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**MICROGRID  
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2024 Market Survey:

# Commercial EV Charging

Worries Rise About Limitations to Commercial EV Growth, but Government Incentives and Microgrids Push Charging Infrastructure Forward



# Commercial EV Charging

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# Introduction

*The road to vehicle electrification is paved with many speed bumps, twists, and turns.*

That has been a definitive lesson of the past 12 months, as general confidence about the rise of electric vehicles (EVs) has mixed with concerns related to stagnating consumer interest, automaker EV production delays and cancelations, and challenges standing in the way of adequate EV charging infrastructure.

EV sales in the United States are still expected to surge 50% year-over-year to [9–11% of all vehicles sold](#). It's just that the transition isn't going quite as smoothly as some expected. As Edmunds Director of Insights Jessica Caldwell [put it](#): "EV adoption is looking to move into its next phase — requiring much more mass-market interest — and this larger cohort has to be sold on EVs since they aren't as enthusiastic and willing as early adopters."

In 2023, Endeavor Business Intelligence and Xendee, an EV charging and microgrid design services provider, launched a landmark inaugural survey of leaders involved in the development, operation, and commercial use of EV charging infrastructure to gain insight into

the challenges and potential solutions related to commercial EV charging. In 2024, Endeavor and Xendee again conducted the market survey, revealing several key themes:

- The limitations of the electric grid and high costs remain the largest challenges to developing commercial EV charging infrastructure.
- Organizations are refining their views on the best solutions to key challenges and their approach to overcoming them. For example, charging infrastructure developers are racing to tap into government incentives, and more organizations view third-party support with project milestones, such as location selection and design, as critical to their success.
- Among organizations that use EV charging infrastructure to support their ongoing operations, Charging-as-a-Service (CaaS) providers are growing, but fleet operators are moving slowly to transition fleets to EVs.

This report provides insights into the survey data and takes a deep dive into the key themes, and compares them to last year's results.





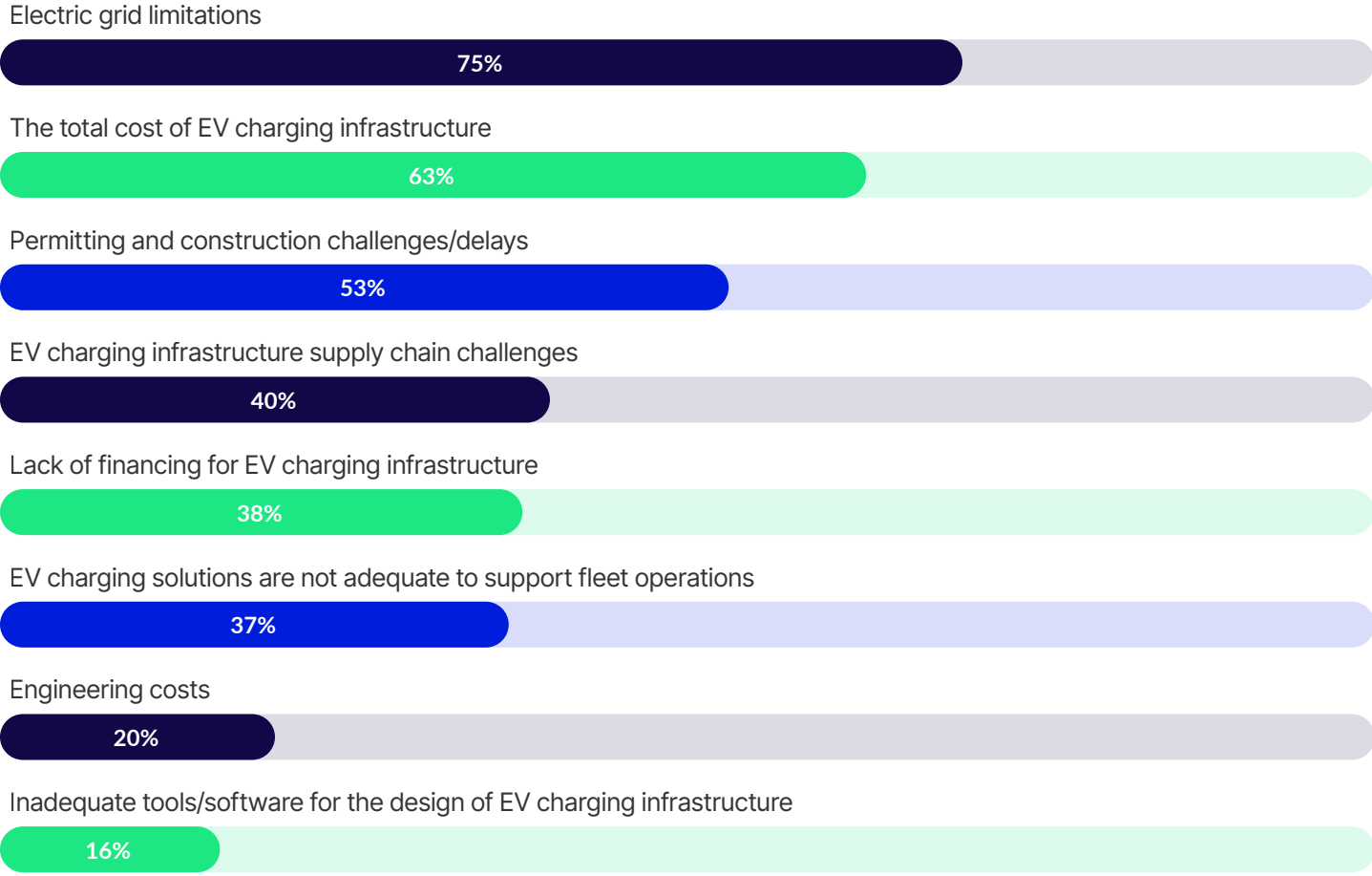
# Electric Grid Limitations and Costs Challenges Offset by Solutions Including Microgrids and Government Incentives

A clear narrative emerged in the inaugural market survey in 2023 and continued in the 2024 survey: The high cost of developing and operating commercial EV charging projects and the limitations of the electric grid are considered, far and away, the two biggest challenges to deploying commercial EV charging infrastructure.

Three-quarters of respondents surveyed in 2024 said grid limitations were a “significant roadblock to the rollout of EV charging infrastructure for commercial EV usage,” while 63% tabbed the total cost of infrastructure as a significant roadblock.



## Which of the following are significant roadblocks to the rollout of EV charging infrastructure for commercial EV usage?



Base: All respondents (n=211).

