

# APPEALS AND BARRIERS TO ADOPTING EVs

## A CONSUMER PERCEPTION SURVEY IN TAMIL NADU

Tamil Nadu is among the first few states in India to announce an electric vehicle policy in 2019. The recent revisions in the new policy announced in February 2023 is testament to the state’s continued commitment to rapidly transition to e-mobility. With EV expansion being one of the key pillars of achieving faster decarbonisation in the country, state EV policies are going to be all the more significant to India’s carbon reduction goals. Having established itself as a leader in becoming a major EV manufacturing hub in the country, the state now must also look towards improving the penetration of electric vehicles across segments.

To this end, Climate Trends undertook a perception survey in 3 cities – Chennai, Madurai and Coimbatore – to understand the consumer awareness about EVs, their willingness to and barriers to shift to EVs, and opinions around retrofitment and scrappage. The findings of the survey would be useful for the state in planning initiatives that build awareness and alleviate concerns around EVs among consumers, thereby creating demand and improving EV penetration in the state.

### SURVEY SAMPLE SIZE AND DEMOGRAPHICS

**Sample size:** 1,366 respondents

Respondents	Qualitative survey Face to face interviews	Quantitative survey Telephonic and f2f interviews
Non transport	30	1255
Transport Cabs – 20 3W cargo – 20 4W cargo (LMV) 24 Last mile delivery e-commerce (2w) - 17	81	NA
Total	111	1,255

## Demographics of respondents

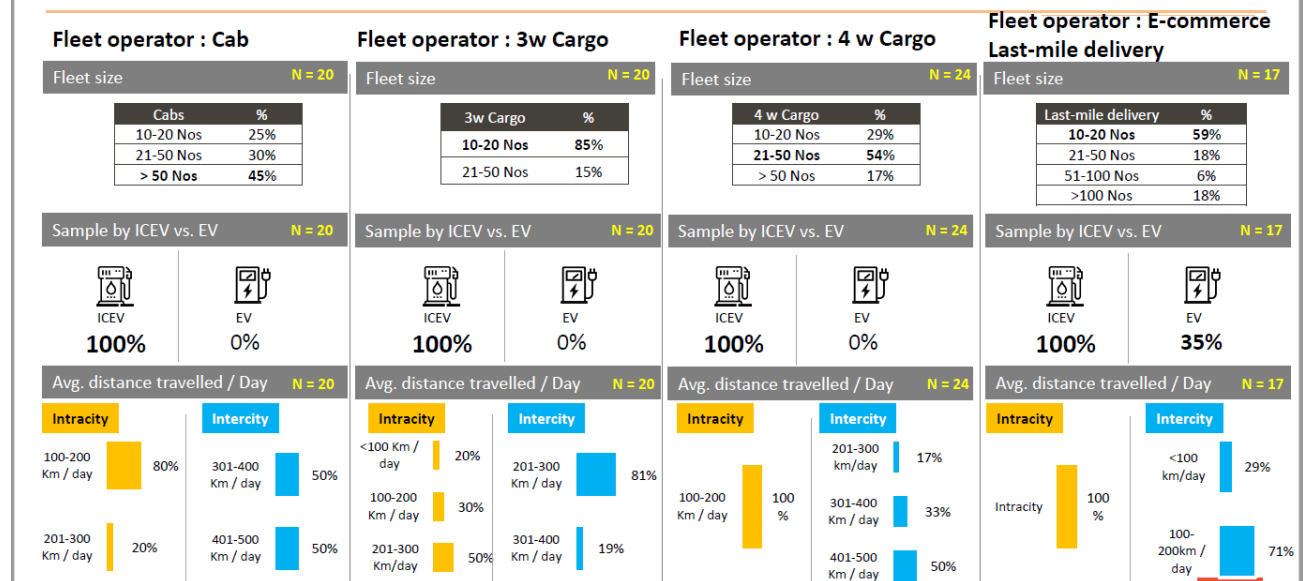
### Transport – 81 respondents

- 20 cab fleet owners with 75% having fleet sizes above 20 vehicles.
- 20 3W cargo fleet owners with 85% having fleet size above 10 vehicles.
- 24 4W cargo fleet owners with 70% having fleet size above 20 vehicles.
- 17 last mile delivery fleet owners with 18% having fleet size above 100 vehicles.
- Only last mile delivery fleets have some electric vehicles.

