pro	Con
Rent space only	Consistent revenue, no investment	Limited revenue, no data on customer impact
Site host owned	Higher revenue potential, medium risk	SG&M fees can be high
CFO owned	Less upfront cost, revenue share	Less control over pricing, data
Owner operator	Full data exposure, revenue retention	High investment and capital risk





John, is CSE seeing any movement in whether it's public institutions or in private for getting to alternatives to drawing all power for EV chargers off of the traditional utility grid, like green high? That's been out there for about a year, that **green hydrogen fuel cells** could power EV chargers or solar with battery storage. Is that something that CSE has seen that could present an alternative to this being what appears to be the long pole in the tent?

Yes, it's starting to happen. Definitely. As I mentioned, we also administer solar and storage programs so we know what's happening in those areas, not specifically to charging but related. So yes, we are starting to see that, and it is a great sign for the federal programs that you can make that as part of your application. So if you can prove it pencils out or that it'll get chargers in the ground faster, you say, "Well, our utility says we can get an upgrade up to this level. Beyond that, we can't. OK, let's put in some batteries, let's put in some panels we can handle, right? We'll make sure we'll manage the load to make sure that we don't exceed what is available at that location."

So between charging management and adding on-site generation and storage, yes, it can be done. In some ways, if that's part of the application, then **that can speed the process through** and it can also, working with the utility, give them greater confidence to approve the service drop and approve the interconnect. If they know that there are local resources, they're going to provide not only resiliency but also the potential to handle any peak loads.

Gotcha. Thanks.

Business models. Here's an example of four general categories of **business models** [see slide] that site hosts have for working with the charging network operators and getting charging there or doing it themselves. So the simplest one at the top here is rent space only. This is the first foray that I've seen at different convenience stores, particularly fueling stations, where it's almost like providing an easement. Where you say, "OK, I've got this one part of the forecourt that I'm going to dedicate to EV charging." Companies like Tesla and Electrify America have done a lot of this where they just say, "Look, give us the space. We'll handle everything. We'll get the power drop in, we'll get the infrastructure in, we'll make sure the interconnect happens, we'll handle everything. The permitting, we'll do everything. It'll be our chargers, but we'll run everything, and we'll retain all the revenue."

So it's sort of the real path of least resistance in that for fueling stations looking to start to attract EV drivers, there will be EV charging there. The hope is some of those customers would come in and obviously interact with some retail and make some purchases, but there's no guarantee of that and there's no data visibility. So the charging operator generally

ROI

just sends a check every month, it's a flat amount, thank you for letting us use your space. Here it is. So it's **consistent revenue**, probably less than you could get with another arrangement, but it's sort of no frills. Hey, let's put some chargers out there and see what happens. Hopefully it brings some more foot traffic into our stores.

There's also site host owned where the site host will pay for the equipment and then hire a charging network operator to maintain it and to do all the accounting, to do all the payment processing, handle most of the day-to-day, handle the hire of contractors to do the operation and maintenance as part of a fee structure. So it's really charging as a service where the sites would own the equipment, but then the charging company along with local service companies would take care of everything else. That has higher potential than just leasing the space, kind of medium risk. The site host would retain all the revenue and just pay service fees for maintaining the equipment and taking care of any outages and doing all the O&M.

Then there's where the charge point operator does the ownership and just as a revenue share, so you don't have to pay for the equipment, somebody else brings it in. They actually own the asset, they set the pricing, they collect all the revenue. They can give you a revenue share, some percentage of that, but most of the risk is on them. So there's less control over pricing. There may be less control over the data that's received to understand how much charging is occurring and then how it impacts your retail sales.

Then finally, there's the owner operator model where basically the site host does everything. You may subcontract with somebody to provide the O&M services, but really sets the prices, buys the equipment, might implement. There are software platforms that you can put on your chargers where you run everything. So you get all the analytics, all the data on that, and work with that software to set all the pricing and collect all the data. That has higher investment level, higher risk, but then also potentially higher return if the site host is really doing everything themselves. So four different models, different levels of risk and return. All these are starting to be explored.

One of the, I think, encouraging things, and I know some folks on the phone are thinking about this, well, what about combining this data with **loyalty programs**? Wouldn't it be great to understand, OK, last Tuesday there were 18 people that came to my place that used the charger. What were the retail transactions as part of that? How much did they buy? How long did they stay? That integration between loyalty programs and the charging analytics, I think is really the gold standard to be able to maximize that **return on investment**.

Loyalty Programs

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Loyalty Programs

Obviously there's software development, potential cost as part of that and getting the charging network operator or software provider to make the data available in a format that can be combined with **loyalty programs** is a challenge. It's very early days as far as that goes. But we've heard that there are some of these **loyalty programs'** software developers who are interested in developing a single solution that would be able to pull in the charging data and say, "Yeah, well, those 18 EVs that came resulted in \$650 worth of sales, etcetera, of these types of items." Now how does that differentiate versus our gas customers? I think there's a hand up somewhere.

Jeffry Harrison

John, Jeffry here. Can you elaborate a little bit on that as far as, you said there's some early adopters to that and trailblazers. Do you have any concrete examples that you can share that we can research and share with the group?

John Gartner

Some of this I just heard last week in St. Louis at the Fuels Conference. I've just heard some of the conversations between some of the retailers saying they're basically building that capability now in working with their **loyalty program provider**. Then there are some of the large organizations that have groceries as well as fueling stations that are trying to basically revamp their loyalty program to integrate it with charging as they roll out charging infrastructure. So send me a note afterward. I'll see if I can pass your information through.

Jeffry Harrison

Thank you.

Ed Collupy

Robert, go ahead.

Robert Hampton

Just to follow on with that, I thought there was an example of that in the CLVG document that came out recently. There was an example of somebody doing that. They required the **loyalty program** to activate the charger and that's how they tracked everything which I thought was brilliant.

Roy Strasburger

Well, first of all, well done Robert on reading the report, so thank you for doing that. Yes, that was in the Convenience Leader Vision Report discussion on this. That was Parkland and specifically Parkland Canada has developed a **loyalty program** where you can, I believe, find out where all their chargers are. You can see whether they are available, but you cannot reserve them in advance. I believe it actually alerts you as to whether or not somebody is already using it before you arrive. So at least you know that ahead of time.

Jeffry Harrison

Were they partnered with FreeWire? Is that the provider they used?

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In The Room with CTVG

C-Store EV Charging

Roy Strasburger

I don't know. I believe that they are using FreeWire, at least at some of their sites, but they've been very aggressive in their Canadian market rolling these things out.

Jeffry Harrison

OK.

Ed Collupy

Go ahead, Patrick.

Patrick Raycroft

This is just more of a comment. ... I think on the CPO-owned model, the thing that we're seeing and we're recommending with our clients is just to be really careful in the agreements that are formed today to ensure that what John you were talking about and Roy you were talking about, is the retailers are able to do it, able to access the systems to integrate there. In the future site operating retailers are going to want it, their payments, their loyalty, their control over the screen for things like mobile order.