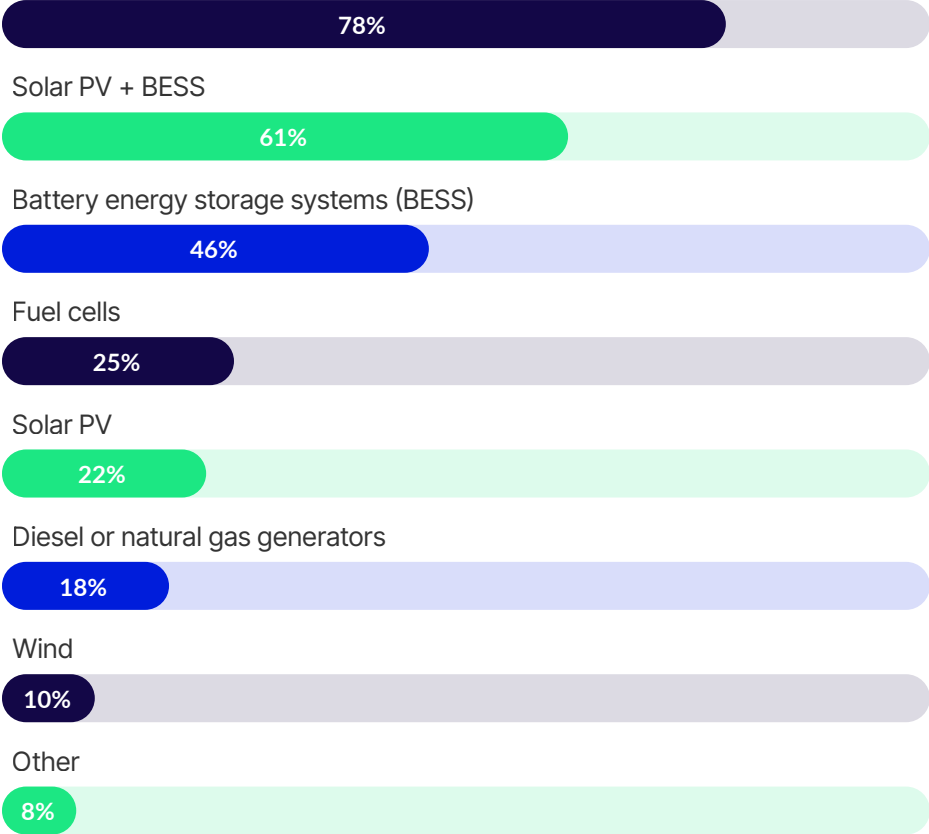
While the challenges are viewed as significant, charging infrastructure stakeholders are finding effective means to solve them and move projects forward.



Microgrids and distributed energy resources (DERs) co-located with commercial EV charging infrastructure are emerging as a solution to overcome highly burdened electric grids. For the second year in a row, survey respondents said DERs and microgrids co-located with EV charging infrastructure were the most important game-changing technology for stimulating the transition to commercial EVs and fleets. Survey respondents in 2024 named microgrids, solar PV plus battery energy storage systems (BESS), and standalone BESS as the three generating technologies most important to co-locate with EV charging infrastructure.

**Please select the top 3 game-changing technologies for stimulating the transition to commercial EVs and EV fleets.**

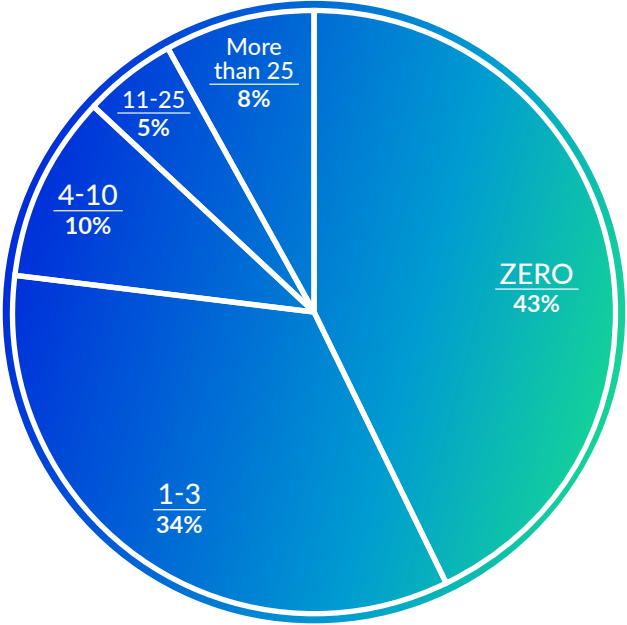
Microgrids (combining one or more of the technologies above with the ability to operate in an independent island or grid-connected mode)



Base: All respondents (n=210).

Federal and state government incentives provide an essential solution to the cost challenge. Nearly three in five respondents to the 2024 survey said their organizations completed an EV charging infrastructure project within the past 12 months that received or will receive government incentives.

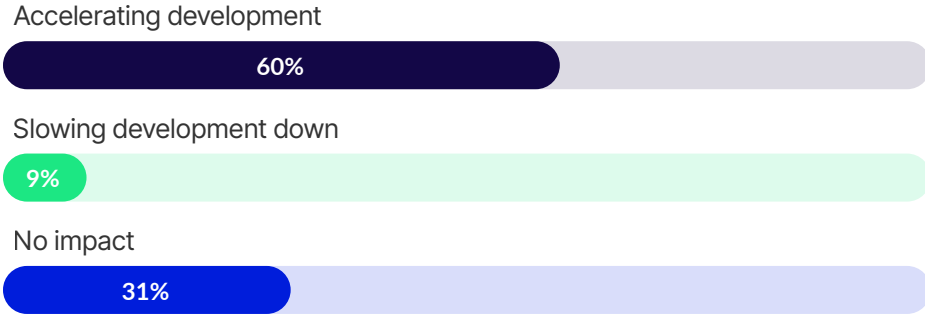
**How many EV charging infrastructure projects completed by your organization in the past 12 months received or will receive government incentives?**



Base: All respondents (n=181).

In addition, three in five respondents said federal and state government incentives are helping them accelerate the development of EV charging infrastructure projects.

**How are U.S. federal and state government incentives impacting the speed at which your organization is developing EV charging infrastructure projects?**



Base: All respondents (n=181).



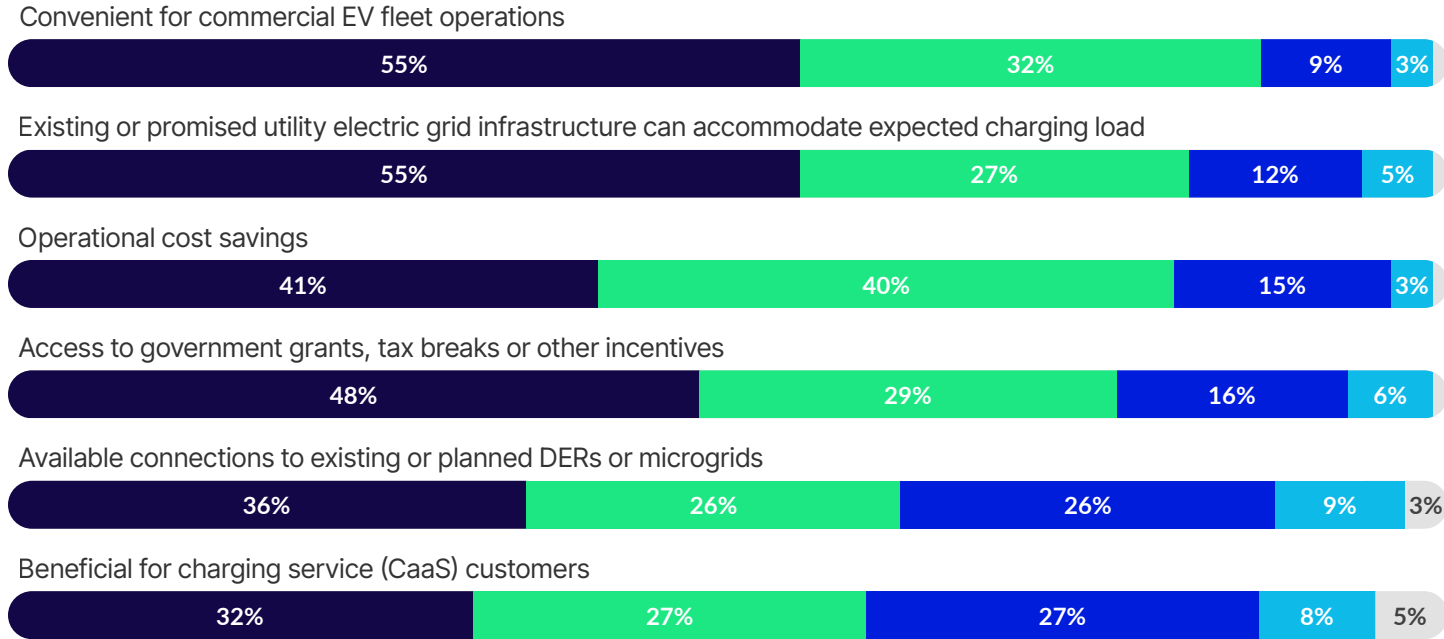
# Tying Challenges and Solutions to Action

The survey revealed that organizations locate EV charging infrastructure projects where they can maximize solutions to their biggest typical challenges, such as siting where the electric grid can meet new demand or where a project will qualify for government incentives.

