

The Deloitte Utility EV Survey was conducted in 2017 and was previewed in Deloitte's report, *Powering the future of mobility: How the electric power sector can prepare for its critical role in the new transportation ecosystem*. The full survey, below, explores specific plans or actions utilities are taking to provide EV charging infrastructure and prepare for increasing EV load. It covers five key topic areas:

- Projections/preparations for EV growth
- Role in residential charging infrastructure
- Role in public charging infrastructure
- Potential role in load shaping
- Regulatory considerations

Survey respondents included utility executives who are involved in their company's EV programs or knowledgeable about their utility's initiatives or plans in this area. The prospective universe of respondents is limited, but 34 executives were generous enough to share their thoughts and experiences on these topics – and while the sample size may not be large, the results provide some valuable insights.

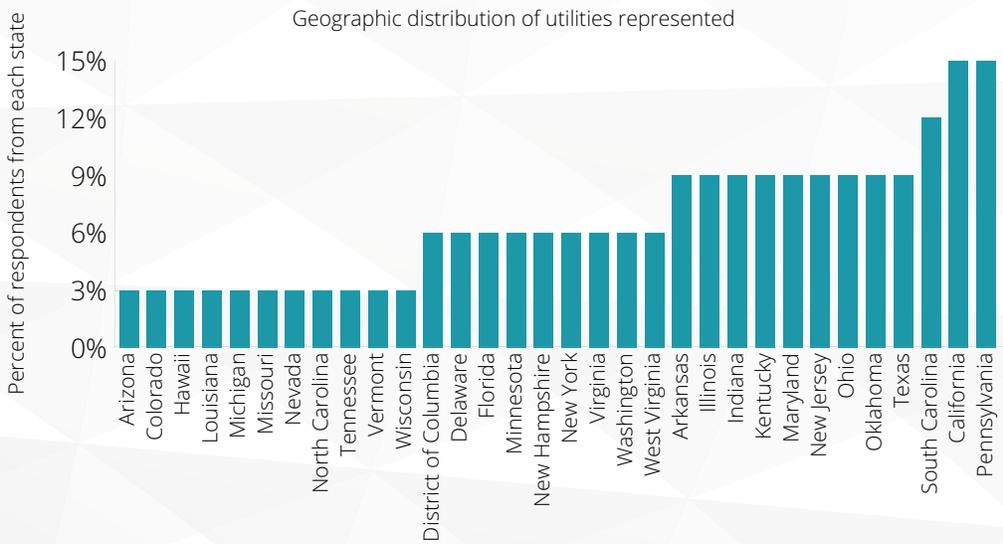


Respondent demographics

1

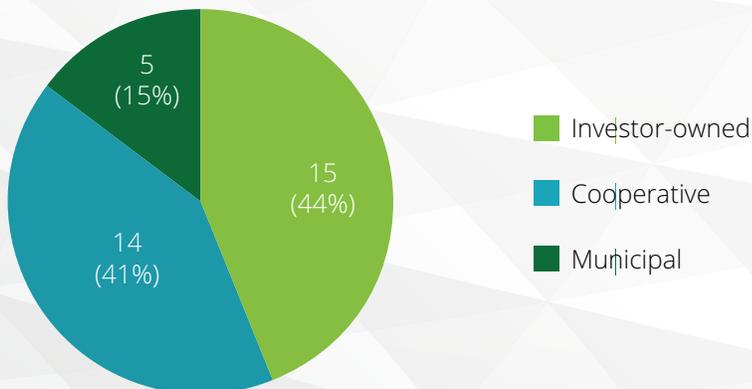
In which state(s) are your service territories located?

- Top 3 states were California and Pennsylvania, each with 5 respondents, and South Carolina with 4
- 31 states and the District of Columbia were represented



2

What type of entity would you consider your company?