Technology

We can keep going on that, but at least today in the agreements that are being formed, it's really important that retailers make sure that they have the ability to access all of that from a **technology perspective** so they don't get locked out and essentially put something onto their forecourt, their lot that they can't control and is not a part of their overall brand experience. It's not saying Parkland isn't doing fantastic things there and got out in front and is already integrating it. But we're hearing that there's some challenges in the commercial agreements that are being formed that is going to make it difficult to do that in the future if not careful early and upfront.

John Gartner

Right. That's great. Actually, to jog my memory, it was the gentleman from Parkland who I was sitting across from last week in St. Louis who was talking about their deployment. I couldn't remember which company it was, but Parkland rang the bells. Oh yes, I remember. Northern Canada, not the place you'd think to start a EV charging business, but they're seeming like they're pretty successful. I wish if we had another hour, I could talk about the ups and downs of working with charging network operators and **data requirements**. We're going to be talking about that in a minute. But yes, tread very carefully. For the projects that we run and we are collecting data, we have another Caret software tool called the EV Charging Knowledge Base where we're using that to collect data from the charging networks for the state of California and for the PICO project.

Data

The vendors have to sign a data sharing agreement saying, "Yes, we can do this." However, those are words on a page, because we found when we're trying to enforce that, it's not so simple. Some of the companies, and I've been involved in working with charging network operators for more than 10 years, it's surprising how many who have been in the business

CTVG Views

In The Room with CTVG

C-Store EV Charging

for multiple years are not that technologically sophisticated. Some have said, “We can’t apply for this program, we’re not there yet.” Then some do, and they’re still not ready for the challenge of creating the system and reliably providing formatted data in a timely fashion as required. So I couldn’t agree more that you have to be very careful with the language in those agreements and to make sure that the data can be produced as required.

The site host is the one who’s applying. You have to work with the charging network operator to get the data that you need to send it to the state or the federal government to be able to get the money. For the programs we run, we have a list of qualified vendors who apply and fill out some technical requirements about the way they store and share data to give greater confidence when somebody wants to enroll in one of those programs that it can actually happen.

Do we have any owner operators in our group? Silence is golden. Go ahead, John.

So I was just starting to talk about the **charging data**. It’s really critical in predicting the **return on investment**. If you’re going to be putting in these DC fast chargers, hundreds of thousands of dollars, great when the federal government or a state agency can pay for 80% of that. However, there still is that upfront financial investment. As I mentioned, charging data is now required for the federal program, for the California program. Most programs are now saying, “Yeah, we’re not just giving free money.” You have to provide charging data so that the states and the federal government can learn about these charging patterns so that better analytics can be produced, understanding reasonable ROI and where chargers should go in the future to say, what are the characteristics that make one site better than another, including things like the presence of amenities. So that’s what we’re going to be doing with our platform — great that it was mentioned, restrooms, how important is that?

Is there a difference in the utilization, the dwell time of locations that have **particular amenities** like foodservice, restrooms, etcetera, over others? So getting all this charging data and understanding how much, how often, how long, when during the day, is all important in really understanding, “Hey, am I going to make money at this or not?” Or certainly in understanding the potential for EV charging to increase the overall basket take. Is this really going to benefit my business by bringing in reliable customers who are going to spend with me besides just at the plug? Again, we’ve developed this **analytics platform** that we’re using with several customers and will be using with the Transportation Energy Institute as well, to collect this data and develop these demand curves, so you can see at what time of day most charging occurs, what’s the frequency, what does it look like during the days, during the weekends, and also the different types of sites.

Ed Collupy

John Gartner

Data

ROI

Facilities

Data Analysis

CTVG Views

In The Room with CTVG

C-Store EV Charging

EV Infrastructure

Data

Maintenance

Workforce



Ed Collupy

Cheryl Szczesniak

Ed Collupy

So the application, for example, if it's a **charger that is at the curbside** at a parking spot in front of a 7-Eleven, what does that charging profile look like when compared to a bank of chargers that are at what's been a fueling stop for a long time that now has several chargers in there, that also has food and maybe a shower and has been used as kind of a truck stop, longer duration location with a place to eat and walk around. So it's going to be necessary to create these kind of profiles because just because you have 150-kilowatt charger, doesn't mean that you're going to get anything similar in utilization if the location type is very different, let's say at a national park or at a pharmacy or something like that. So really understanding the data is key to understanding where chargers should go, how much money you can make, how quickly you should invest, and understanding the surroundings. What are the environmental factors that could make a location more likely or not to bring in the revenue you'd like to see by offering charging services.

It can also be used for **reliability data**. So understanding downtime. How often do the chargers go down, for how long? How much does it cost to fix them? How long are they offline? Is it scheduled maintenance? Is it a surprise, some accident, or is it a power outage that's really not in the control of the site host? All that data can really help reliably predict the **operation and maintenance cost**, again, so you can budget appropriately. So great that the federal government is standardizing on data collection for this. And, as part of that, all of the chargers need to have 97.5 reliability uptime. So it'll be really interesting. As I mentioned, there's a webinar next week, June 6th on the charging data that anybody who gets any of these federal funds has to provide to the states, and then the states then have to turn over to the federal government.

John, you can move to your next slide, but while you're doing that, I'm just going to ask Cheryl, I know you have to move on, but I'm wondering if you have a thought or have you talked at Spinx about how EV might change the world of **employees**?

So we're just in the beginning phase. We've got two stores with Tesla charging stations. We have one down in Orangeburg, South Carolina that does really well, it's crazy. When we first went into it, we were like, "Yeah, we're just going to dabble into it and see what happens." People in South Carolina probably aren't going to be buying a lot of EV cars, and we've been very surprised by the amount of people that are using these stations. Then we put a couple across the street too, recently. So for Spinx, it's really early on and we want to just see how this plays out. We have not talked anything about how it's going to affect our team members or anything, it's just we want to see how this plays out really.

Good. Thanks for sharing that with us.

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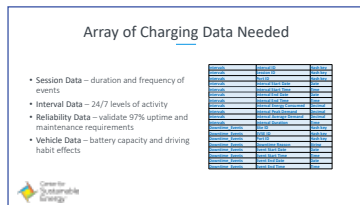
C-Store EV Charging

Cheryl Szczesniak

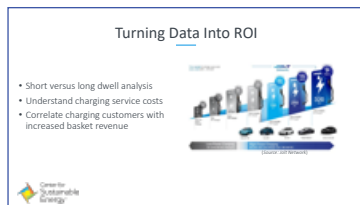
Ed Collupy

John Gartner

Data



Customer Experience



Advertising

Sure.

Go ahead. And just a time check, John. I know we said we might run out of time, but we probably have about 15 minutes.