### Operations in states

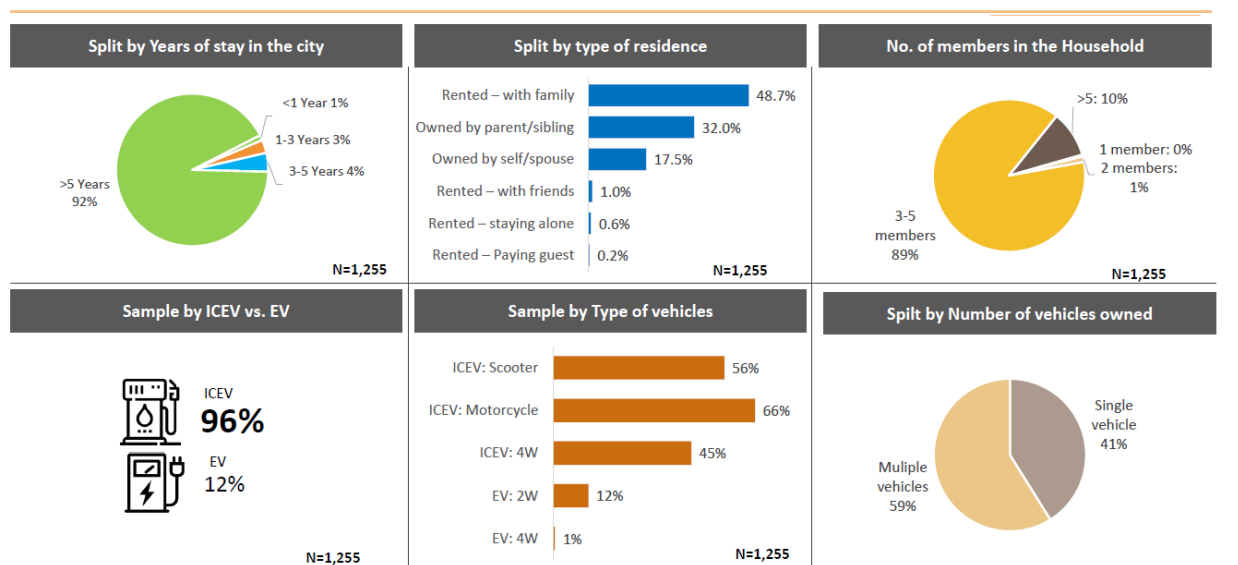
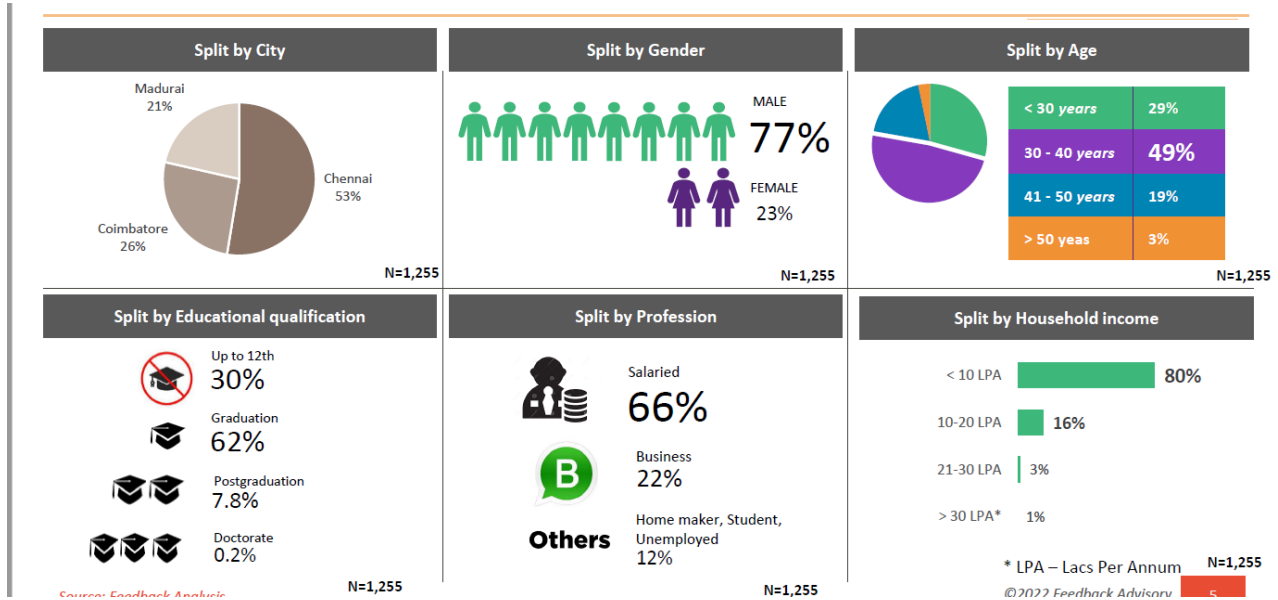
- Cabs – 100% operations in Tamil Nadu
- 3W cargo – 70% operations in Tamil Nadu
- 4W cargo – 13% operations in Tamil Nadu, 87% in multiple states
- Last mile delivery fleets – 82% operations in Tamil Nadu, 18% in multiple states

