# About PlugInsights

Mission: to amplify the voice of the PEV driver to government, automakers, utilities, charging networks and the rest of the plug-in community.

We created a PEV driver panel that will reach 10,000 participants by year end.

What we do: publish and sell syndicated studies on the PEV category. We also conduct custom, proprietary research for clients. Quantitative (mainly survey research) + qualitative (focus groups/one-on-ones).

# The importance of driver confidence in the fast charging Infrastructure

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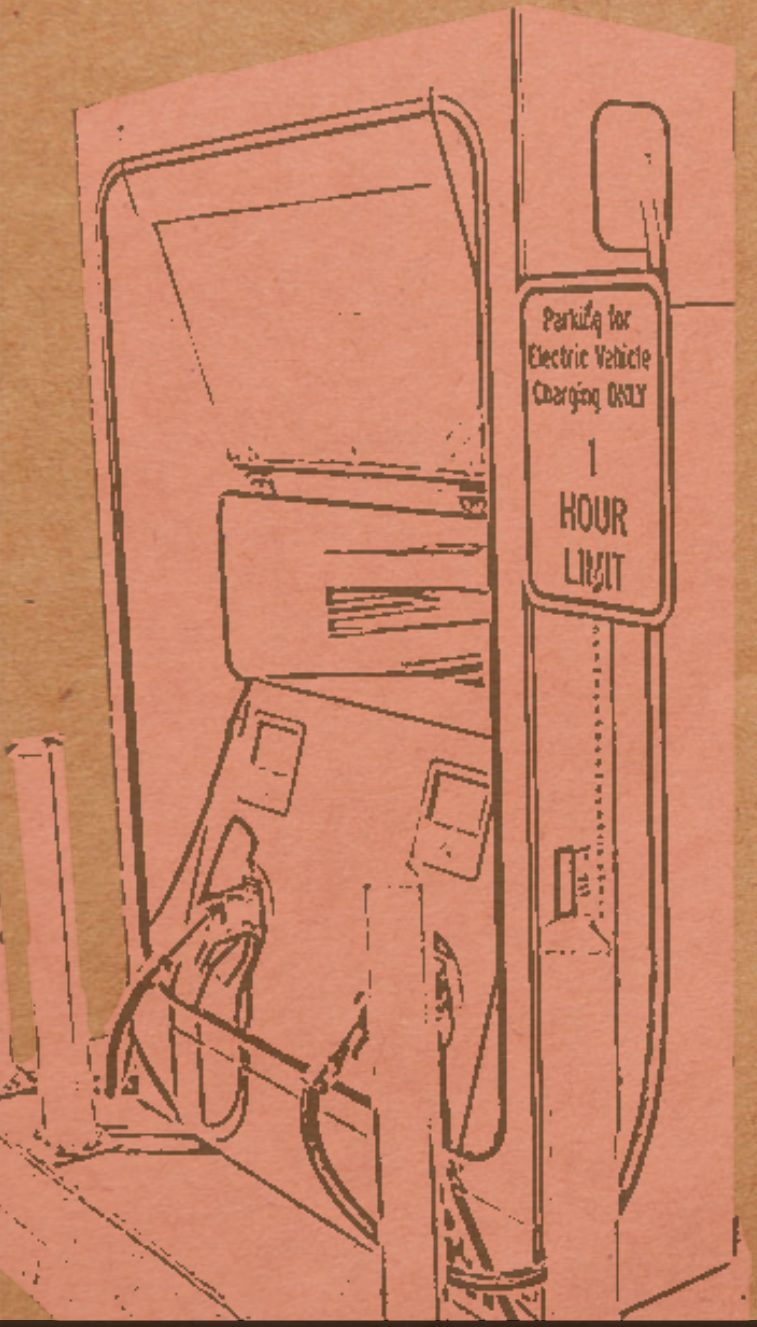
Tuesday, May 29, 2014

# Why a better DCFC infrastructure matters

- It increases the utility & value of BEVS.
- It encourages drivers to take longer, more frequent trips in their EVs.
- It would prompt many MBEV drivers to abandon ICE backup vehicles.
- I would cause some prospects to leave the sidelines and adopt a BEV.




# BEV drivers want it

BEV drivers satisfied with today's DCFC coverage?

TOTAL
10%

N = 479 BEV drivers

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# BEV drivers would go further ...

BEV drivers who would take longer trips if there were more DCFCs?

TOTAL
93%

N = 479 BEV drivers

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# ... more often

BEV drivers who would take *more frequent* trips if there were more DCFCs?