OK. I think I have maybe three more slides to go so I'm getting there. This is our most technical slide here, and I can go through this one quickly [see slide]. I already started talking about the **importance of reliability data**. So we worked with the California Energy Commission in coming up with the data standard that's being used for collecting data, all the formatting. As I mentioned, all the charging operators, they all have a different way of recording, formatting and storing their data. So part of their data sharing agreement is they have to provide it in a certain format, takes a lot of effort to try and do that. So if you are looking at potentially a large region where you operate stores, you might want to pick more than one charging operator. Don't assume that the data's going to all come together easily, it will take some work if you're working with more than one provider.

The federal government has its own standard that is a subset of this. We offered this standard to them during the comment period, but they went with a slightly reduced number of fields that they're requiring. But this is all the **data** that's important in understanding, again, cost of operations, reliability, and revenue potential by just understanding when people are charging, how much is that going to cost in electricity, how often are these things going to be down? Then again, how long the **dwell time** is, so are people really sticking around for a long time? Even viewing the difference between when the cars are stopping charging and when they're unplugged. Because sometimes you'll see instances where people will be busy shopping or eating or walking to another retail area close to a charger. So they don't track that their charging session's actually done, which again, provides greater retail opportunities [see slide].

As I mentioned, there is a lack of standards, which makes it tough. We'll see how well the states do in making, agreeing, adhering to the federal requirements in **collecting data** from a number of chargers. CSE has been working with 26 different charging network operators in the state of California alone with great variety of technical sophistication. We have to bring them along in understanding how to provide data. So the federal initiative in requiring some level of standardization is really going to help. It's going to separate the pretenders from the contenders as far as offering charging services by making them comply with these. So hopefully that'll be a better experience for all the site hosts as they get up to speed and start enhancing their technology system to be able to more seamlessly make this data available.

I did want to also mention, the federal program does also allow for **signage** as part of the costs. This was a study we did

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In The Room with CTVG

C-Store EV Charging

in California. We asked just registered vehicle owners, not EV owners, of course, just registered vehicle owners. Do you know of any charging stations in your neighborhood? If you had to go close by to your house, where would you charge? 44% of them said they had no idea. They don't know anywhere close by where they would charge or in their daily routine around town. So I know there is money for signage as part of that, so I would just offer that up that it should definitely be part of the plan, because making the EV drivers know where to find charging, that it's highly visible at the location, directing traffic from major thoroughfares to your location is really important because there is often challenges in awareness. New EV buyers don't know, and it certainly is hindering people from buying EVs because they just think, "Well, there's no charging near me, so I'm not going to buy one. It's not for me, especially if I don't have a driveway with a easy access to electricity. But even if I do, I'm afraid of getting stranded because I don't know where the charger is." So I think there's a lot of education outreach and improvement for letting the community know that charging services are offered. There's a hand up somewhere.

Ed Collupy

Yes. Donnie, go ahead.

Donnie Rhoads

Thank you. So related to signage, obviously we're all familiar with signage, posting our fuel prices for everybody to see. Do you see that being something we do for EV chargers as well? Like the **rate for charging your vehicle** and a big flashy sign on the highway?

Fuel Pricing

John Gartner

It's possible. The challenge with that is it would have to be digital because it changes throughout the day. The electricity prices change throughout the day in most cases. So you wouldn't want to say, "Oh yes, it's 18 cents per kilowatt-hour," and then at five o'clock in the afternoon, your utility is now charging you 30 cents per kilowatt-hour for that electricity. So there's a real challenge in making that publicly available. However, there is a requirement in the federal government that now all pricing has to be posted in cents per kilowatt-hour.

When the chargers first came out, there was a lot of flexibility and some was like time. Oh, we're just charging by the minute or by the hour, or for time at the location, not necessarily for the amount of energy that's dispensed. And so the federal government did take that step to say, at least when you get to the charger, has to show up on the screen cents per kilowatt-hour. And there's still a lot of education that needs to go on to have people understand, am I saving more than driving with gasoline or not? Because it's very confusing. And unfortunately, I think the federal government still has some work to do in the way that the fuel economy website and the ratings for the miles per gallon equivalent is calculated.

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In The Room with CTVG

C-Store EV Charging

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Cheryl Szczesnaik

Hey, Cheryl, your comment about that store that surprised you, is there a difference in **signage** between that and the other sites? Is that at all a possible explanation there? You mentioned the one store that you were surprised at how busy it is.

Do we put signage up? No. Well, Tesla has given us signage. We have signage up on both sites. So the surprise really was not in the one site versus the other. The surprise was, for some of us [how busy it was]. I think Stuart was more, believe it or not, open to EV. He thought this is the wave of the future. And yes, we got to get into it. Some others of us on the executive team were like, do we want to rush into this? Do we really want to do this? Or is this what consumers want? So the surprise was really, and every time we go there and we visit that site, they're covered up. We have six charging stations there, and they're always covered up. I think that was the surprise how in South Carolina, in Orangeburg, South Carolina, was how many people. And it is an easy on/off ramp on 26. So they're going down to the beach. Maybe that's it. But we do get a lot of traffic on those charging stations.

Ed Collupy

Loyalty Programs



Mike Templeton

Very good. John, before you wrap up with your summary, I just want to let Mike, if you don't mind, chime in a little bit on how you are thinking about the **digital experience** as it relates to EV. I'm not sure if you guys at Casey's have any installed at this point.

Yes, we do actually, 30 or 40 sites. And some of the stuff that John was just talking about in terms of loyalty, connectivity, integration with the digital experience, I think it's interesting because this is sort of the beginning of digital and loyalty all over again just with a different energy type because we've solved for all of this at the traditional fuel dispenser. I can enter a phone number, it's connected in. And I think the biggest gap here is that as you talked about, these different business models, for whatever reason, charging electric vehicles still operates independent of the way all the rest of it works. And so are we waiting for a world where Gilbarco and Wayne has an offering and it works like everything else does?

It seems like an artificial challenge for us to have to solve for identity between these two things, identity at the charger to identity with the retailer. Hopefully that stuff just goes away over time because right now we're having to solve for it independently. And we've even had those conversations internally at Casey's to say, hey, we've got a robust loyalty program, we've got a robust digital experience, what does it take to connect that to these charging experiences? Because we know it works for us when we've got that there. But so far, all of the **charging experiences** for guests are disconnected from that. So we're seeking opportunities there.

Customer Experience

CTVG Views

In The Room with CTVG

C-Store EV Charging

Jeffrey Harrison

I think, Mike, you're right on the mark, and I just echo all that, especially us being the Technology Vision Group. I think that ties into what this whole EV conversation is about. So totally agree. Making standards for that is key.

John Gartner

Great.