## Respondent profile



## Non-Transport (private users) – 1,255 respondents

- 56% are ICE 2W owners
- 66% are ICE motor cycle owners
- 45% are ICE 4W owners
- 12% are E2W owners
- 1% are E4W owners
- Overall 96% ICE owners and 4% EV owners



## KEY FINDINGS FOR TRANSPORT (sample size 81)

1. **Key appeals of an EV:** Low running cost has highest appeal among all categories, followed closely by low maintenance cost and environment friendly.
2. **Willingness to shift to EVs:**
  - Overall, 69% respondents were wary of shifting to EVs.
  - Highest willingness is among last mile delivery fleet owners, at 41% of total respondents.
  - More than 70% of Cab, 3W and 4W fleet owners were not willing to shift.
3. **What would motivate to shift to EVs:** Across all segments, willingness to buy an EV increases significantly if EVs were at par in cost with ICE and sufficient charging infrastructure existed.
  - Cabs:** Willingness goes up from 25% to 50%
  - 3W cargo:** Willingness goes up from 25% to 40%
  - 4W LMV:** Willingness goes up from 21% to 62%
  - LMD:** Willingness goes up from 59% to 71%
4. **Key concerns of an EV:** Varied responses across all categories
  - **Cab fleets:** Insufficient range for intercity travels (85%), limited charging infrastructure (80%) and limited service network (55%).
  - **3W cargo:** Low pick-up/loading capacity (65%) and no resale value for the used EVs (50%)
  - **4W LMV:** Low pick up (56%) and high initial investment (50%)
  - **LMD fleets:** Low pick up (41%) and limited charging network (18%)
5. **Scrappage:** 3W cargo and 4W light motor vehicle fleet owners showed no interest in availing scrappage incentives. 70% and 80% of LMD fleet owners and cab owners respectively did not want to opt for scrappage incentives. They would prefer to buy a new EV.
6. **Retrofitment:**
  - Cabs and 4w cargo showed no interest in retrofitting their vehicles to electric, preferring to buy a new EV.
  - 40% 3W cargo and 20% LMD fleets showed interest in retrofitting their fleets.
7. **Policy awareness:**
  - Overall, 83% of respondents were not aware of the benefits in the state EV policy.
  - Highest awareness is among last mile delivery owners and lowest is among 3W cargo owners.