Almost nine in 10 respondents in 2024 named the ability of electric grid infrastructure to accommodate expected charging load as very important or important when deciding where to locate charging infrastructure. More than eight in 10 ranked a site's ability to support operational cost savings and provide access to government incentives as a very important or important location choice factor.

## How important are the following factors when it comes to deciding where to locate EV charging infrastructure?

Very Important ← 5 4 3 2 1 → Not at all important



Base: All respondents (n=193).





# Commercial EV Charging Worries Are Shifting

While the meta-narrative of “cost plus grid limitation challenges addressed with government incentives and co-located distributed generating technologies” remains firmly in place, a more granular look at the survey data from 2023 to 2024 reveals important shifts within the commercial EV charging landscape.

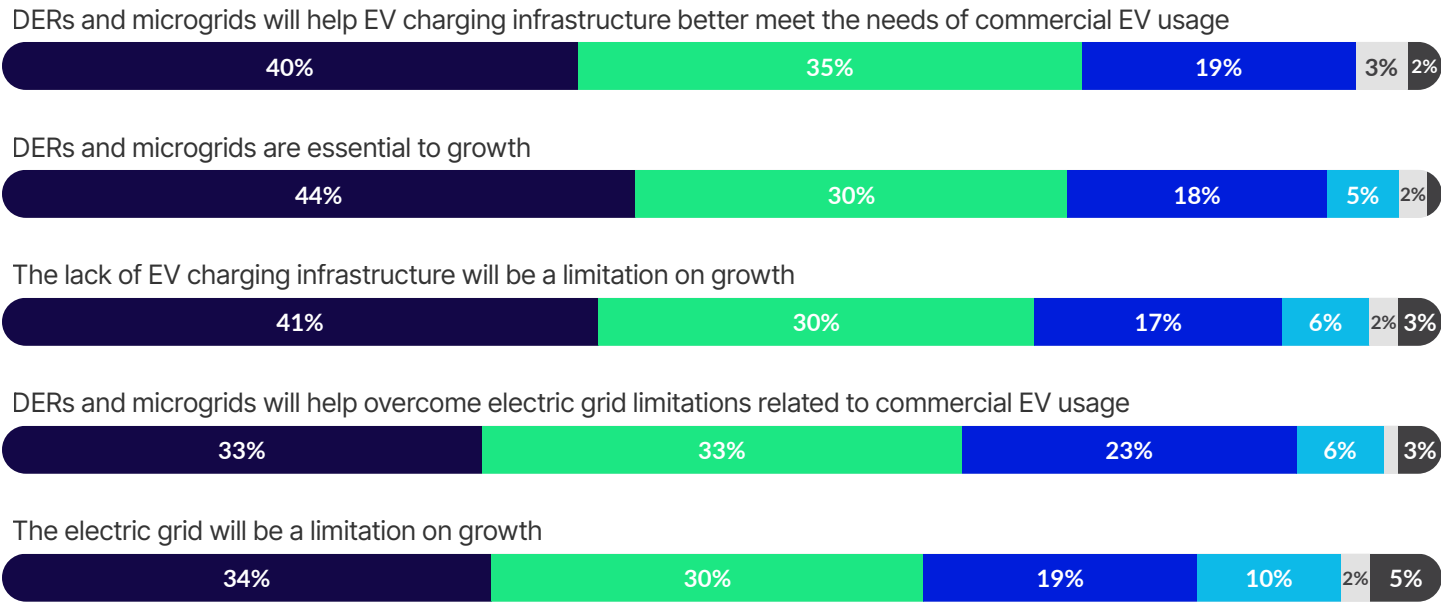
For example, the percentage of survey respondents who believe a lack of EV charging infrastructure and the electric grid will be limitations on commercial EV growth surged year over year. Seven in 10 agree or strongly agree that a lack of charging infrastructure will limit commercial EV growth, compared to 59% in 2023, while 64%

agree or strongly agree the electric grid will limit growth, compared to 56% in 2023. The data reflects that commercial EV growth challenges are bigger obstacles than organizations originally thought or hoped. As more organizations work to grow the commercial EV charging market, reality sets in.

## To what extent do you agree or disagree with the following statements related to the growth of commercial EV usage?

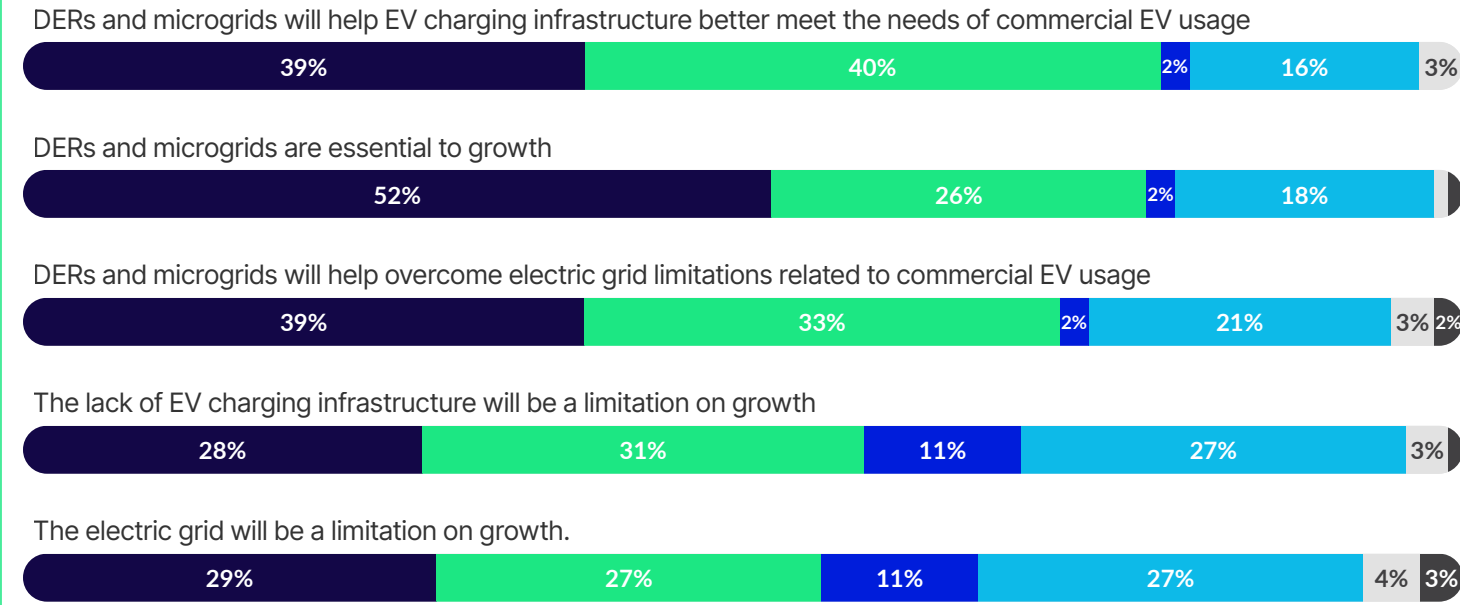
● Strongly Agree ● Agree ● Somewhat agree ● Somewhat disagree ● Disagree ● Strongly disagree

### 2024 DATA



Base: All respondents (n varies from 160 to 161).