Ed Collupy

Technology Standards

And on the **standards front**, when we were doing a preview with John, I did ask if he's been involved at all with Connexus, who, as everybody on the call knows, works a lot with standards for the industry. And he said it was a topic at the formerly Fuels Institute meeting last week, and I did bring it up to Gray Taylor and Linda Toth [of Connexus] as well. So they're well aware of the need for that and probably will be working on it. Scott, it's great to see you. I'm glad you were able to join us and just want to check in since you're the only one we haven't heard from yet today with a question or anything. So I want to give you an opportunity before John moves on to his summary.



Scott Smith

Strategy

Customer Experience

So as a person that drives the Tesla, one thing we've seen, and Greg also drives one, is that **how do we incentivize people** to use our charging stations but also come inside? And we've done studies, and what we've noticed about most EV charging stations is that the customer sits in their car, charges and leaves or they come in and use the restroom, or they come in and buy a fountain drink. And we're not seeing the majority of customers come in and use the actual **store experience** that we have.

And I actually texted Jeffrey to say, how do we use a loyalty program to incentivize people to come into our store? How do we say charge with us, get a free coffee when you buy a breakfast sandwich? So I think as we all progress in this new world of charging stations and EVs, the question's going to be around how do we break into either Tesla chargers to allow us to integrate with them or do we go to a different platform? So it's an exciting place to be and I'm curious to see where we go with it. And I agree with using Connexus to build standards now, so we're ahead of the game.

Ed Collupy

Excellent. And Rance, you gave it a thumbs up. Does that mean you've got some experience with that or frustration there?

Rance Wells

No, just agree what he's saying. It's all about getting that person from whatever they're doing at the dispenser into the store, always.

Ed Collupy

Jeffry, you got something to say, I think.

Jeffrey Harrison

No, I just love the homework I have now from Scott, so no, this has been great. Great discussion. Keep going.

CTVG Views

In The Room with CTVG

C-Store EV Charging

Ed Collupy

That's right. One of our other goals is to help solve industry problems. So it'd be great to hear maybe next time the progress you've made.

Jeffrey Harrison

Will do.

Ed Collupy

John, why don't you wrap us up?

John Gartner

All right. So just in conclusion here, I've said this is a **huge opportunity**, billions of dollars are being invested by utilities, state and federal agencies to help defray that cost and minimize the risk. You may not think that the numbers are there today, but it's really a land grab. And if you are not applying for that money or considering it, or at least putting the roadmap for your locations as to where you should go first, somebody else is going to go for it sooner. And then as you all know, only too well, the importance of real estate. And when I spoke a year ago at a NACS meeting, I warned the audience, don't be Blockbuster. Don't assume that just because you own the customer today, you're going to own the customer a year or three years from now. Because we saw what happened to that industry overnight where it was like, people want to run videos, of course they're going to come here.

And then all of a sudden you were able to, one, get videos at other locations like Redbox and Netflix, and I think there's one Blockbuster store still available. They just folded. So that's just again, to emphasize, you have the visibility, you have the locations, you have that customer experience, but it's going to need to change as was talked about.

Why can't we get people in the stores? It's like, well, **how does the EV buyer differ from a non-EV customer** in terms of what they want? Do they want higher quality food or different items for sale? Do they want some kind of entertainment? Whatever it is. What is different about it to get people in those stores? And I agree. Couldn't agree more that loyalty programs and data are the way to unlock this and figure out do we have the services that are going to keep people happy for 40 minutes as opposed to five minutes or somewhere in between for that **charging experience**. And again, if it's not at your location, it's pharmacies, arenas, shopping malls, parking garages, they're all going to be other destinations that are now going to be competitors for that refueling experience.

Ed Collupy

Go ahead, Eva. Chime in, Eva.

Eva Strasburger

As we mentioned earlier, Roy, Myra and I have just been at the NACS Convenience Summit Europe in Dublin. And some of the takeaways about EV, which are quite relevant, are that attendees talked about EV charging in Norway, which is so far ahead of other countries, and the retailers said that the biggest regret they had is they didn't put in enough capacity

Strategy

Data Analysis

Customer Experience

CTVG Views

In The Room with CTVG

C-Store EV Charging

Strategy

because they didn't realize how much the EV market would explode. Then the second regret we heard from people in Europe who have put in EV chargers is that they rushed to put them in closest to where the electrical units were, where it was most convenient to them as suppliers and retailers rather than where they would be the most convenient for the customers.

So they said they really need to rethink the **layout** as they wish they had more capacity for charging because there are quite a few people in Europe making good money from EVs, (which we don't really hear in the States), and they're saying EVs owners are very good customers for them. BCG (Boston Consulting Group) gave me a paper that they've written, which is called "What Electrical Vehicle Owners Really Want from Charging Networks." Out of the 14 categories for the States, number nine is that EV owners want chargers to be attached to convenience stores. So that's actually a really good paper to read about what you're saying. What is it that the drivers are actually looking for?

Ed Collupy

Thanks for sharing that resource, Eva.

John.

John Gartner

Data

Yes. And in conclusion, so as I mentioned, the importance of **data**, really understanding what your electricity costs are going to be, understanding what the O&M costs are going to be. Reliability, certainly if something happens that you don't have the best experience, understanding what other charging network providers and hardware providers are offering in terms of reliability, should at some point you need to make a change or you're going to add additional locations. Great to be able to understand where are the reliable chargers and what indicates that kind of performance.

And then again, we are moving toward more data consistency, which will be really helpful in that. So that's what I had prepared. And I'll just say, if anyone happens to be in the Sacramento area, June the 12th, I'll be speaking at the Electric Vehicle Symposium. It's the world's largest EV conference that switches between the Europe, U.S., and Asia every three years, happens that in 11 days it's in Sacramento. But please reach out to me. Any follow up questions, happy to answer, try and help make connections. Really appreciate your time and happy to answer any final questions.



NEXT: Closing Thoughts

CTVG Views

In The Room with CTVG

C-Store EV Charging

Closing Thoughts

Ed Collupy

John, thank you very much for all your insights and really leading us through a discussion today. Thanks to all our members for all the questions and comments and insights that they shared as well. So thanks for that. So as we approach the end of our time together, during our first meeting, you'll recall we said that we wanted to be sure that we bring forth at the CTVG quarterly meetings a topic that's top of mind to each of you and to the industry.

So what should we be working on and pulling together for our September 8th meeting? Just one thing that I've heard from some of you and others in the industry is the challenge with data, what and how to do with all of it, how to capitalize on it. But I really want to hear from each of you about what we should be covering next, what you'll want to hear and maybe even who you might want to hear from. So let's go around the room. We can do that in alphabetical order. It'll be an early birthday present to Jason since he comes first alphabetically with last name, his birthday's tomorrow. So Jason, what topic next would you like to see and happy birthday.

Jason Collins

Oh, thank you. Point-of-sale containerization. The future of the point of sale at the retail sites and what that looks like. Payments in the cloud. Everything in the cloud for the point of sale. Kind of top line.