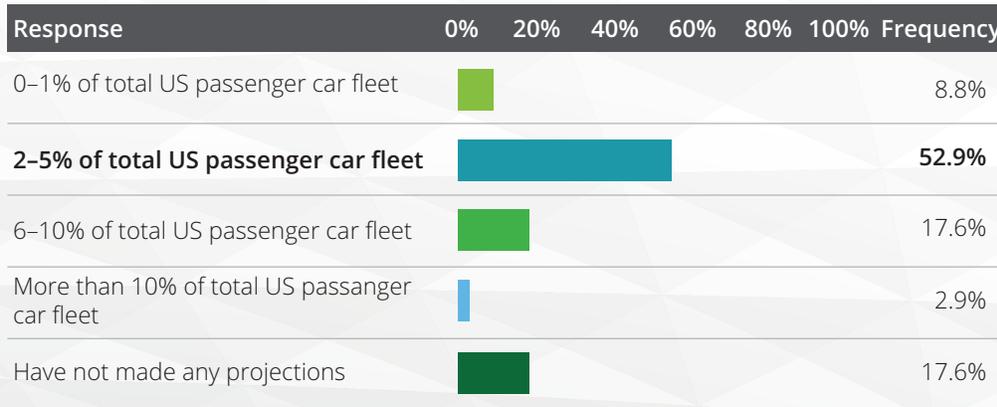




Projections/preparations for EV growth

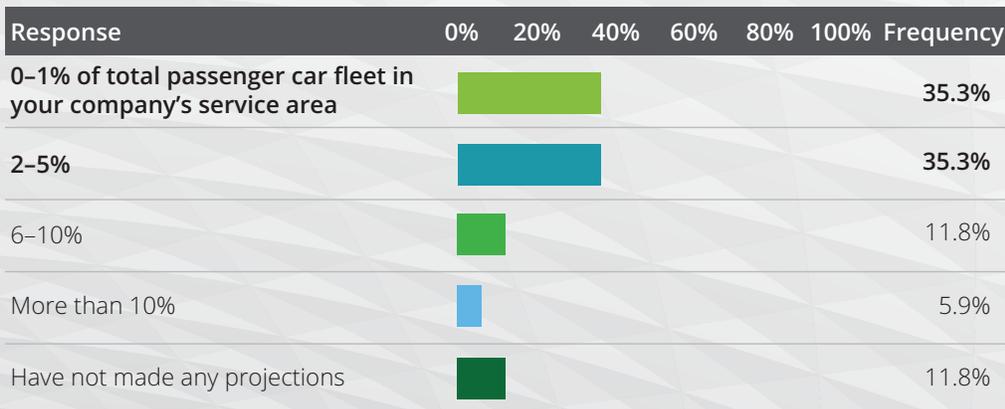
3

What are your expectations about the percentage of electric vehicles in the US passenger vehicle fleet by 2025? (including battery electric vehicles and plug-in hybrid electric vehicles) (n=34)



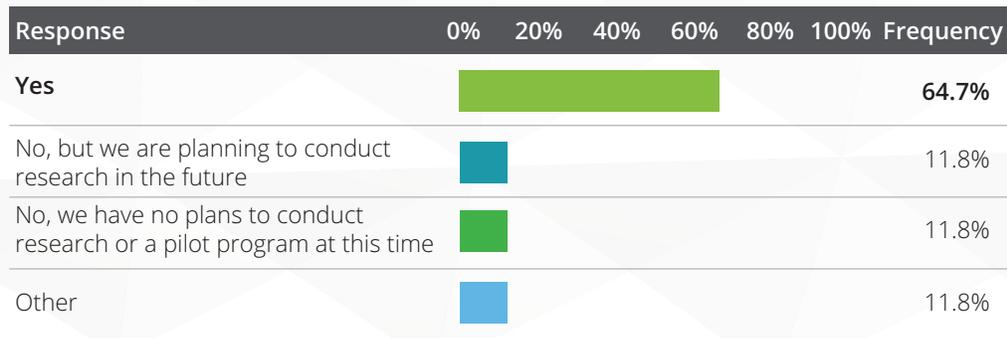
4

What are your expectations about the percentage of electric vehicles in your company's service area by 2025? (n=34)



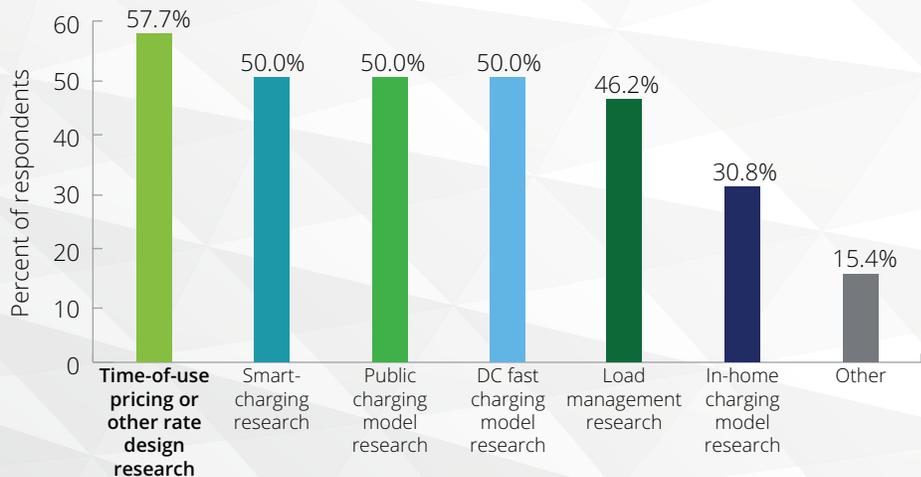
5

Have you conducted research or a pilot program related to electric vehicle charging in your company's service territory? (n=34)

