EV Portable Battery Market Analysis Report

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Executive Summary

This report presents an analysis of market survey data for a new portable battery prototype designed for the Electric Vehicle (EV) market. The objective was to interpret market demand, identify potential market segments, and propose a pricing strategy. The findings indicate significant market potential, particularly among individuals experiencing EV range anxiety. A parallel pricing model, offering both one-off purchase and monthly subscription options, is recommended.

1. Introduction

A start-up company is developing a portable battery prototype for the EV market and sought to understand potential demand and refine its go-to-market strategy through market surveys. This analysis aims to provide data-driven insights to support initial investment discussions with angel investors.

1.1. Purpose of Analysis

- To interpret and explain market demand based on survey results.
- To identify and suggest appropriate market segmentation.
- To propose a pricing strategy grounded in data insights.

1.2. Approach to Analysis

The analysis involved a thorough data integrity assessment, including checks for missing values, duplicates, inconsistencies, and outliers. Data types were corrected, null values handled, and categorical entries standardized using Power Query. Calculated columns were created with DAX for insights such as price elasticity and usage frequency categories. A relevance and completeness check were also performed, noting the absence of detailed

product feature preferences and suggesting further data collection on EV ownership brand preferences, charging habits, and willingness to pay under different use-case scenarios.

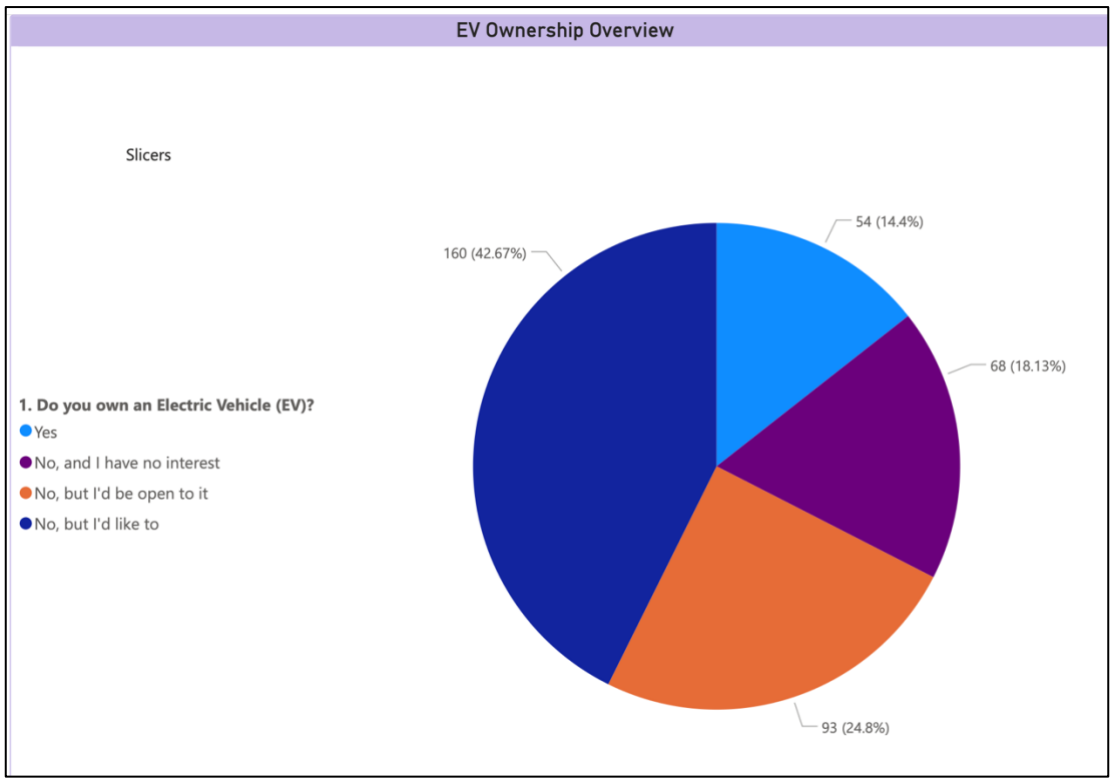
2. EV Market Demand Insights

The survey results highlight a substantial and growing market for EV-related products.