### 2023 DATA

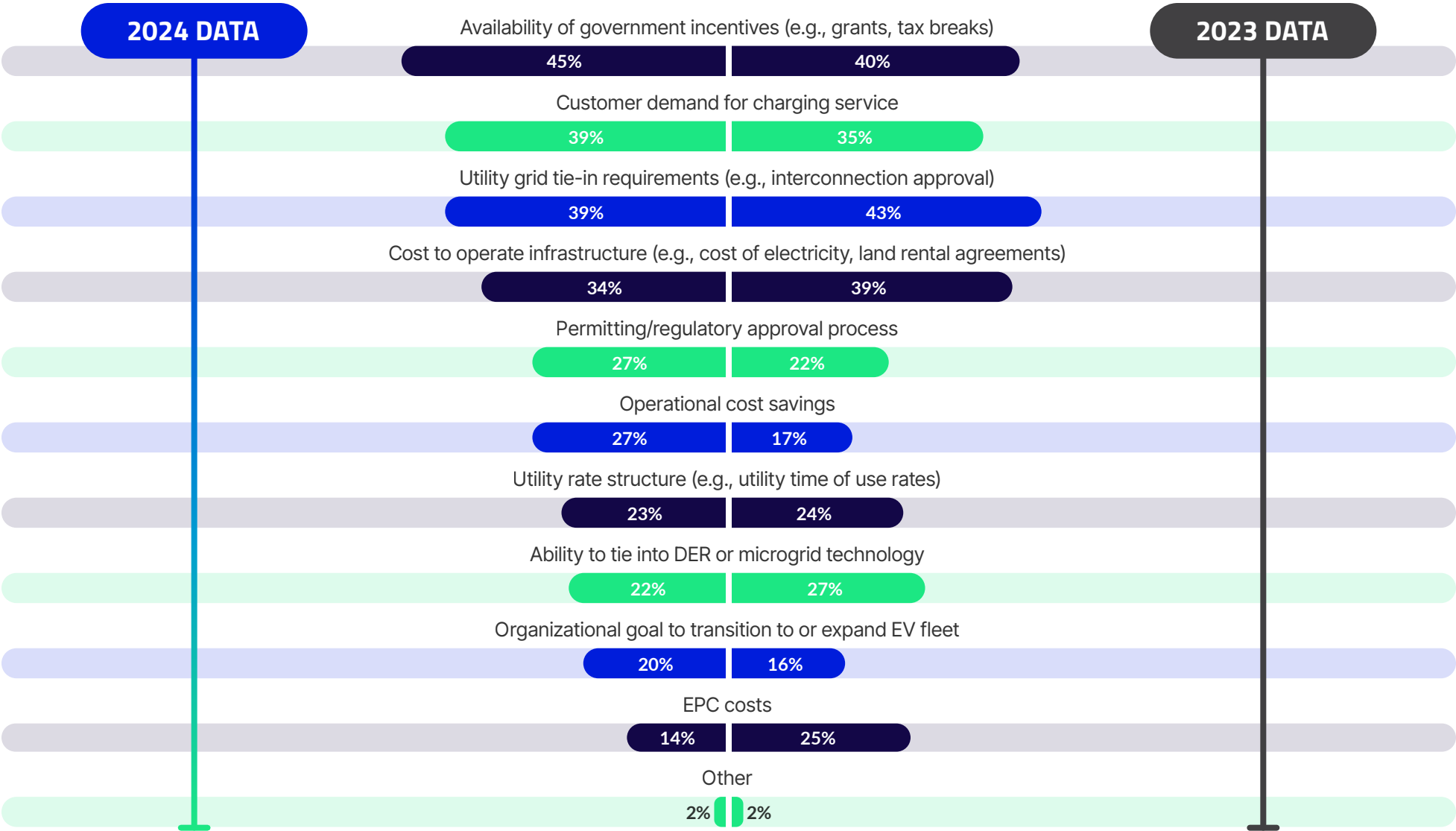


Base: All respondents (n=212).



Among the top factors that make or break a proposed EV charging project, utility grid tie-in requirements fell from the No. 1 spot in 2023 to third in 2024. When expressed as a percentage of survey respondents naming utility grid tie-in requirements as a top concern, it fell from 43% in 2023 to 39% in 2024. Availability of government incentives rose to the top concern in 2024 from second in 2023, with 45% of survey respondents naming it compared to 40% the previous year. The percentage of survey respondents who named customer demand for charging service as a top concern rose four points to 39%, lifting it to second among make-or-break factors from fourth in 2023.

**Please select the top three factors that make or break a proposed EV charging infrastructure project.**



Base: All respondents (n=185).

Base: All respondents (n=161); multiple answers allowed.

*28% of respondents in 2024 said “software to streamline the design of optimized EV charging infrastructure” was a top game-changing technology to stimulate commercial EV use, up 55% from the 18% of respondents who named it in 2023.*

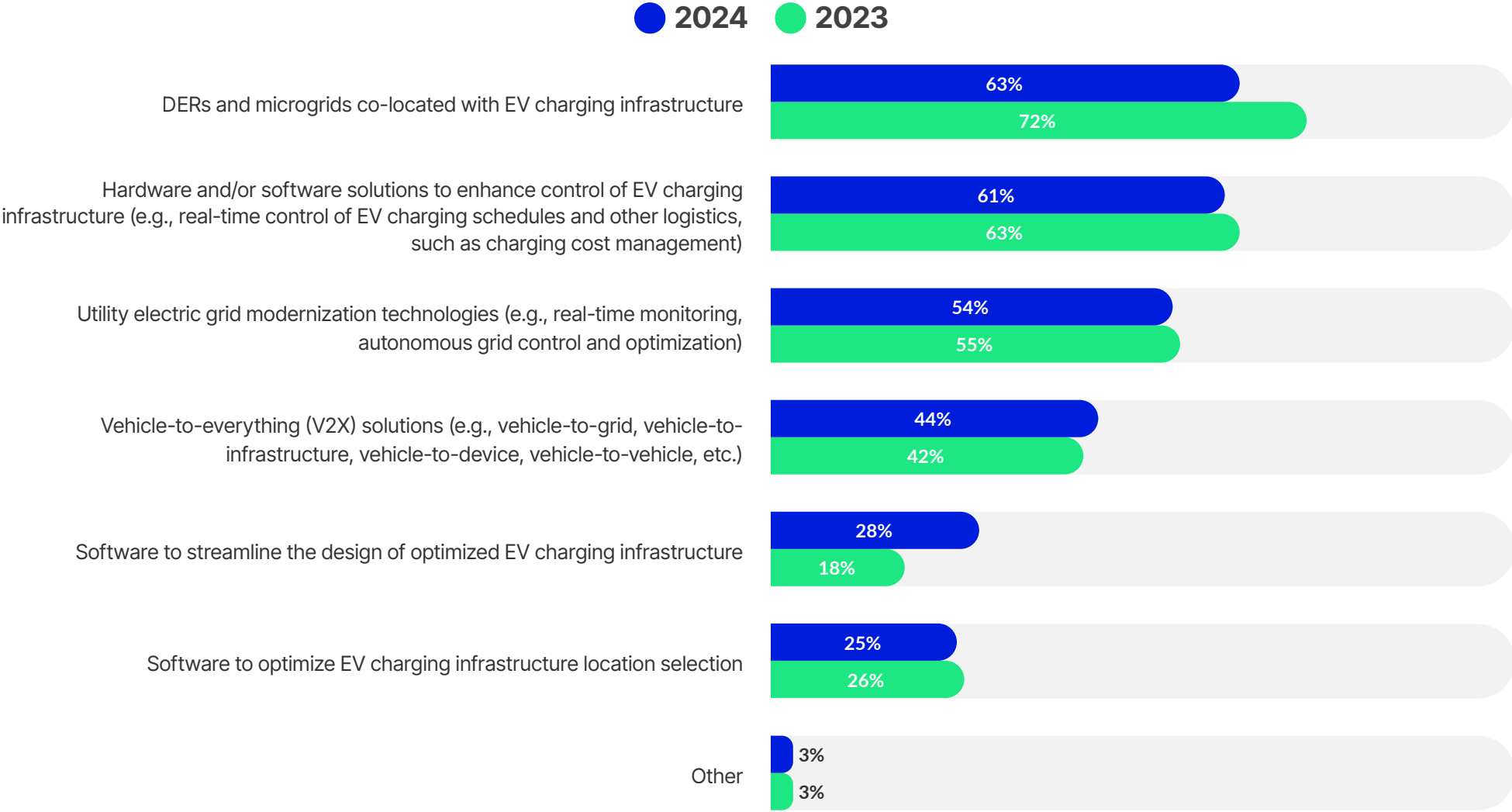


While survey respondents still view DERs and microgrids as critical technologies to overcome EV charging infrastructure challenges, a year-over-year comparison of results suggests commercial EV charging market stakeholders are learning they aren’t a silver bullet without careful planning and development.