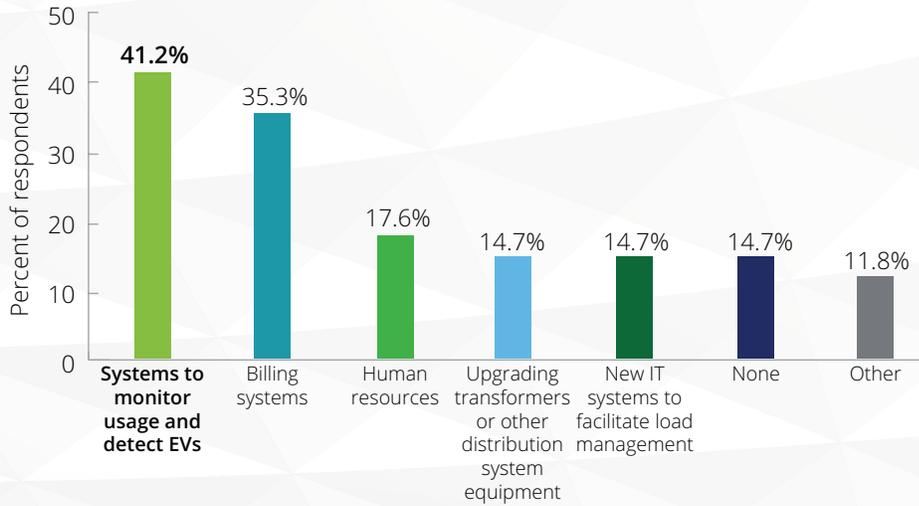


5a

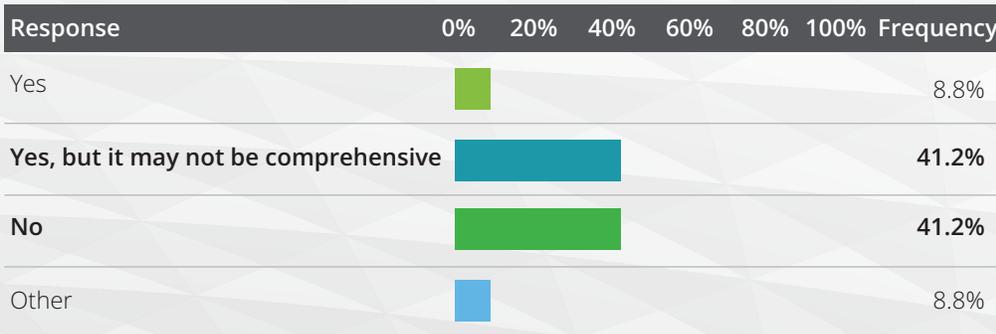
What type of research or pilot program have you conducted, are you currently conducting, or are you planning to initiate in the next 12 months? (please select all that apply) Only those who selected the first two responses to question 5 were directed to this question (n=26)



6 What type of projects have you invested in or are you interested in investing in to improve your ability to address potential EV requirements? (please select all that apply) (n=34)

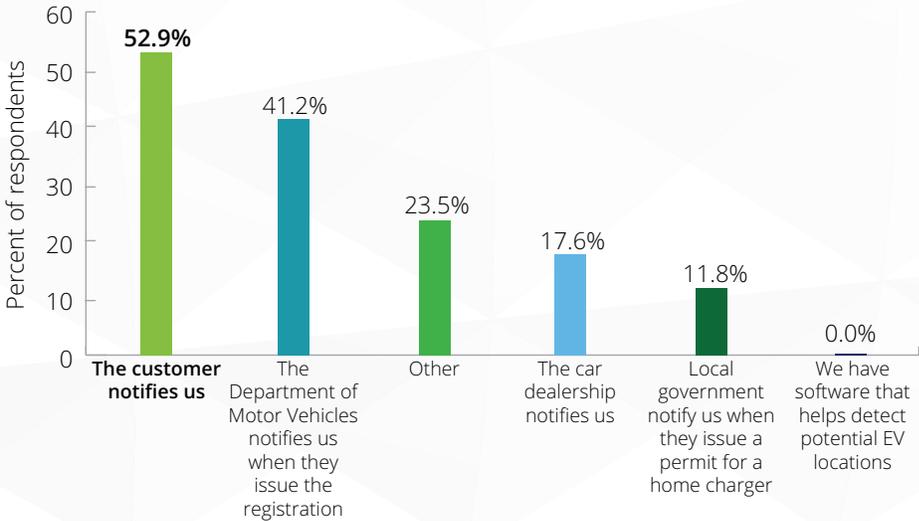


7 Do you have access to information about which customers own EVs or where the EVs are located in your territory? (n=34)



7a What are the sources of this information? (please select all that apply)

Only those who chose one of the top two “yes” responses in previous question were directed to this question (n=17)



7b Do you use this information to determine when to upgrade distribution equipment in the neighborhood? Only those who responded to question 7.a. were directed to this question (n=17)