Ed Collupy

Super. Erin.

Erin Graziosi

One thing we're trying to figure out right now is just reevaluating maintenance software.

Ed Collupy

So software to help you maintain or run your maintenance side of the business?

Erin Graziosi

Correct.

Ed Collupy

Got it. Robert?

Robert Hampton

I do like the point-of-sale containerization, but maybe one on ChatGPT.

Ed Collupy

And to that point, there may be a possibility of splitting and bringing two topics to the table if we think it's possible, although we filled this good hour and a half with EV. But thanks. Good thought there. Raymond.

Raymond Huff

Great. So I think the EV topic is really a timely topic and it's really important for the industry to know how we monetize it

CTVG Views

In The Room with CTVG

C-Store EV Charging

and how we are able to keep our customers coming. Now doesn't affect me as much as it affects you guys out there with locations on the street, but I think it is going to be something over the next four or five years that we're going to have to continue to look at. On the question of point of sales, containerization, I didn't quite understand that.

Ed Collupy

Jason, can you maybe elaborate?

Jason Collins

It's just more the future of the point-of-sale. Currently, if you have a Verifone, Gilbarco, NCR or other, just the future of what that looks like, how the payments work, loyalty, your point of sale, your back office, your price book, how that all integrates from the cloud to the site.

Raymond Huff

I understand. That's great. I think that Connexus is coming up with the standards for online point-of-sales. They don't call it online, but it's in the cloud POS, a standard for that, which could resolve a lot of those issues between all the different companies. So that's just an aside. Back to you, Ed.



Ed Collupy

Thank you. Steve.

Steve Morris

I would agree with the point-of-sales, but I had two others to take a look at too. And the first one is the state of loyalty. That has evolved so tragically fast that I think that as retailers we're struggling to catch up and it continues to move extremely fast for us. I would like to just hear from everybody on just the state of loyalty and what we're doing from a technology standpoint. And the other one is kind of linked to that point-of-sale. But for me in the last couple of months, we've been working a lot on methods of payment and that is how are we integrating truck stops and largers. I've got five tablets in a store because there are different methods of payment from a mobile standpoint and how we integrate that and what the technology options and integration pieces look like for method payment. So it's kind of like the point-of-sale.

Ed Collupy

I got it. Very good. Donnie.

Donnie Rhoads

I love the POS topic because it's one of my biggest pain points just in my personal experience. So mostly from the integration side and how the forecourt hamstrings innovation in my opinion. So that would be my preferred topic especially how our industry as a whole is maybe lagging behind, say the restaurant industry.

Ed Collupy

Very good. Scott.

Scott Smith

I'll echo. I think point-of-sale seems to be the number one topic people want to hear about, so I'd love to hear about it as well and see what innovations are coming out and the Connexus standards that'll help us with it.

CTVG Views

In The Room with CTVG

C-Store EV Charging

- Ed Collupy** Excellent, thank you. I'll follow up with Cheryl, but Mike, what's important to you?
- Mike Templeton** I'd love to hear about team member facing technologies inside the store. What are they using and governed by this challenge of hourly employees, personal devices, corporate deployed technology. What are these 17-, 18-, 19-year-olds expecting to be able to have access to and leverage to be effective in their job inside of a store?
- Ed Collupy** Interesting that we're moving to Rance next because he presented a bit of a preview of what they've been doing at Toot 'n Totum at the Conexxus annual conference on that topic. But go ahead Rance.
- Rance Wells** When it comes to back office, I think we're all kind of this way. We know what we got. We don't know what we don't have. I was at the Verifone Conference, talk about APIs and talk about moving things to the cloud and being able to access your data above site. It was very exciting. But I'd love to hear what others are doing because you always stand on the precipice of am I doing the right thing? Do I need to look at a different technology stack to solve my problems? And then when it comes to internal facing stuff, we're doing some novel stuff, I think maybe or maybe not just paying for a lot of Microsoft licensing that's underutilized, I don't know. But you're just like everybody else. For the longest time we always had a big goal of some sort of internal app or something like that where we had a guest side app and then we had an internal app where people could do the things they need to do in their job, checklists, daily task lists and things like that. We never really got that to happen. We're leveraging SharePoint to do some of that today, but we're big Microsoft shop, so we're doing a lot of that stuff for sure.
- Ed Collupy** Thanks for sharing that Rance. Appreciate it. Jeffry.
- Jeffry Harrison** Totally want to echo what Mike and Rance just said about the employee engagement. We've seen a lot of trends with a lot of our customers utilizing their customer facing app and having a secret section for employees. So taking their employee ID or their phone number that's registered in the HR payroll system. So whatever you use, Paycom or whatever you use, and actually giving special offers — a free fountain drink when you're on shift or double points or something like that. So that's been a big topic.
- And we're doing a lot of partnerships with Altria right now on their new Personalized Plus Program, if anyone knows what that is. So Altria has been mining data for the last couple of years, as we all know, with scan data and stuff. And now they're finally actually going to use that data. So I don't know if anyone's aware of this, but in July they're doing the first wave of retailer rollout with Personalized Plus the P Plus Program.

They're actually taking specific Marlborough content and they're identifying, hey, Joe Smith gets a dollar off and Sally, Sally Johnson gets 50 cents off. And so it's actually pretty interesting what Altria is doing because they're leading the whole CPG front on the scan data side. So if anyone wants to talk more about that at some point, I think that's a highly relevant topic because these CPGs have to stay relevant.

And then the third thing that I'd be remiss without saying is all these big announcements today about partnering with Instacart to doing the 30-minute delivery. They literally branded that as their virtual convenience store and ALDI, clearly been labeled in American's heads as a grocery chain, now has a virtual c-store. So those are all three hot topics in my opinion.

Ed Collupy

Excellent. Thanks. Last but not least, Patrick.

Patrick Raycroft

My topic to throw in the mix would be the linkages between monetizing first party shopper data that retailers gather in order to reinvigorate loyalty programs and retailers taking the value that they can generate on passing it back to consumers. Similar to what's being seen in Big Box and Walmart and Kroger, et cetera.

But on the POS topic, I just want to comment on containerization of the POS. I would ask to also talk about virtualizing the forecourt controller, because it kind of goes hand in hand. We're talking, there's payments as the core point of sale, but we also have to, I know that's been a really common pain point as we think about POS coming into the environment, [think about] what to do with the traditional barrier, which has been forecourt control. So I think there's some interesting topics to cover there.

Ed Collupy

Excellent. Great. Thank you all for sharing your ideas and the Vision Group team, Eva and Roy and Myra and myself will get together and put something together for September and we're always thinking ahead as well. But thank you for your thoughts on that. Before we go, Myra, anything to wrap up with on your side?