	Cab fleet owners (N=20)	3W cargo fleet owners (N=20)	4W LMV fleet owners (N=24)	Last mile delivery fleet owners (N=17)
Not willingness to buy an EV	75%	75%	79%	41%
Willing to buy an EV	25%	25%	21%	59%

Key appeals of an EV				
Low running cost	90%	70%	79%	82%
Environment friendly	75%	35%	42%	47%
Noise free	35		29%	
Low maintenance		60%	17%	12%
Smart features		30%		12%
Key concerns for EVs				
Insufficient range	85%	10%		12%
Limited charging network	80%	15%	29%	18%
Limited service network	55%		17%	
High initial investment	45%	15%	50%	12%
No resale value	35%	50%		
Low pick up		65%	46%	41%
Scrappage				
Not willing to opt for scrappage incentive	80%	100%	100%	70%
Policy awareness				
Not aware about TN state policy	85%	95%	83%	71%
Aware about TN state policy	15%	5%	17%	29%

**KEY FINDINGS FOR NON-TRANSPORT I.E. PERSONAL USE (1,255)**

- Experience of EV users:** 153 respondents owned an EV two or four wheeler

  - When purchasing an EV, battery capacity, range offered and government incentives were the top 3 parameters considered. Size and space, noise free and resale value were given least importance when considering the shift to EVs.
  - Consumers are highly satisfied with the low maintenance cost, energy consumption and range offered in a single charge by their EVs – rating them 6.18, 6.04 and 6,03 respectively on a scale of

1 to 7. Size, and power/torque has the least satisfaction level, which shows these are areas of improvement in EV design.

- Close to 80% respondents strongly believe EVs are value for money, and 76% would definitely recommend buying an EV to their peers. 74% would continue buying an EV in the future.
2. **Opinions and attitudes of non EV users:** 1102 respondents were owners of ICE two and four wheeler
- **EV appeals:** Low running cost and low maintenance cost were the top two appeals for all users. However, on a scale of 1 to 7, there was little variation in the scoring given by respondents for all appeal factors. *All factors were scored above 5.5, which shows that EVs have a high appeal among the sample size.*
  - **EV concerns:** Safety of EVs was the top concern among all respondents, followed by issues during rainy season and batteries starting to lose performance with time. High initial cost fared as the lowest concerning point.
  - **Policy awareness:** 96% of respondents are not aware of the EV policy and its benefits. 100% and 98% respondents in Coimbatore and Madurai respectively were not aware of the EV policy.
  - **Awareness of charging infrastructure:**
    - Overall, 44% respondents have noticed charging infrastructure in their city.
    - 100% respondents from Coimbatore have seen charging infrastructure.
    - 79% respondents from Chennai and Madurai feel there is inadequate charging infrastructure in their city.
    - *This indicates a gap area on either low awareness about charging infrastructure growth, or lack of charging infrastructure at appropriate locations.*
  - **Willingness to buy an EV:**
    - 44% respondents were willing to buy an EV 2 wheeler.
    - 80% of them would prefer a brand new one over retrofitment.
    - 20% were willing to consider scrapping their vehicle for an incentive when purchasing an EV
    - Only 4% willing to buy an EV 4 wheeler, with 88% wanting a brand new one over retrofitted, and 19% willing to opt for scrappage incentive.
  - **Motivation factors to buy an EV:** More number of models to choose from, sufficient charging infrastructure and reputed brands offering EV are the key motivational factors.
  - **Views on electrification of LMD:** 76% believe growth in last mile delivery fleets is resulting in increased air pollution, and 65% believe fleet owners have a responsibility to convert to electric. But 64% are not willing to pay extra for delivery services from electric fleets.