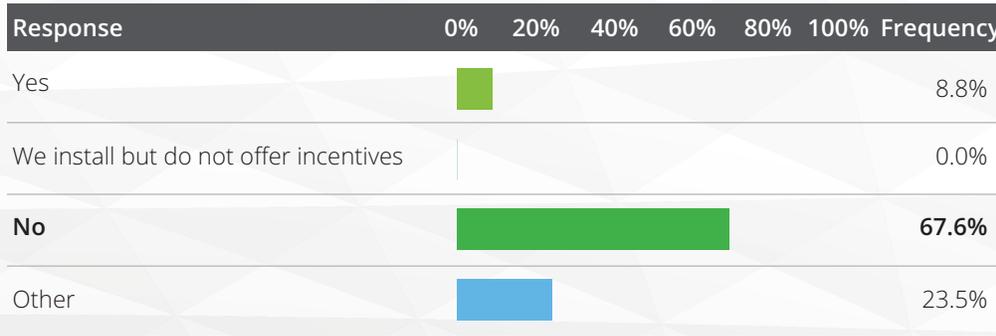
Response	0%	20%	40%	60%	80%	100%	Frequency
Yes							41.2%
No							58.8%
Other							0.0%



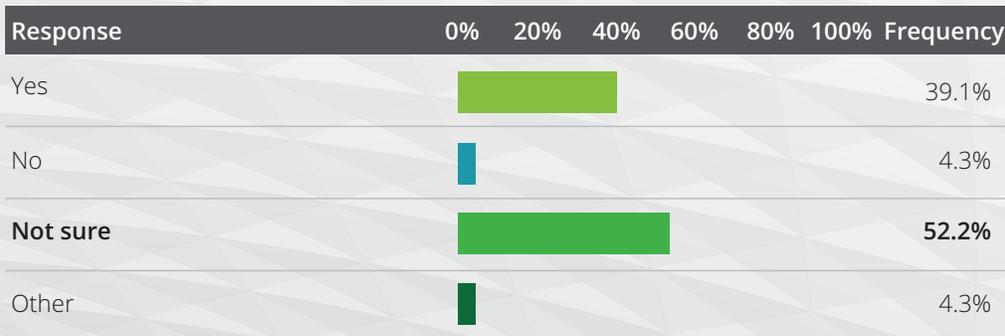


Role in residential charging infrastructure

8 Do you install and/or offer an incentive toward the installation of home charging equipment? (n=34)



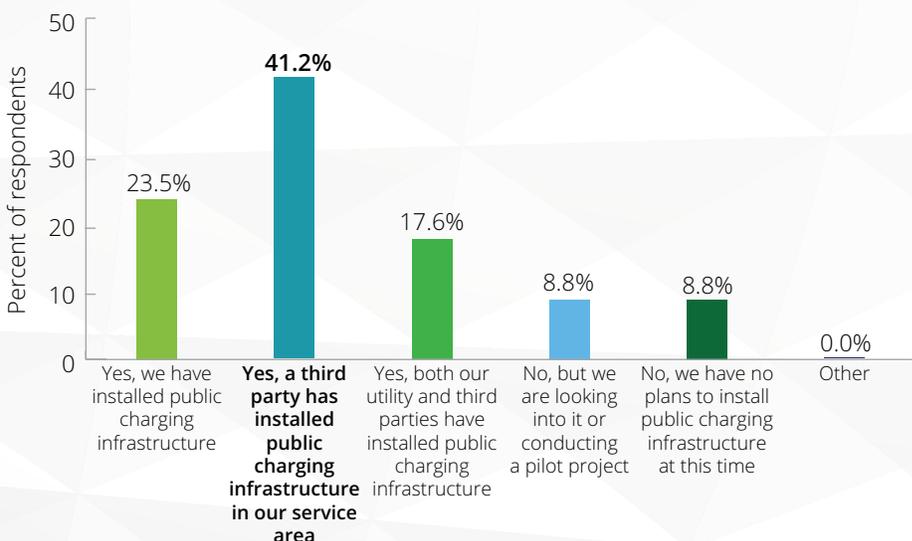
8a Are you interested in installing/incentivizing home charging equipment for your customers? Only those who responded “No” to question 8 were directed to this question (n=23)





Role in public charging infrastructure

9 Have you or a third party installed public EV charging infrastructure in your service area? (n=34)



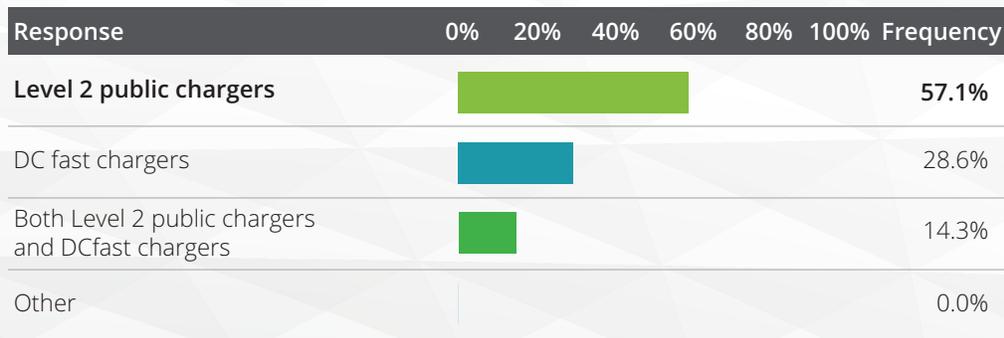
9a Why not? (please select all that apply) This question was directed only to those who selected “No, we have no plans to install public charging infrastructure at this time” (n=3)