For example, in 2023 and 2024, respondents said DERs and microgrids co-located with EV charging infrastructure were the biggest game-changing technology to stimulate the transition to commercial EVs and EV fleets, but 72% named it a top three technology in 2023 compared to 63% in 2024. Taking up the slack, 28% of respondents in 2024 said “software to streamline the design of optimized EV charging infrastructure” was a top game-changing technology to stimulate commercial EV use, up 55% from the 18% of respondents who named it in 2023.

**Please select the top three game-changing technologies for stimulating the transition to commercial EVs and EV fleets.**



● Base: All respondents (n=170). ● Base: Respondents (n=161); multiple answers.

The year-over-year shift in data suggests that survey respondents continue to view DERs and microgrids as top technologies to solve EV charging infrastructure challenges, but they increasingly realize an optimal mix and configuration of DERs and microgrids is the real game changer. Simply co-locating any DER with EV chargers isn't a sharp enough approach. Obstacles are overcome primarily during a project's design stage, and so success is made or broken at that point. The 2024 survey results reflect this deeper realization, which highlights both the evolving complexity of projects and the value of EV charging infrastructure planning and design tools.



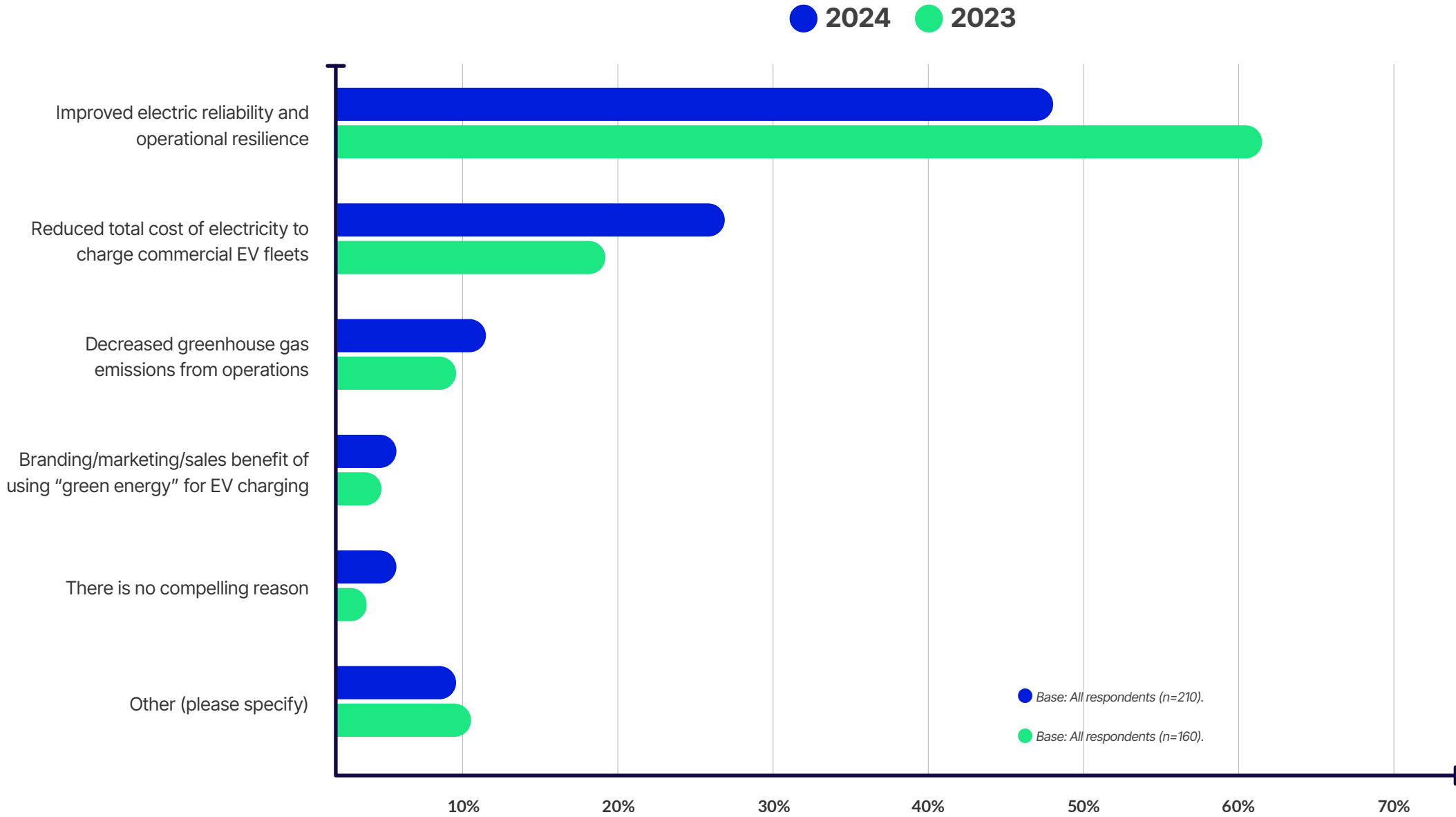


# Amid Shifting Worries, Strategies Are Being Refined

In line with the deeper realization that DERs and microgrids can fall short as a solution if the assets are chosen poorly or implemented without sophistication, survey respondents also shifted their views on the “most compelling reason DERs and microgrids should be used to support commercial charging.”

Improved reliability and operational resilience topped the list in both years of the survey, but the percentage of survey respondents choosing that option fell to 48% in 2024 from 62% in 2023. Meanwhile, 26% of survey respondents in 2024 said the reduced cost of electricity to charge commercial EVs was the most compelling reason to use DERs and microgrids to support charging, up 8 percentage points from 18% in 2023. This notable shift reflects a core tenet of commercial growth: Investment in a project must have a positive return on investment, and commercial EV charging infrastructure growth is dependent on solid project economics.