2.1. EV Ownership Overview

The overall EV ownership stands at over 14%, with an additional 42% of participants expressing interest in owning an EV ("No, but I'd like to"). This indicates a significant potential for market growth.

Figure 1: EV Ownership Overview



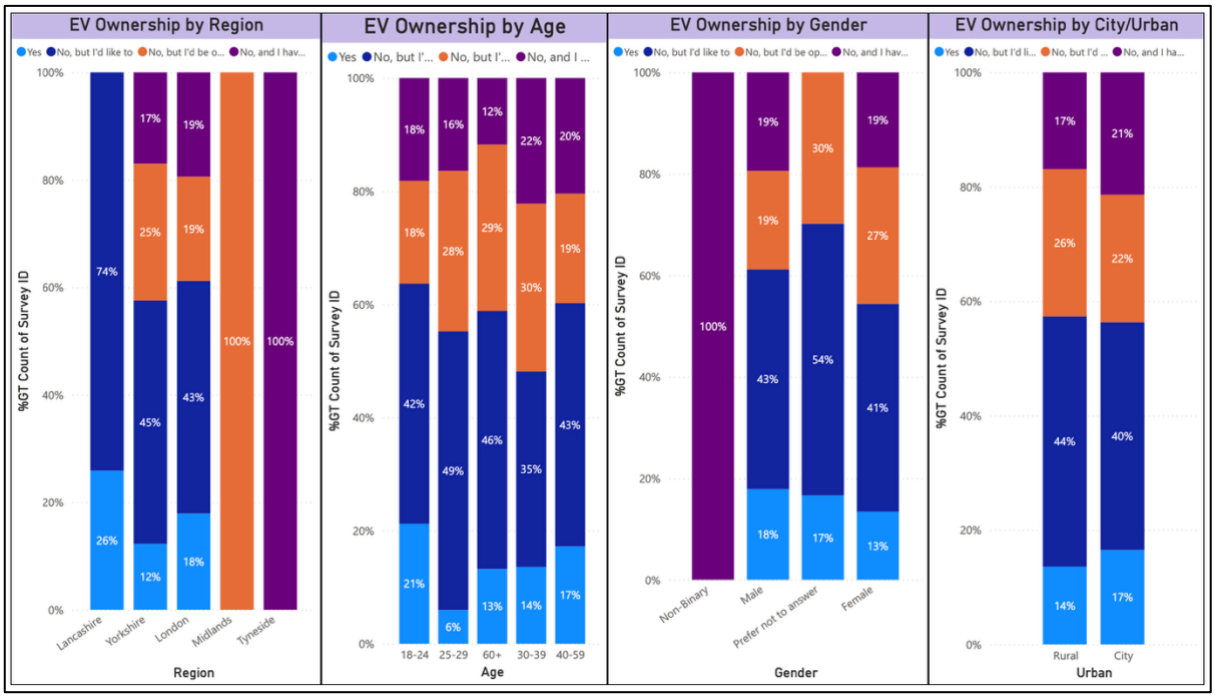
- **Yes (Current EV Ownership):** 14.4% (54 respondents)
- **No, but I'd like to (Potential Market):** 42.67% (160 respondents)
- **No, but I'd be open to it:** 24.8% (93 respondents)
- **No, and I have no interest:** 18.13% (68 respondents)

The "No, but I'd like to" category represents a key target for future market expansion.

2.2. EV Ownership Demographics

Analysis by region, age, gender, and urban/rural reveals variations in EV ownership and potential interest.