TOTAL
83%

N = 479 BEV drivers

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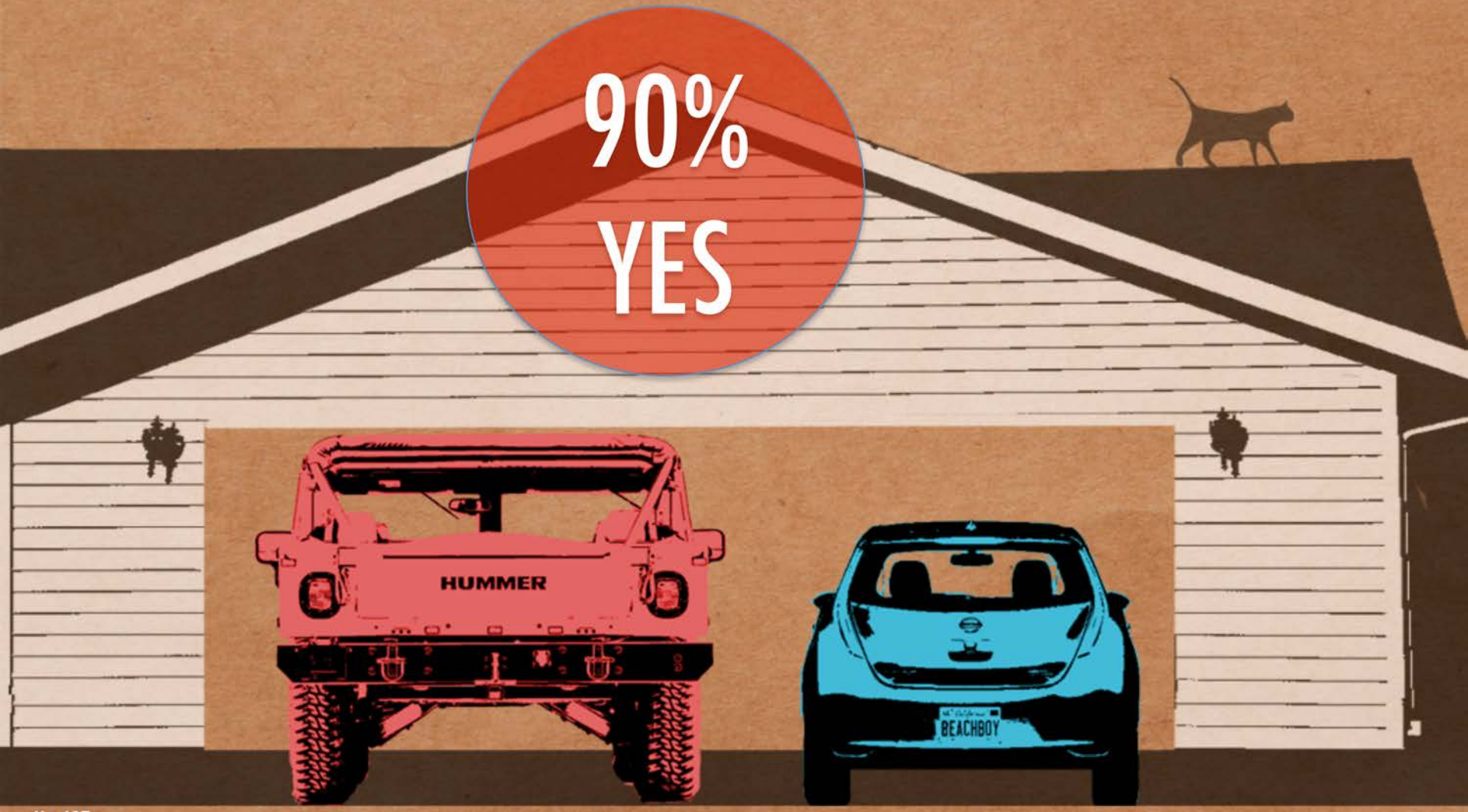
# In addition to your EV, does your household own or lease a vehicle that uses gasoline or diesel fuel?