Myra Kressner

Oh goodness. I've been listening to everything very diligently and taking as many notes as I can. So we'll have the Vision Report, which we'll try and get to everyone as soon as possible. Certainly everyone, please do download the report, share it internally within your organization as well as other associations that you belong to or media that may ask you about it. And as always give us feedback, your honest feedback about this. And then I'll let everyone go now on a Friday afternoon.

Ed Collupy

Jeffrey, go ahead quick. Go ahead.

CTVG Views

In The Room with CTVG

C-Store EV Charging

Jeffry Harrison	I want to just say before we reconvene in September, I'd love to get us all together if everyone's at NACS to do a group photo and have a drink or something like that just so we can all meet each other, that'd be great.
Eva Strasburger	Myra, Roy and I, are working on a potential event and we'll let you know more about it.
Roy Strasburger	And the only thing I'd like to add is, first of all, thank you everybody for participating today and special thanks to Rovers town and to W. Capra Consulting for being our new Ally Supporters. We really do appreciate it guys. So thank you very much.
Eva Strasburger	And thank you to John. Of course. That was an excellent presentation.
Roy Strasburger	John, thank you very much.
Eva Strasburger	And thank you, Ed.
Ed Collupy	You're very welcome. Thank you all. I appreciate everybody being with us today. See a bunch of hand claps, so appreciate those. John, those are meant for you I'm sure. So thank you again. And we will see everybody in September. Enjoy the summer that is upon us. At least it feels that way here in New England today, which is a bit unusual for 1st of June. It has been great being with you for the past couple hours and I look forward to connecting with each of you soon. Thanks.

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In The Room with CTVG

C-Store EV Charging

C-Store EV Charging

Business and technical challenges

6/2/2023

John Gartner, Senior Director



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C-Store EV Charging

About CSE

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Center for Sustainable Energy® (CSE) is a national nonprofit that accelerates adoption of clean transportation and distributed energy through effective and equitable program design and administration.

- Administer cutting-edge programs valued at over \$4 billion for governments, utilities and the private sector across the U.S.
- Leader in data-driven incentive program design and administration for:
 - Electric vehicle and EV charging incentive programs
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- Governments, utilities and the private sector trust CSE for its data-driven and software-enabled approach, deep domain expertise and customer-focused team.
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Areas of Expertise



Clean Transportation

Adoption of electric vehicles and deployment of charging infrastructure



Built Environment

Advancing energy efficiency and renewable resources



Technology Convergence

Interconnecting data and systems to achieve decarbonization



CTVG Views

In The Room with CTVG

C-Store EV Charging

EV-EVI Forecasts: United States

Year	Annual New EV Sales (Market Share %)	Existing EVs (Fleet Share %)	Annual New Public DC Chargers ¹	Total Public DC Chargers
2024	1,735,000 (11.8%)	7,006,000 (2.8%)	23,135	89,821
2025	1,962,000 (13.1%)	8,881,000 (3.5%)	26,169	113,859
2026	2,247,000 (15.0%)	11,010,000 (4.4%)	29,963	141,154
2027	2,614,000 (17.6%)	13,467,000 (5.4%)	34,850	172,654
2028	3,176,000 (21.3%)	16,437,000 (6.6%)	42,348	210,731

**Projections including impact of U.S. IRA and IIJA policies produced by CARET EV Planner®*



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C-Store EV Charging

Incentive Programs Reduce Costs

Federal Programs

- NEVI (\$5 billion)
- CFI and Corridor Programs (\$2.5 billion)
- Investment Tax Credit

Local Programs

- State programs
 - CHILL-2 and CALeVIP (CA)
 - Plazas program (CO)
- Utility programs
 - SCE Charge Ready
 - PECO L2 make-ready



BACK TO DISCUSSION (P. 31)



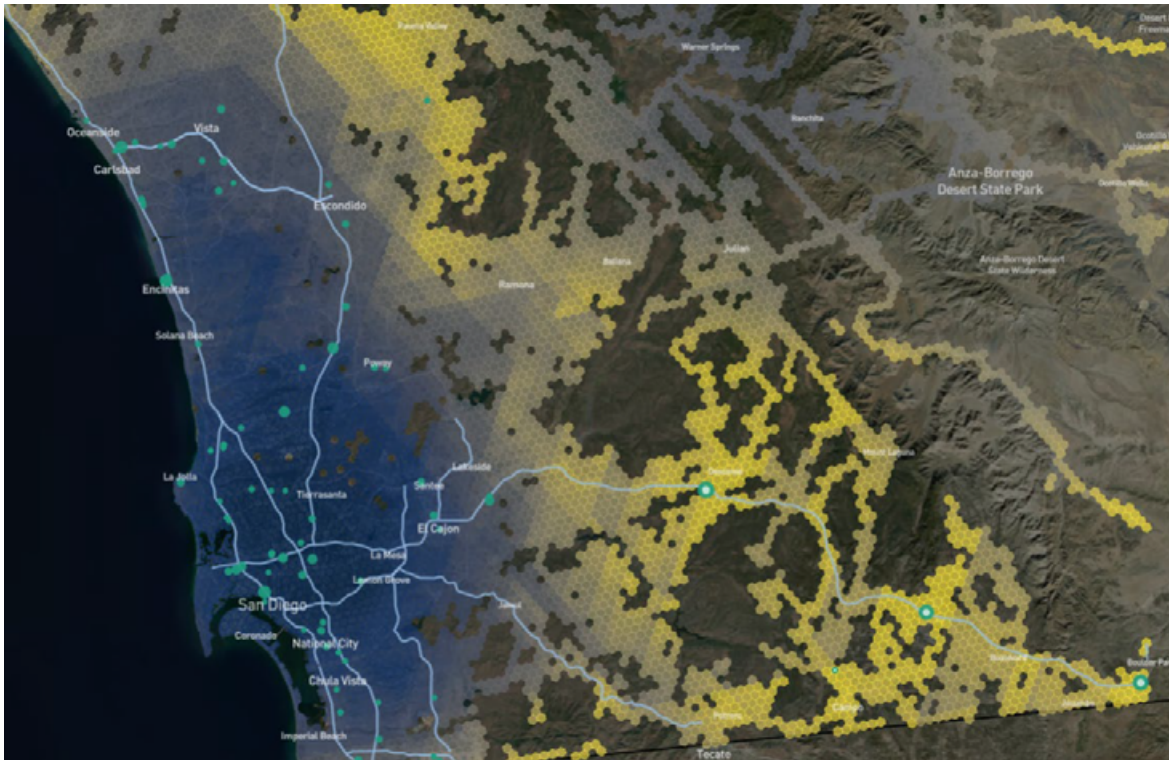
BACK TO DISCUSSION (P. 38)