Response	0%	20%	40%	60%	80%	100%	Frequency
There are not enough EVs in our service area yet							33.3%
It's too expensive/the business case doesn't make sense							66.7%
Regulators have thus far not allowed it or do not allow us to recover costs							0.0%
Other							33.3%



9b

Did you install public Level 2 chargers (208-240 VAC) or DC fast chargers (440 or 480 VAC)? This question was directed only to those who responded “Yes, we have installed public charging infrastructure” or “Yes, both our utility and third parties have installed public charging infrastructure” to question 9 (n=14)

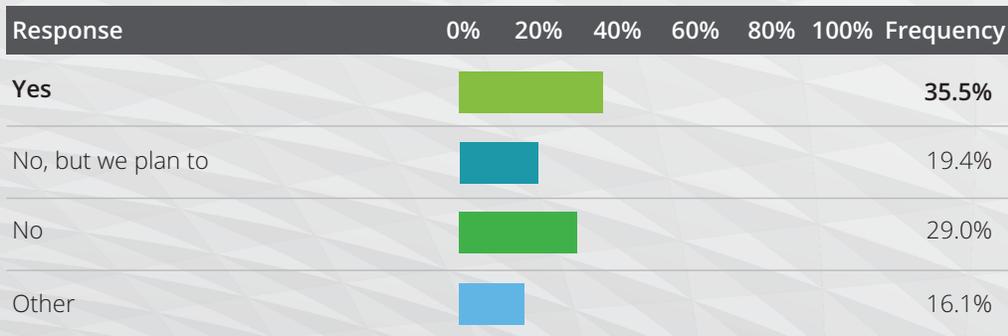


9c

Are you partnering or planning to partner with others to build charging infrastructure? This question was directed only to those who selected one of the following responses to question 9:

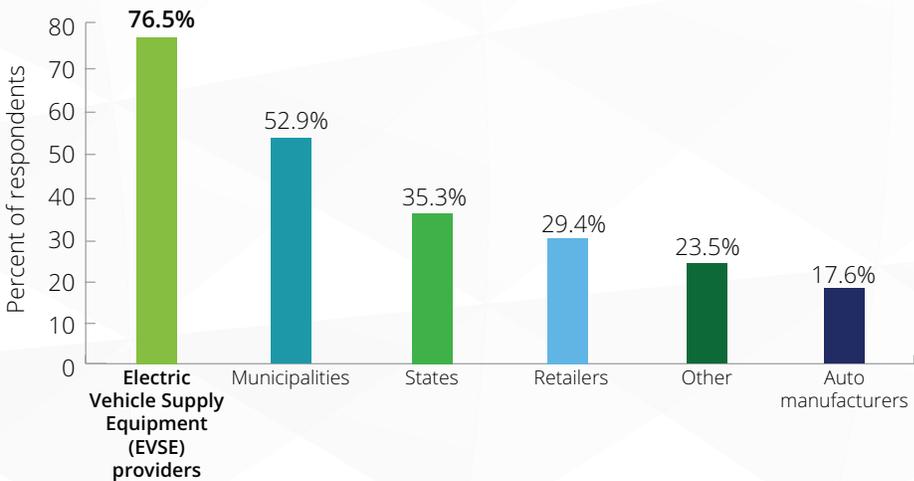
- Yes, a third party has installed public charging infrastructure in our service area
- No, but we are looking into it or conducting a pilot project
- Other

(n=31)



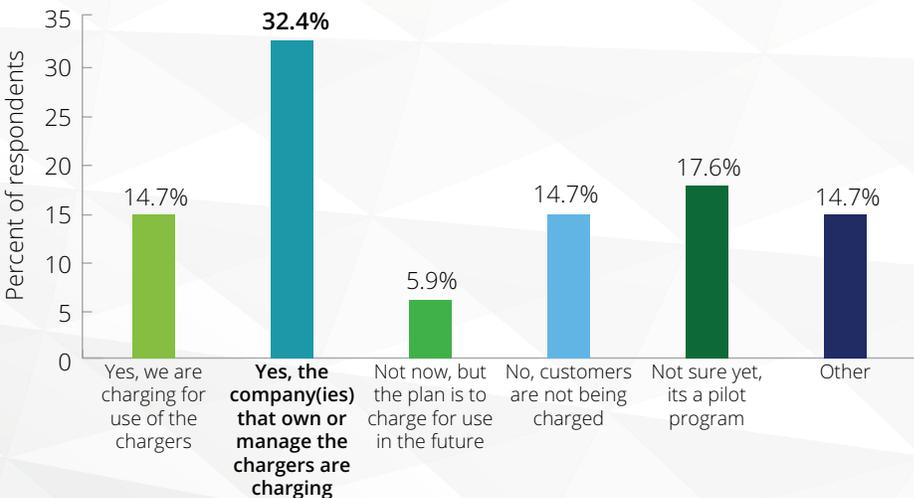
9d

What type of companies are you partnering or planning to partner with to build charging infrastructure? (please select all that apply) This question was directed only to those who responded “Yes” or “No, but we plan to” to question 9.c. (n=17)