N= 437

Population: Drivers of CHAdeMO capable MBEVs

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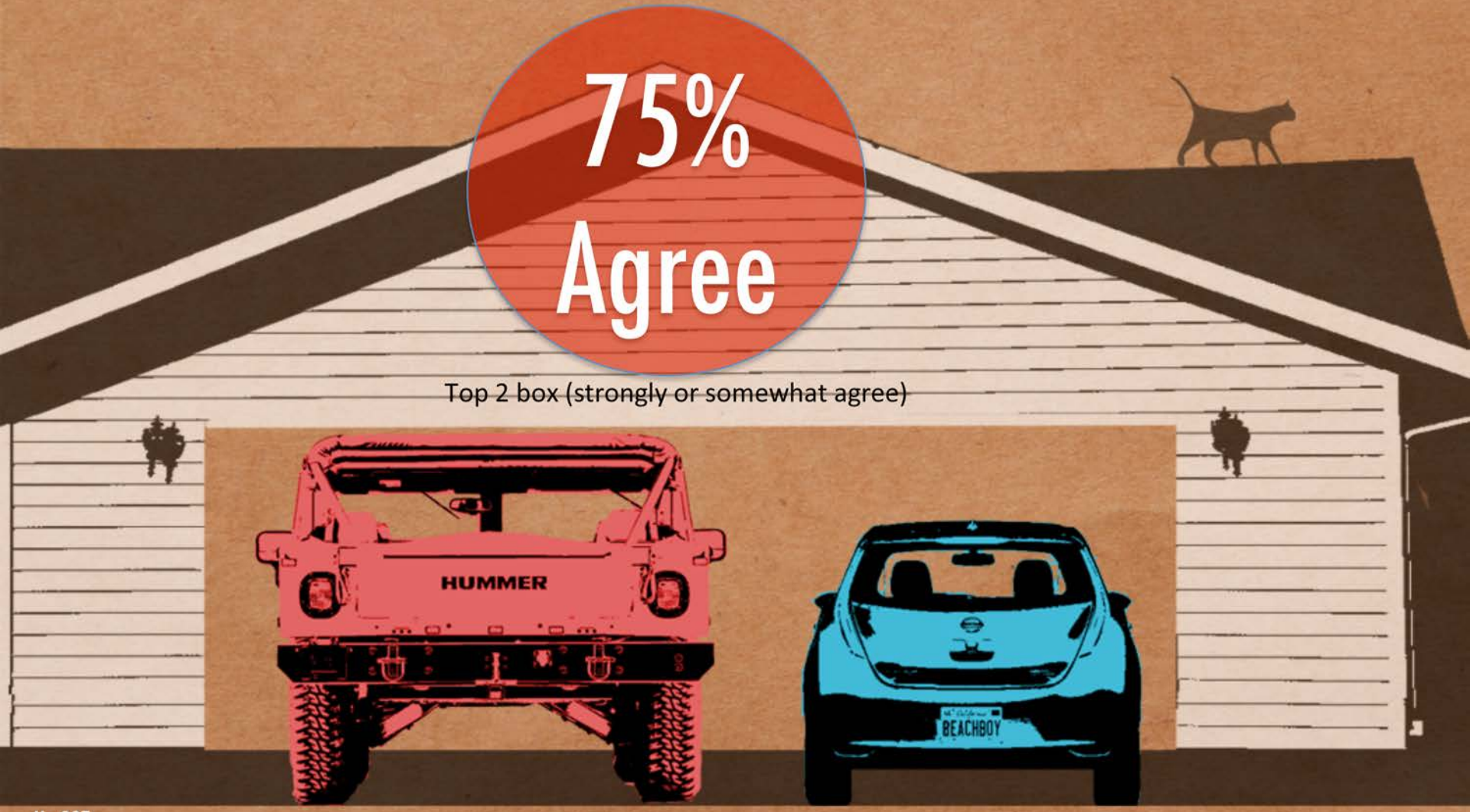
# I have to own/lease a gasoline (or diesel) vehicle because the range of my EV is so limited.




Top 2 box (strongly or somewhat agree)

N= 387

Population: Drivers of CHAdeMO capable MBEVs who also have gasoline vehicle in the household.

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If public DC fast chargers were plentiful and fairly priced 38% of all MBEV drivers say they would give up their "gas backup" vehicles