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In The Room with CTVG

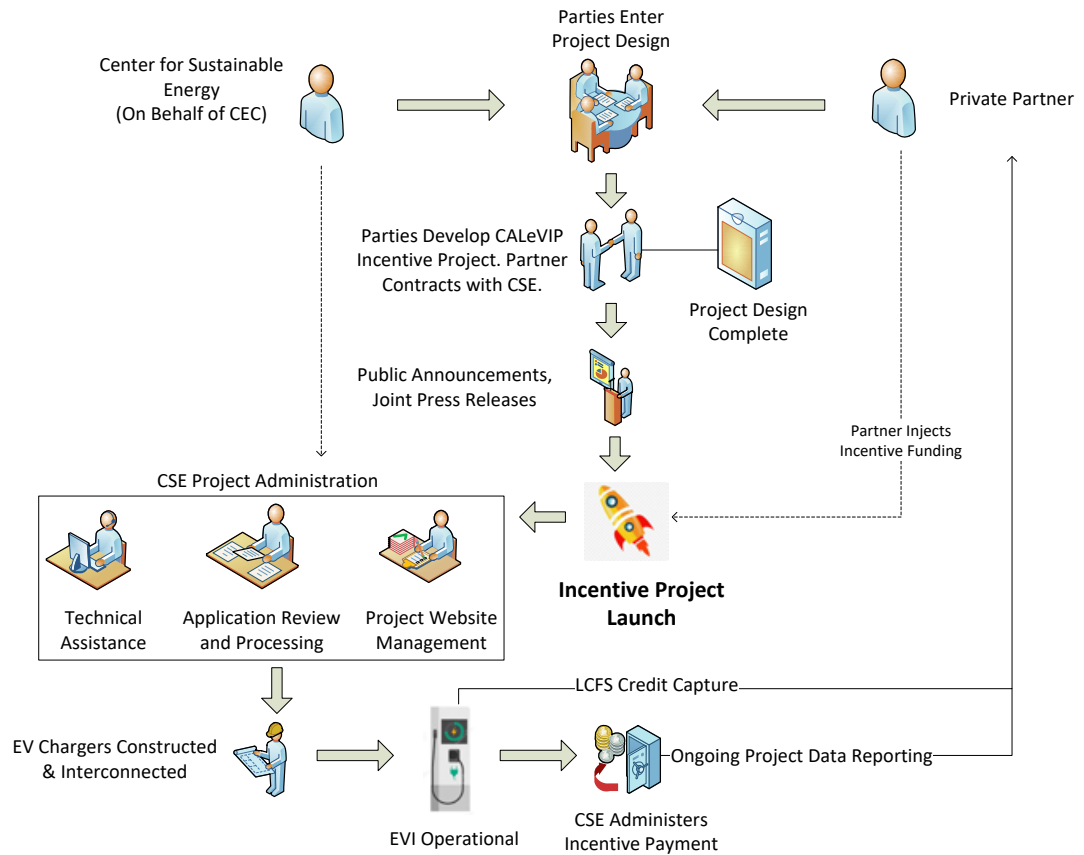
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Identify Profitable Locations



Variable	Weight	Inverse?
<i>Dist to AFC (miles)</i>	40	☒ Yes ☐ No
<i>VMT (highway)</i>	5	☐ Yes ☒ No
<i>Non Tesla DCFC Count (within 8 miles)</i>	20	☒ Yes ☐ No
<i>Non-Tesla DCFC Count (within 16 miles)</i>	20	☒ Yes ☐ No
<i>Dist to Nearest Ramp (miles)</i>	15	☒ Yes ☐ No
<i>Non-Highway VMT (within 8 miles)</i>	20	☐ Yes ☒ No
<i>Median Income (within 2 miles)</i>	10	☐ Yes ☒ No

Charger Installation Process



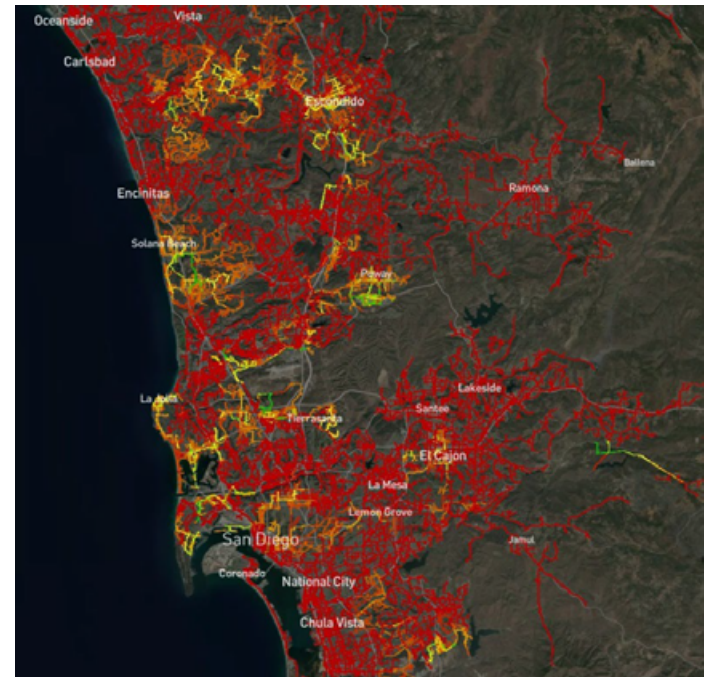
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Utilities Influence Pace of Installation

- Data showing capacity availability usually not shared
 - PUC rules can complicate sharing of data
- Upgrades can take 12-24 months
- Incentive program applicants drop out due to delays



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C-Store EV Charging

EV Charging Business Models

Model	Pro	Con
Rent space only	Consistent revenue, no investment	Limited revenue, no data on customer impact
Site host owned	Higher revenue potential, medium risk	O&M fees can be high
CPO owned	Less upfront cost, revenue share	Less control over pricing, data
Owner operator	Full data exposure, revenue retention	High investment and capital risk



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C-Store EV Charging

Data to Predict ROI

- Providing charging data often required
- Understand cost of charging services
- Visualize profitability
- Identify opportunities for demand charging mitigation
- Predict O&M costs
- Petition for rate case changes



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C-Store EV Charging

Array of Charging Data Needed

- Session Data – duration and frequency of events
- Interval Data – 24/7 levels of activity
- Reliability Data – validate 97% uptime and maintenance requirements
- Vehicle Data – battery capacity and driving habit effects

Intervals	Interval ID	Hash key
Intervals	Session ID	Hash key
Intervals	Port ID	Hash key
Intervals	Interval Start Date	Date
Intervals	Interval Start Time	Time
Intervals	Interval End Date	Date
Intervals	Interval End Time	Time
Intervals	Interval Energy Consumed	Decimal
Intervals	Interval Peak Demand	Decimal
Intervals	Interval Average Demand	Decimal
Intervals	Interval Duration	Time
Downtime_Events	Site ID	Hash key
Downtime_Events	EVSE ID	Hash key
Downtime_Events	Port ID	Hash key
Downtime_Events	Downtime Reason	String
Downtime_Events	Event Start Date	Date
Downtime_Events	Event Start Time	Time
Downtime_Events	Event End Date	Date
Downtime_Events	Event End Time	Time