10

Are customers being charged for use of the public chargers in your service area? (n=34)





Potential role in load shaping

11

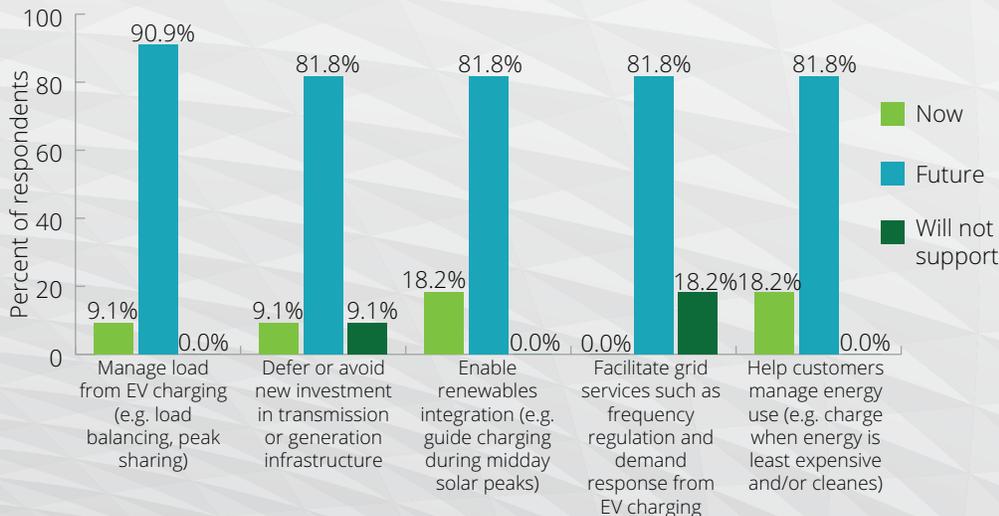
If you provide charging stations (home or public), are they smart-grid enabled, i.e. connected to a smart-charging platform that enables users to manage their charging and/or allows you to better control load? (n=34)

Response	0%	20%	40%	60%	80%	100%	Frequency
Yes							20.6%
Not now, but we are planning to provide this capability in the future							11.8%
We do not provide charging equipment							47.1%
Other							20.6%

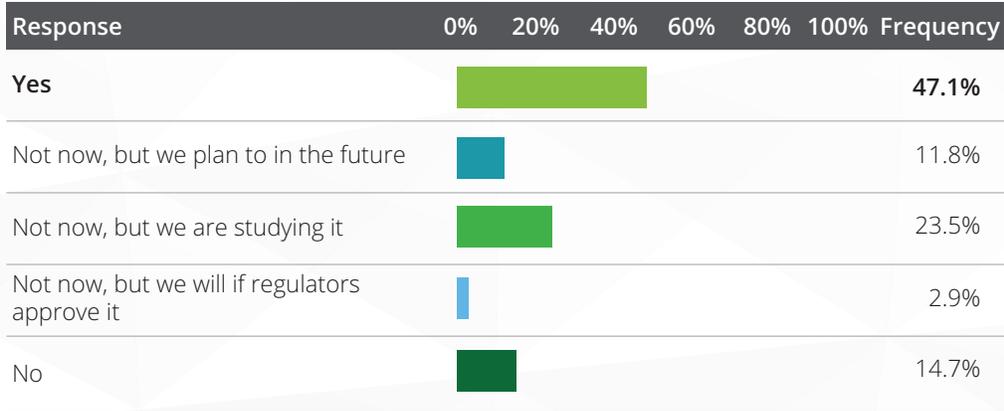
11a

Which of the following goals does your smart charging program currently support or will it support in the future? (Consider the goals below and indicate whether your smart charging program will support it now, in the future, or not at all)