N=387 Population: Drivers of CHAdeMO capable MBEVs that also have ICE vehicles

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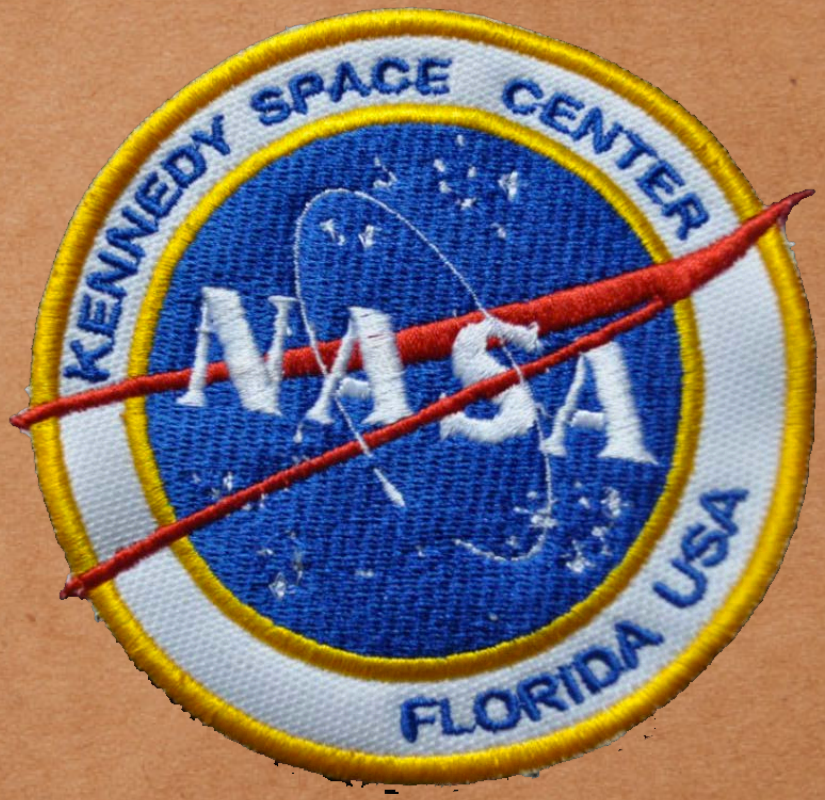
# The need for driver confidence in DCFCs

- More DCFCs are great, but it's not just a numbers game.
- BEV Drivers need to feel **CERTAIN** that DCFCs will actually work when they need to rely on them.
- They need to feel **CERTAIN** there will be a charger available when they need it.
- Otherwise, they won't risk travel outside their range circle.

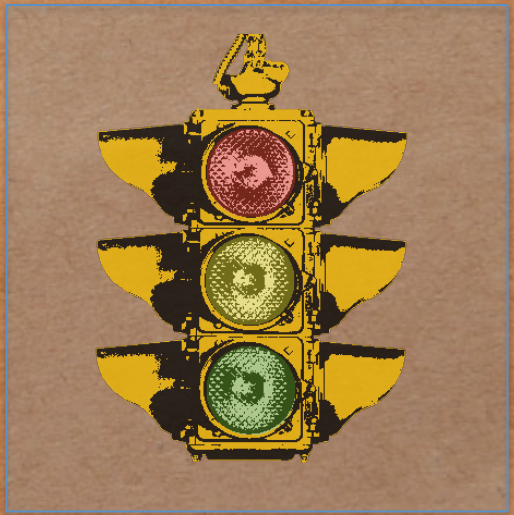
# Concept: "Mission Critical"

An activity, device, service or system whose failure or disruption will cause a "mission" failure.



# Mission Critical Examples

- Parachute
- Pacemaker
- Desert oasis
- Traffic signal



MICHELIN
MICHELIN.BECAUSE
SO MUCH IS RIDING
ON YOUR TIRES.
MICHELIN
LTX M/S

When a BEV drives more than half the distance from the last charger, charging becomes mission critical.

The price of failure is a tow truck.