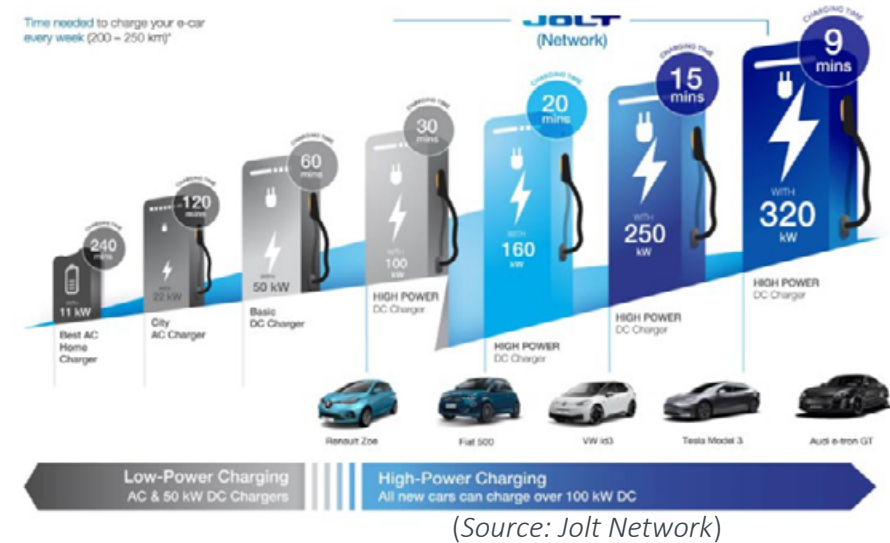
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Turning Data Into ROI

- Short versus long dwell analysis
- Understand charging service costs
- Correlate charging customers with increased basket revenue



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C-Store EV Charging

Lack of Standards Hampers Data Collection

- Charging networks vary greatly in fields names and types of data collected
- Technology for delivery of data remains rudimentary
- No agreed-upon error codes for downtime events
- Federal requirements will encourage consistency



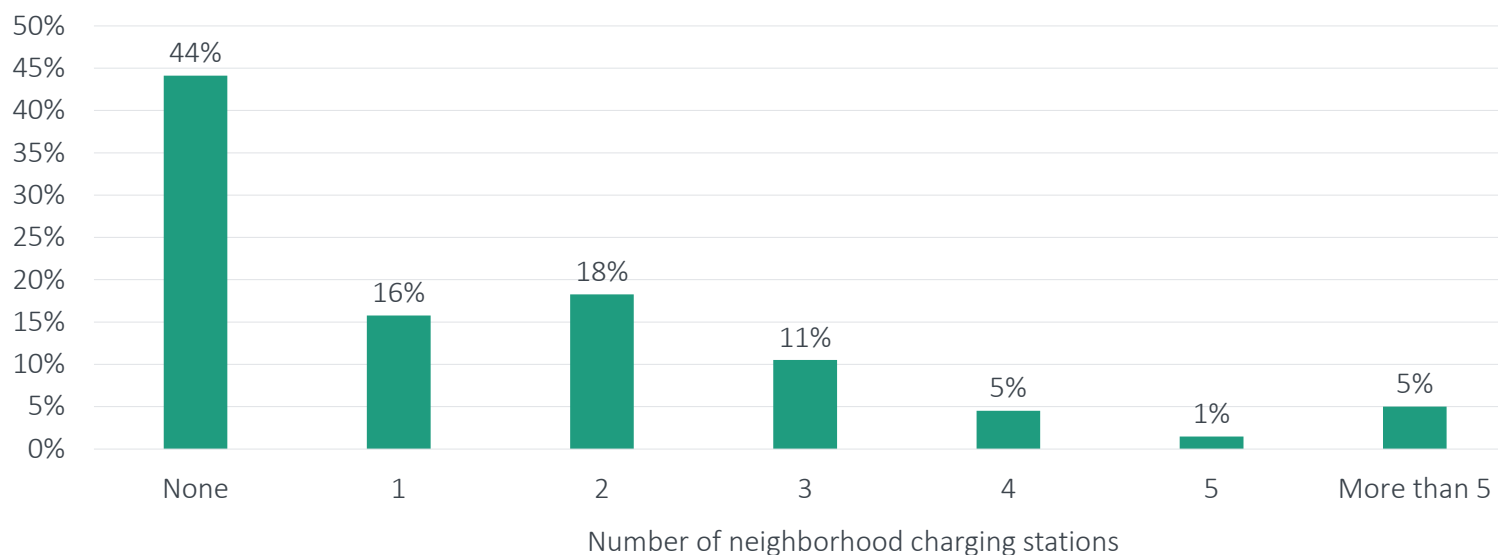
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Signage Critical to Awareness

- 44% of CA respondents know of zero charging stations in their neighborhood



Summary

- High volume of chargers needed creates opportunity
- Utility coordination needed for successful implementation
- Reliability data indicates performance and O&M costs
- Federal standards will move industry toward data consistency



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C-Store EV Charging

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C-Store EV Charging

The Convenience Technology Vision Group (CTVG) brings together invited tech leaders for quarterly virtual meetings to discuss technology issues impacting the convenience channel. The group will address trends, challenges and solutions in AI, computer vision, alternative payments, robotics, IoT, blockchain, cybersecurity, data analysis, EVs, food tech, frictionless checkout, digital experiences, workforce management and more. The group is committed to sharing its views and perspectives in order to advance the convenience retailing and mobility industry. CTVG operates under the Vision Group Network, which gathers the collective knowledge and ideas of its members to create a legacy of sharing within the retail community. For more information and to sign up for future Vision Reports, visit our website: tvgsolutions.com/CTVG



A part of Vision Group Network

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Currents of Change

CLVG Convenience Retailing Vision Report
Vol. 1, January 2023

Key topics covered: changing work schedules and the gig economy; foodservice tipping in the convenience segment; alternative fuels and the timeframe for electric vehicles



The Business Case for EV Charging: Is It for You?

CLVG Convenience Retailing Vision Report
Vol. 2, March 2023

Key topics covered: the pace of EV adoption; c-store operators' views of the EV-charging customer; three pathways of EV retailing; a micro case study



Tech Trailblazing

CTVG Convenience Technology Vision Report
May 2023

Key topics covered: debating the AI hype, tech as it relates to shift flexibility, and the breaking point on data collection



AI: Dawning of a New Era in Retail Analytics

CLVG Convenience Retailing Vision Report
June 2023

Key topics covered: the dawning of a new era in analytics as generative AI evolves, generative AI in simple terms; how AI is quickening the pace of business today; A micro perspective of AI at TXB stores; personalization through AI