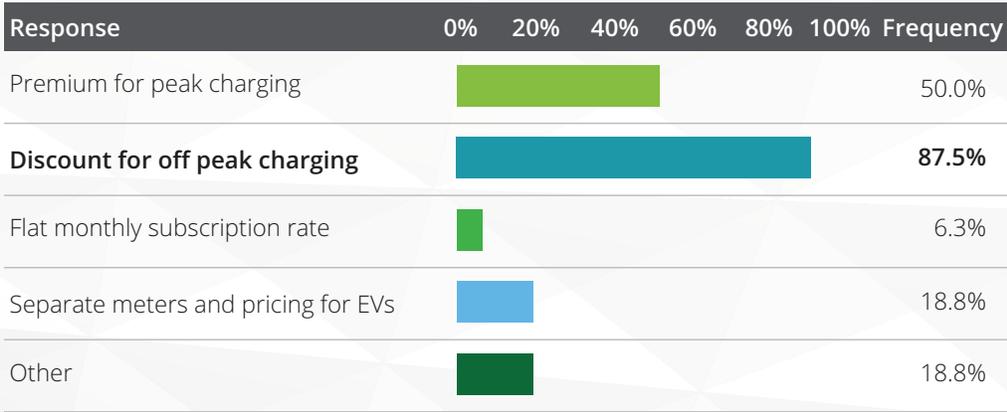
This question was directed only to those who responded “Yes” or “Not now, but we are planning to provide this capability in the future” to question 11. (n=11)



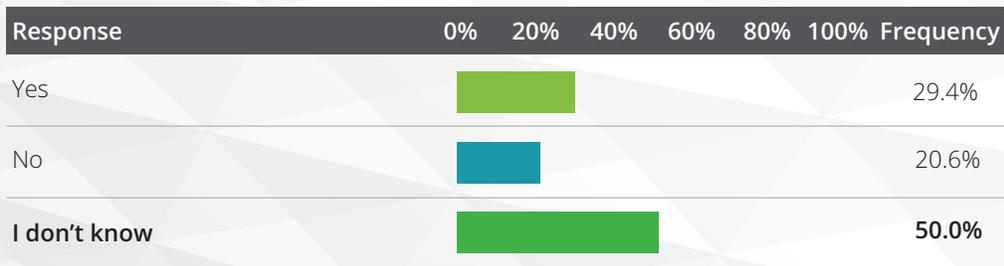
12 Do you employ Time-of-Use (TOU) rates or EV related rates? (n=34)



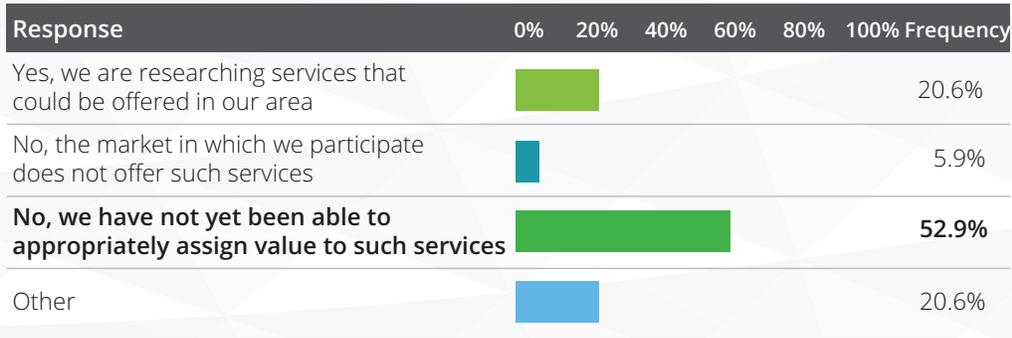
12a What type of TOU or EV related pricing do you offer? This question was directed only to those who responded "Yes" above (n=16)



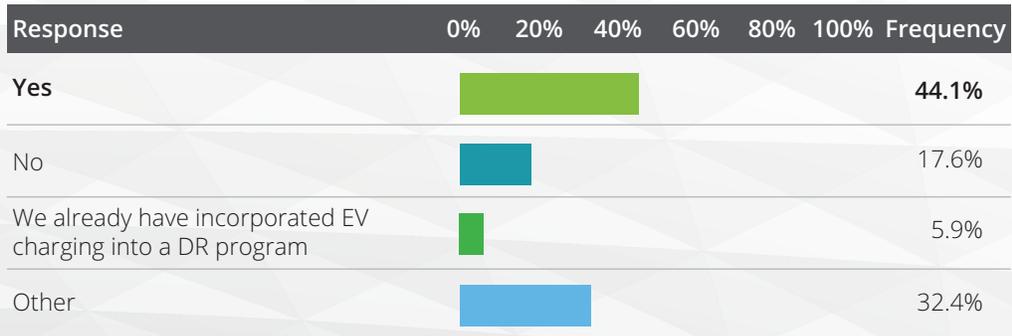
13 Do you use or plan to use any tools/methods other than Time-of-Use (TOU) rates to help control EV charging behavior? (n=34)