POINT OF NO RETURN

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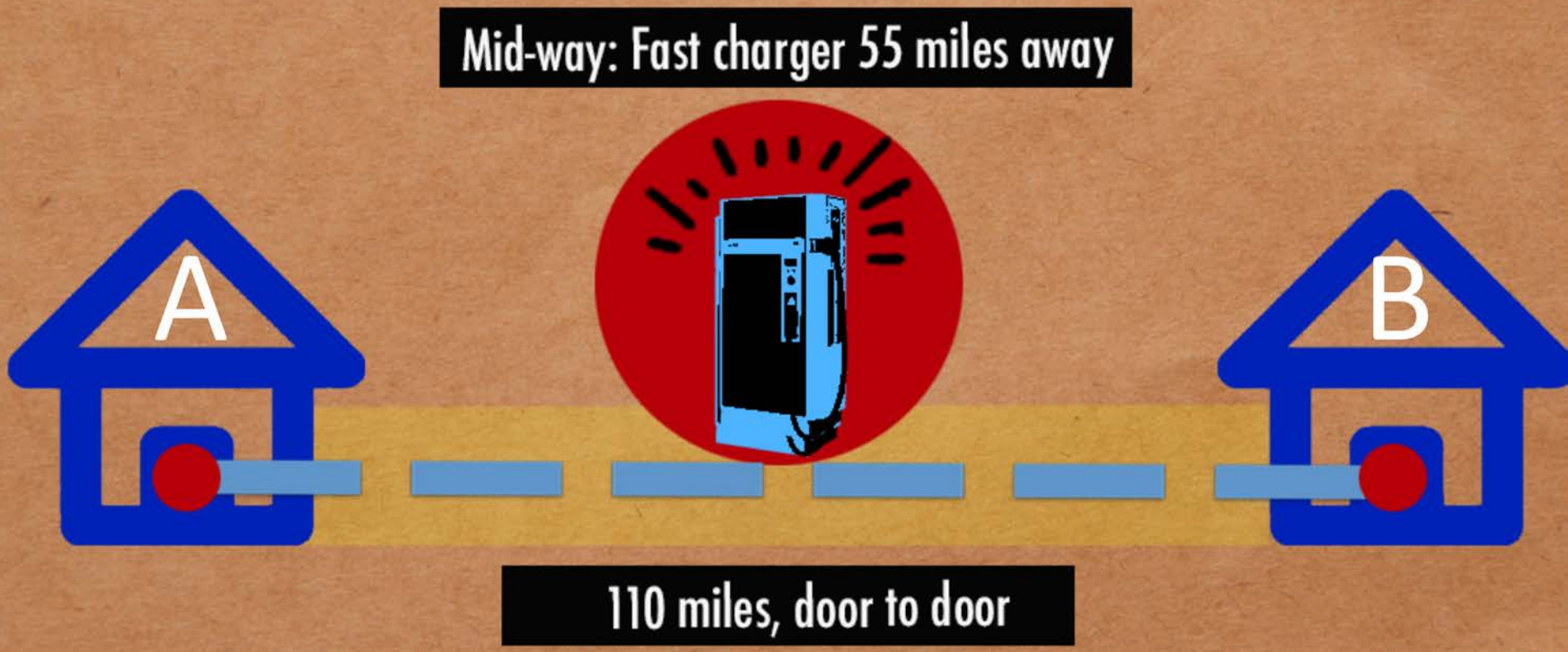
# WOULD YOU TAKE THIS TRIP?



# I probably WOULD NOT attempt this trip in my EV out of concern that the single DC Fast Charger could be out of service, stranding me.

Top 2 box

**AGREE**

**63%**

Bottom 2 box

**DISAGREE**

**29%**

N= 437

Population: Drivers of CHAdeMO capable MBEVs

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# The power of redundancy

% of drivers that WOULD attempt this trip in their EV, if there were SEVERAL DC Fast Chargers on the route.

TOTAL

71%

N = 437 CHAdeMO capable BEV drivers

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# Ease of contacting station operator/sponsor to inform them of a service outage.

## Tesla Model S

**TOTAL EASY 93%**

**TOTAL HARD 7%**

| | Tesla Model S | All other PEVs |
|---|---|---|
| Very easy | 68% | 6% |
| Easy | 17% | 11% |
| Somewhat easy | 9% | 19% |
| Neutral/not sure | 2% | 13% |
| Somewhat difficult | 3% | 24% |
| Difficult | 1% | 18% |
| Very Difficult | 0% | 10% |

**TOTAL EASY 36%**

**TOTAL HARD 52%**

## All other PEVs

N = 1407 PEV drivers

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# Confidence the issue would be promptly fixed after notifying of an outage?

## Tesla Model S

**TOTAL HIGH 90%**

**TOTAL LOW 6%**

| | Tesla Model S | All other PEVs |
|---|---|---|
| Extremely confident | 42% | 2% |
| Confident | 32% | 11% |
| Somewhat confident | 16% | 20% |
| Neutral/not sure | 5% | 16% |
| Somewhat doubtful | 3% | 22% |
| Doubtful | 2% | 19% |
| Very Doubtful | 1% | 10% |

**TOTAL HIGH 33%**

**TOTAL LOW 51%**

## All other PEVs

N = 1407 PEV drivers

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# Better enforcement and stronger laws = more confidence?

Better enforcement is needed for current laws barring ICE vehicle drivers from occupying spaces reserved for PEVs.

**AGREE: 93%**

Stronger laws are needed barring ICE vehicle drivers from occupying spaces reserved for PEVs.

**AGREE: 89%**

N = 1407 PEV drivers

# Summary: Keys to confidence

- Site redundancy (multiple fast chargers at a site)
- Area redundancy ("backup locations" close by)
- Trust in the site operator/network
- Protection from ICE blockers with better enforcement and tougher laws