## What is the most compelling reason DERs and microgrids should be used to support commercial EV charging?

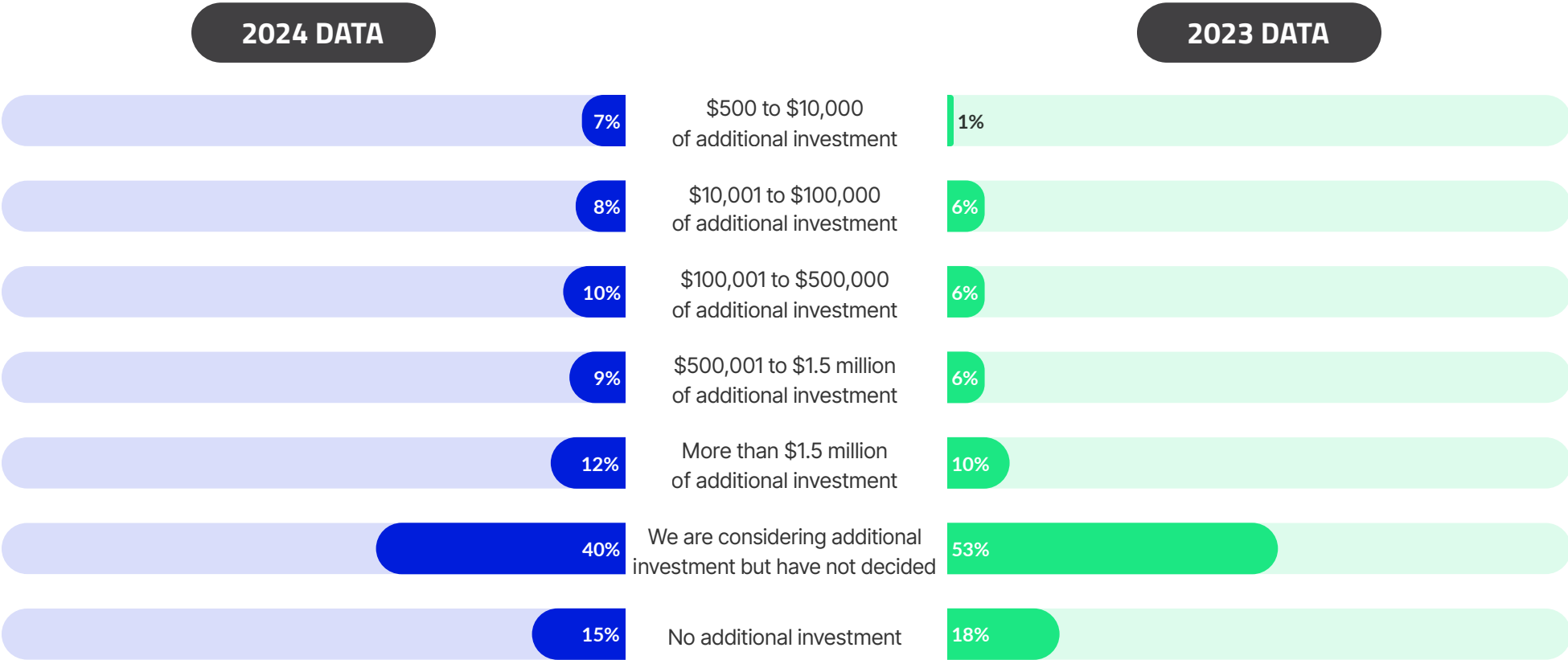




The Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA), major federal programs designed to support clean energy infrastructure development, are stimulating a significant increase in planned commercial EV charging infrastructure investments, according to survey respondents.

Nearly half of survey respondents said their organizations plan to make some additional investment in EV charging infrastructure due to BIL and IRA incentives, compared to just 29% in 2023. Additionally, only 40% have not decided whether BIL and IRA incentives will drive additional investments, compared to 53% in 2023.

**The Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA) include significant federal government incentives for EV charging infrastructure and EV purchases. How much additional investment will your organization make in new EV charging infrastructure due to these incentives?**



● Base: All respondents (n=182).

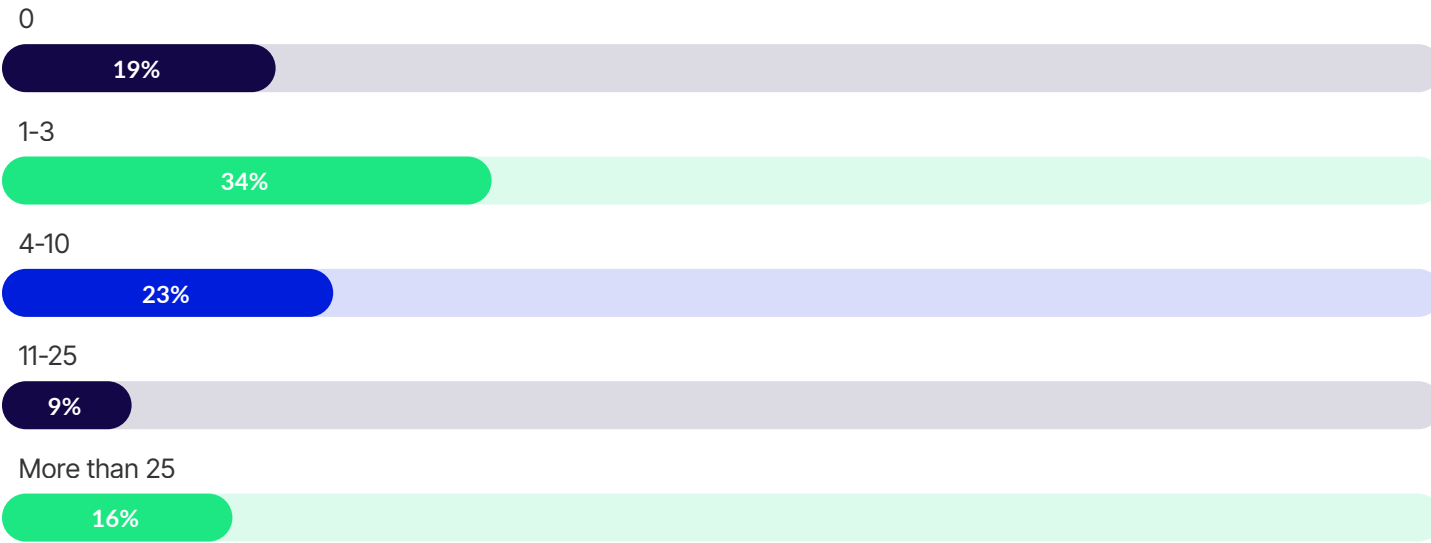
● Base: Respondents (n=154).





It's worth noting that organizations aren't just tapping BIL and IRA incentives for projects they would already be developing. More than 80% of 2024 survey respondents said their organization will develop at least one EV charging infrastructure project within the next five years that they wouldn't have without BIL and IRA incentives.

How many EV charging infrastructure projects does your organization expect to complete within the next five years that it WOULD NOT have developed without BIL and IRA incentives?



Base: All respondents (n=171).



*More than 80% of 2024 survey respondents said their organization **will develop at least one EV charging infrastructure project** within the next five years that they wouldn't have without BIL and IRA incentives.*