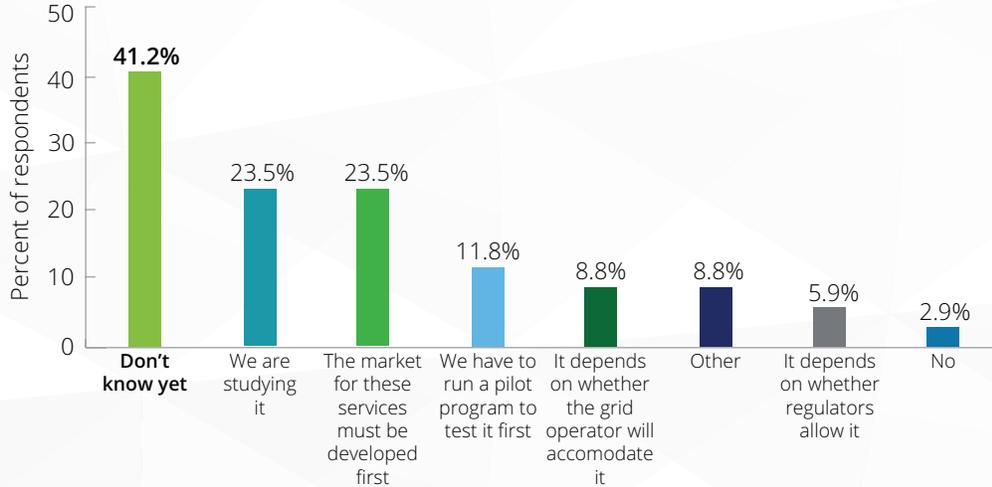
14 Do you plan to help facilitate EV customer aggregation and participation in ancillary service markets (i.e. customer can be paid for services such as voltage support, frequency regulation, and ramp rate reduction)? (n=34)



15 Are you planning to incorporate EV charging into a demand response (DR) program? (n=34)



16 Are you planning to facilitate vehicle-to-grid (V2G) power flows in the future? (please select all that apply) (n=34)



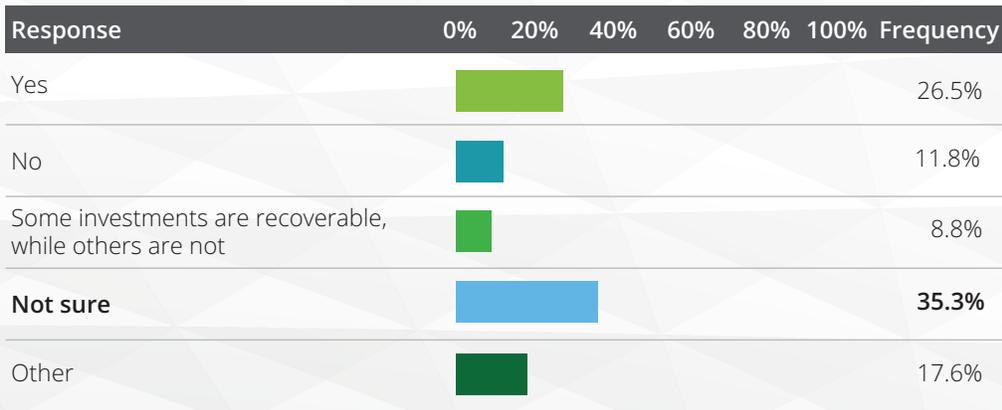
17 If you have conducted studies/pilot programs related to TOU rate plan impact on charging patterns, what changes did you see in your customers' EV charging patterns? (n=34)

Response	0%	20%	40%	60%	80%	100%	Frequency
TOU pricing influenced customers to charge off-peak, as intended							26.5%
TOU pricing did not make a difference in customer charging behavior							8.8%
Not sure							11.8%
Other							2.9%
We have not conducted this type of study or pilot program							50.0%

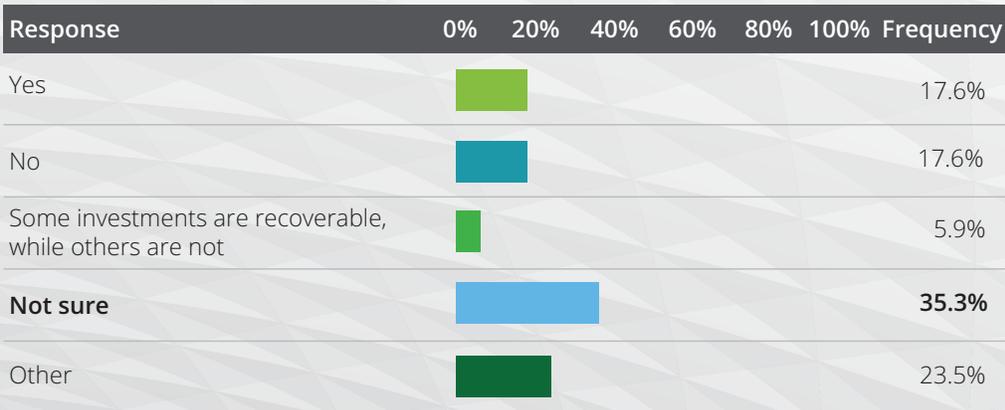


Regulatory considerations

18 Are your investments in infrastructure improvements for EVs, such as smart transformers and automated metering, recoverable from ratepayers? (n=34)



19 Are your investments in charging infrastructure, such as equipment and installation, recoverable from ratepayers? (n=34)



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