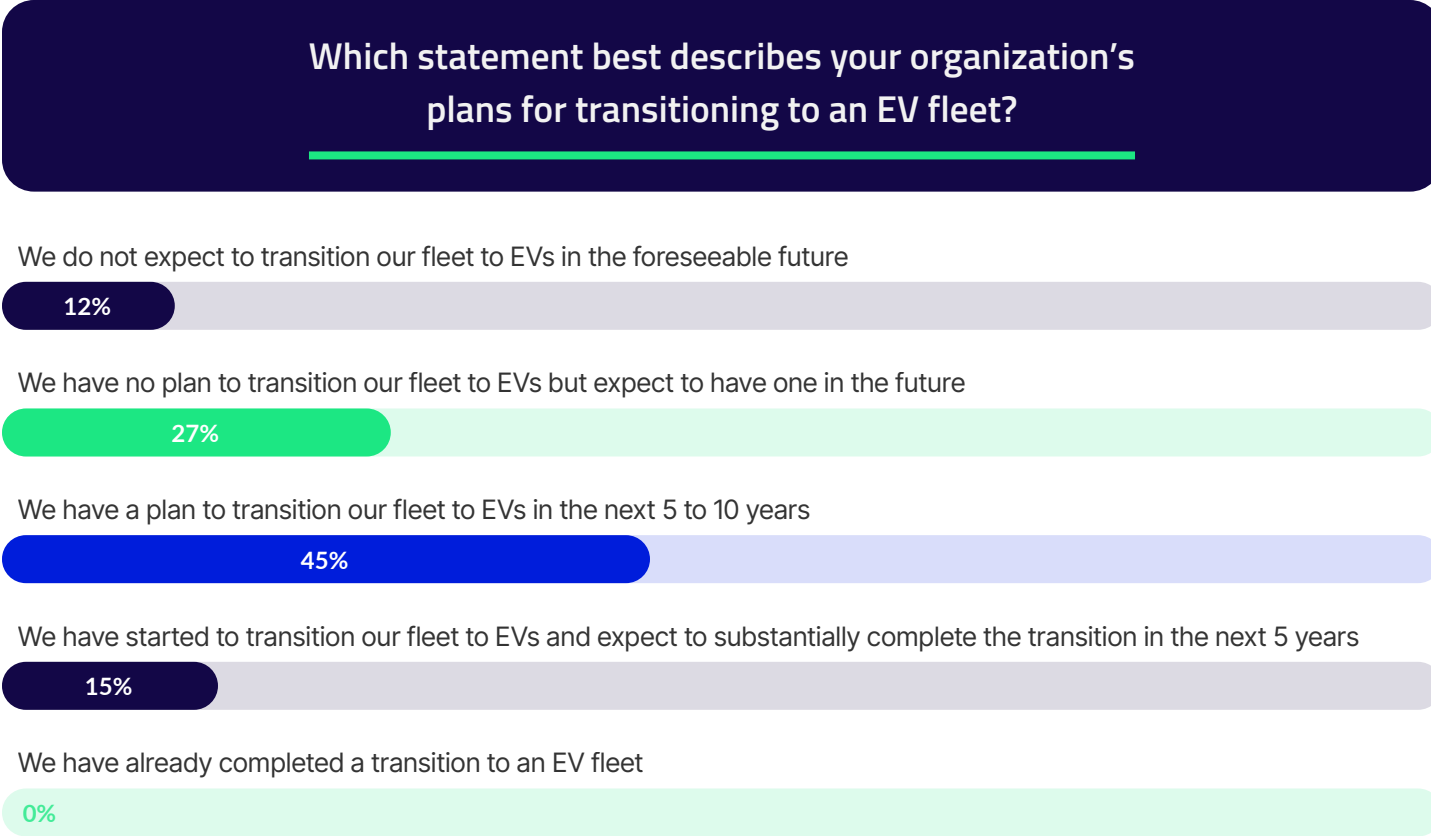


# Slow Progress for Fleet Electrification, Charging-as-a-Service Providers Gain Momentum

Many of the respondents surveyed in 2024 identified as professionals involved in the design, development, or construction of commercial EV charging infrastructure. However, an important subset of respondents identified as professionals working for organizations that own, operate, or use charging infrastructure as part of their day-to-day operations. Those respondents yielded diverging narratives about the state of fleet electrification and CaaS.

## Fleet Electrification

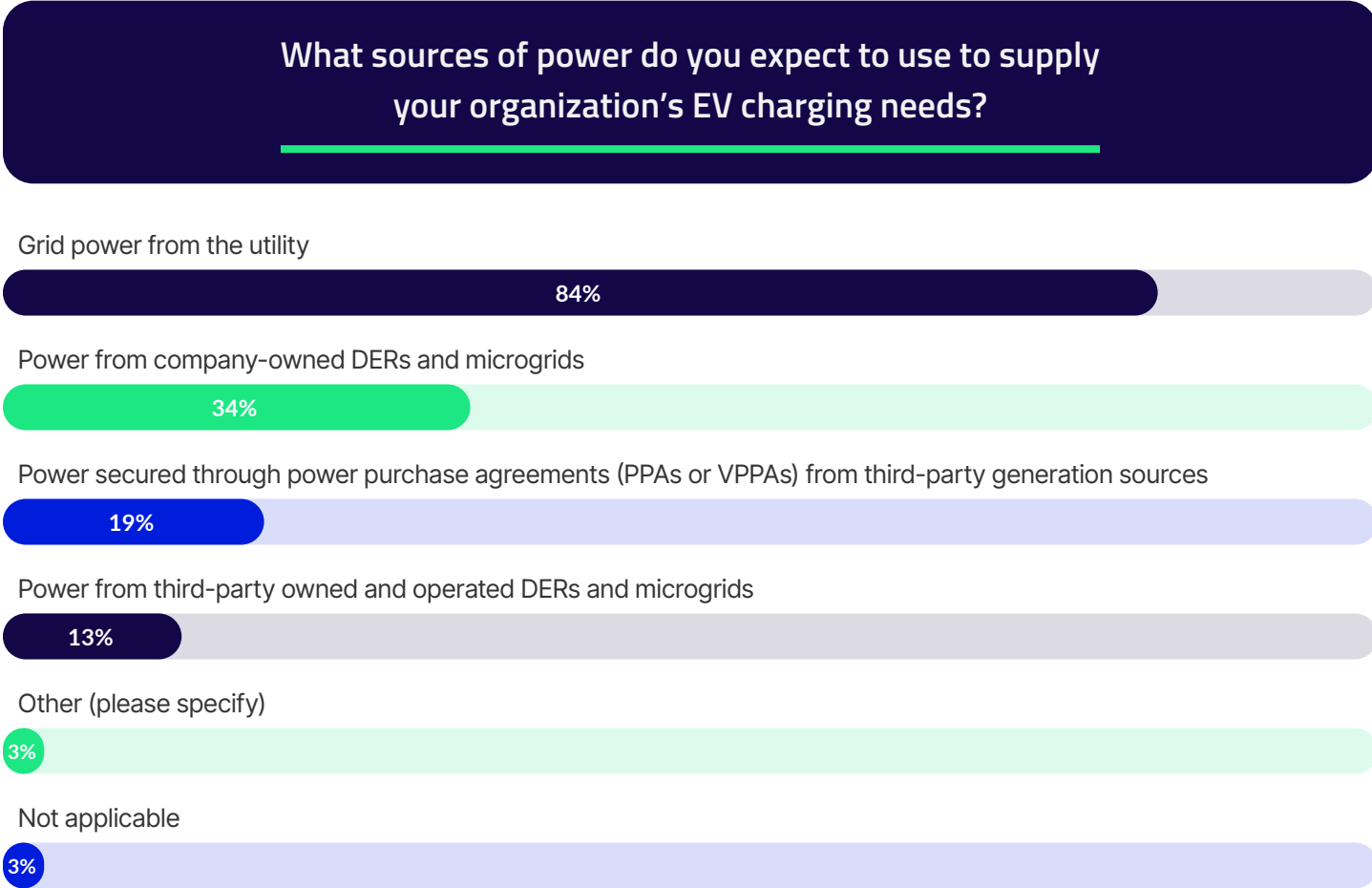
Through incentives and mandates, the federal government and many state governments are pushing hard for a transition to electrified commercial fleets. According to survey respondents, progress so far is relatively muted.



Base: Fleet Owners (n=33).

Nearly four in 10 fleet owners said their organization doesn't expect to transition to an EV fleet in the foreseeable future or doesn't have a plan to transition. Meanwhile, another 45% said they plan to transition their fleet to EVs in five to 10 years, reflecting a lack of concrete planning and action. Not a single survey respondent said their organization had completed the transition to an EV fleet yet.

When asked how they expect to charge any fleet vehicles that will be EVs in the future, 84% of fleet owners said they expect to use grid power from the utility, even though the full sample of survey respondents identified grid limitations as a significant challenge. Only a third of fleet-owner respondents



Base: Fleet Owners (n=32).

said their organizations would use company-owned DERs and microgrids to charge their fleets, significantly lagging the percentage of all survey respondents whose organizations are integrating DERs and microgrids with charging infrastructure.

### Commercial Charging-as-a-Service (CaaS)

Survey responses indicate CaaS for commercial EVs may be picking up steam as a business offering. In 2024, 36% of survey respondents said their organizations currently offer commercial EV CaaS or will offer it within a year. By comparison, only 30% said the same in 2023.

In both 2024 and 2023, survey respondents said the main benefit of providing CaaS was to grow their organization’s customer pipeline for other services. Only about half of respondents in both years expected their CaaS offering to deliver sufficient profits to run as a standalone business.

The most prominent challenges survey respondents face shifted notably from 2023 to 2024, from project development issues to business operations issues. In 2023, 43% of those surveyed named inadequate power from utility grid infrastructure as a challenge they face offering CaaS, while 35% named access to project financing. In 2024, those project development challenges fell 11 percentage points to 32% for inadequate grid infrastructure and 3 points to 32% for financing. On the other hand, the percentage of those naming CaaS profitability as a challenge rose 4 points to 43% in 2024, and the challenge “customer demand/adequate market size” rose 6 points to 39%.



Base: CaaS respondents (n=90).

Base: Respondents who currently or plan to offer CaaS (n=54); multiple answers allowed.



The explanation as to why “inadequate power from utility grid infrastructure” fell so far as a challenge faced by CaaS providers might be found in the survey data — and the answer is not that utilities have solved electric grid limitations, but rather that CaaS providers have found a workaround in the form of DERs and microgrids.

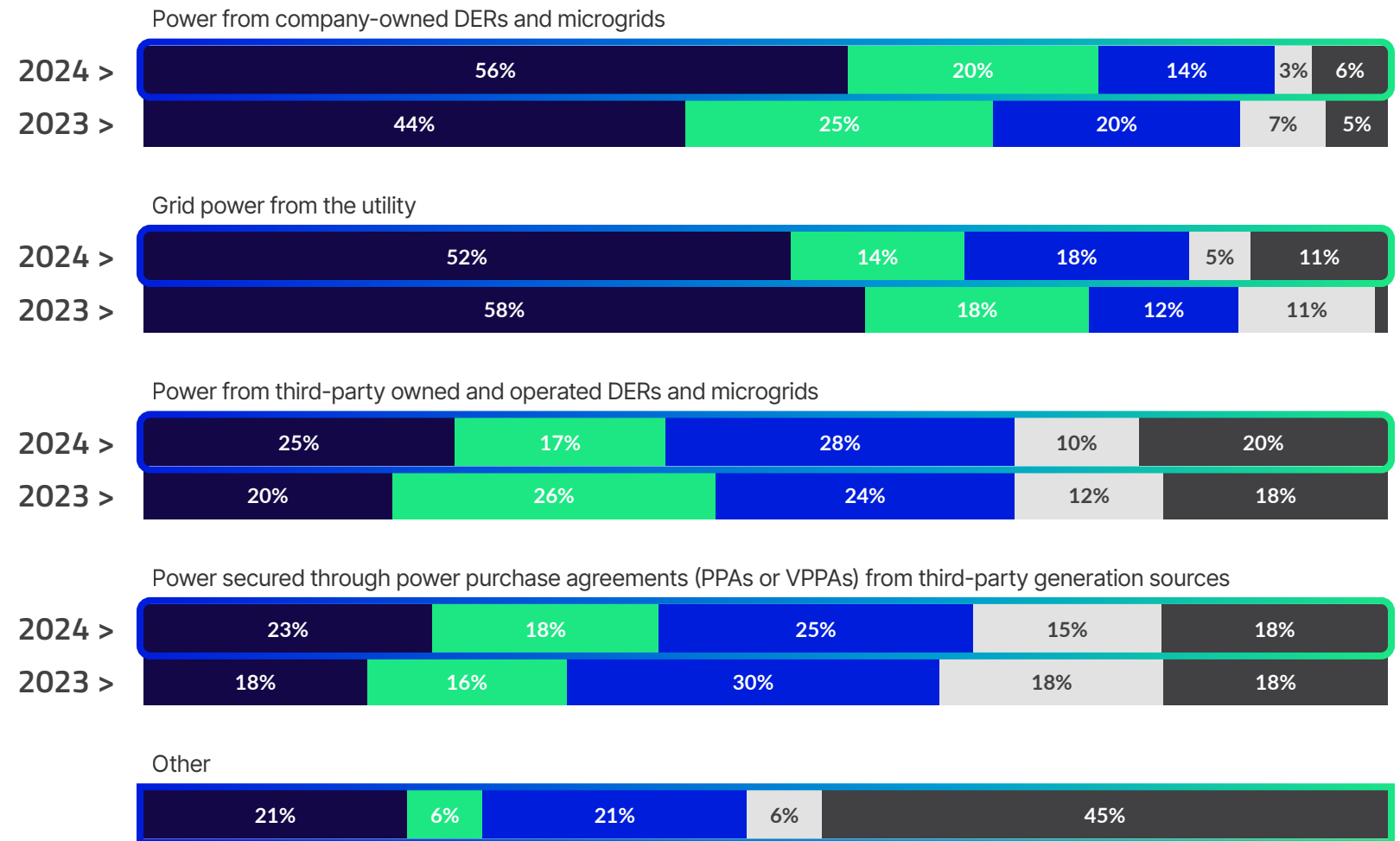
In 2023, only 44% of those surveyed said they were very likely to use company-owned DERs and microgrids as a power source for their EV charging infrastructure, but that surged to 56% in 2024. Conversely, the percentage of those saying they were very likely to use grid power fell from 58% to 52%. Essentially, grid power is less of a problem if you don’t need it (or at least need less of it).



## How likely are you to use the following power sources for future EV charging infrastructure?

● 5= Very likely ● 4 ● 3 ● 2 ● 1= Very Unlikely

### 2024 vs 2023 DATA



2024: Base: CaaS respondents (n=47 - 94).  
 2023: Base: Developers, Manufacturers, Owners, Utilities (n varies from 105 to 107).

# The Value of Partnership to Commercial EV Charging Growth

The Xendee market survey has now provided two years of data reinforcing a consistent narrative defining the commercial EV charging infrastructure landscape: *High costs and electric grid limitations are the greatest barriers to commercial EV charging infrastructure growth, while government incentives, microgrids, and DERs are seen as the best solutions.*

However, just because the main narrative remains unchanged doesn't mean there aren't important shifts under the surface. There was a notable jump in the percentage of industry stakeholders who view a lack of EV charging and the grid as limitations to commercial EV growth, while more respondents recognized that DERs and microgrids are only an adequate solution to EV charging project challenges when coupled with good planning and design up front.

Looking ahead, the growing commercial EV charging market could be disrupted later this year by the U.S. election: 56% of survey respondents said they are concerned the 2024 election will have a significant impact on EV charging infrastructure project decisions for the next two to five years.

As organizations tackle the challenges of commercial EV charging infrastructure projects, more survey respondents said they are hiring a third-party partner to design all or most of their projects and tools to optimize the design, engineering, and operation of infrastructure.: 27% in 2024 compared to just 20% in 2023.

Xendee helps organizations navigate the complex framework of project decisions and provides data, insights, and tools to optimize the design, engineering, and operation of projects. Only 26% of respondents said they believe DERs and microgrids can help them reduce the total cost of electricity to charge commercial EV fleets. However, when Xendee supports a project, it finds ways to integrate DERs and microgrids to reduce those costs in almost every instance.

In addition, nearly half of organizations take two months or more to run an initial project viability analysis, and 64% take a month or more to design and model an EV charging infrastructure project co-located with DERs. Xendee can help reduce the time needed for these steps from months to weeks.

## Survey Methodology

- On January 30, 2024, Endeavor Business Intelligence emailed invitations to participate in an online survey to members of our *Microgrid Knowledge* and *FleetOwner* database. By March 1, 2024, Endeavor Business Intelligence had received 172 qualified responses to the survey.

## Xendee Contact Information

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