Figure 2: EV Ownership by Region, Age, Gender, and City/Urban

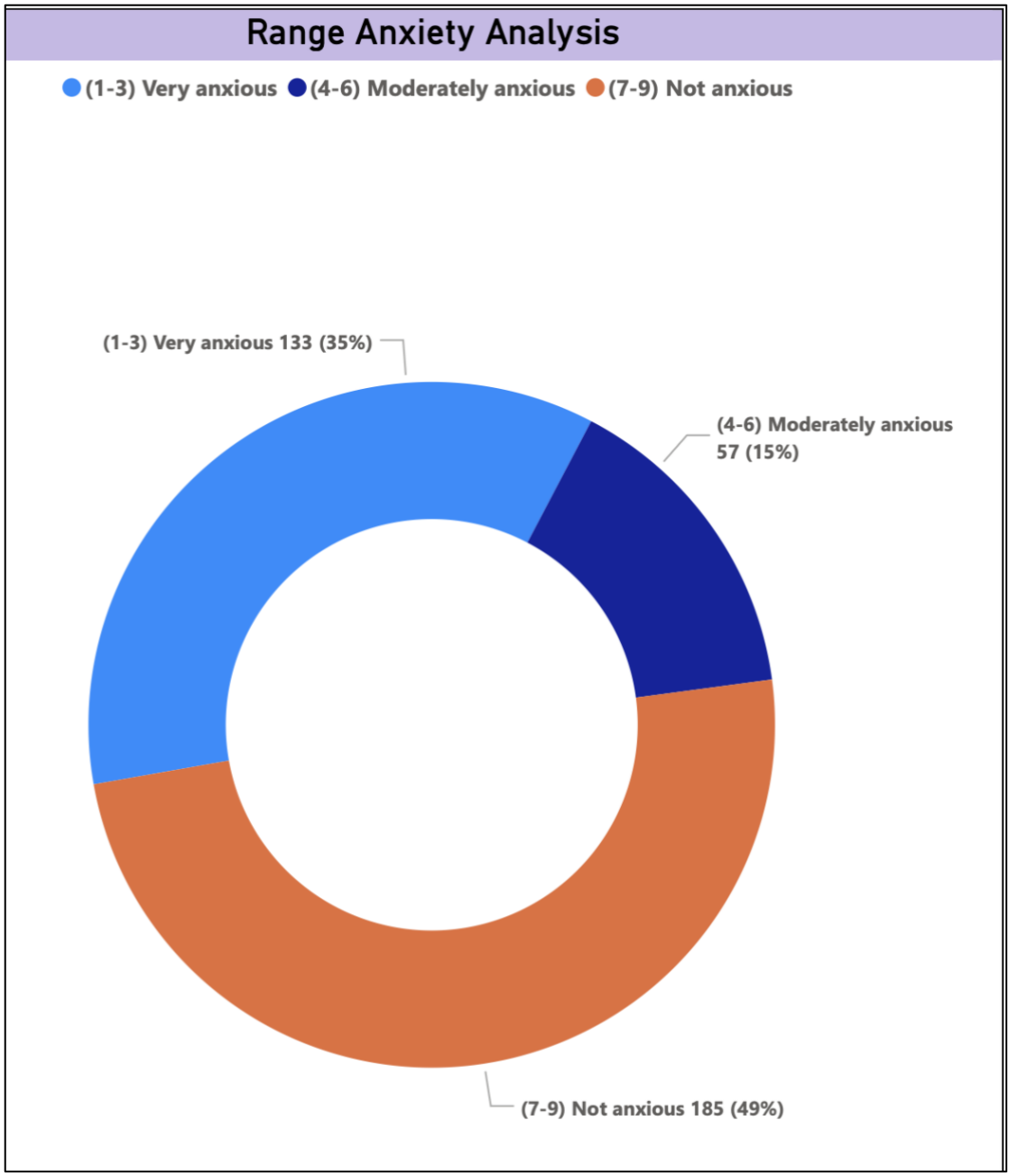


- **By Region:** Yorkshire shows a high percentage (74%) of respondents who "would like to" own an EV, followed by London (45%).
- **By Age:** The 18-24 (49%) and 25-29 (46%) age groups show the highest potential interest in EV ownership.
- **By Gender:** Females (41%) show a slightly higher "would like to" percentage compared to males (43% for "Yes" and "No, but I'd like to" combined, with "No, but I'd like to" being 27%).
- **By City/Urban:** Rural areas (44%) show a higher proportion of potential EV owners compared to urban areas (40%).

2.3. Range Anxiety Analysis and Product Demand

A significant portion of participants experience EV range anxiety, which directly correlates with higher product demand.

Figure 3: Range Anxiety Analysis



- **Very anxious (1-3):** 35% (133 respondents)
- **Moderately anxious (4-6):** 15% (57 respondents)
- **Not anxious (7-9):** 49% (185 respondents)

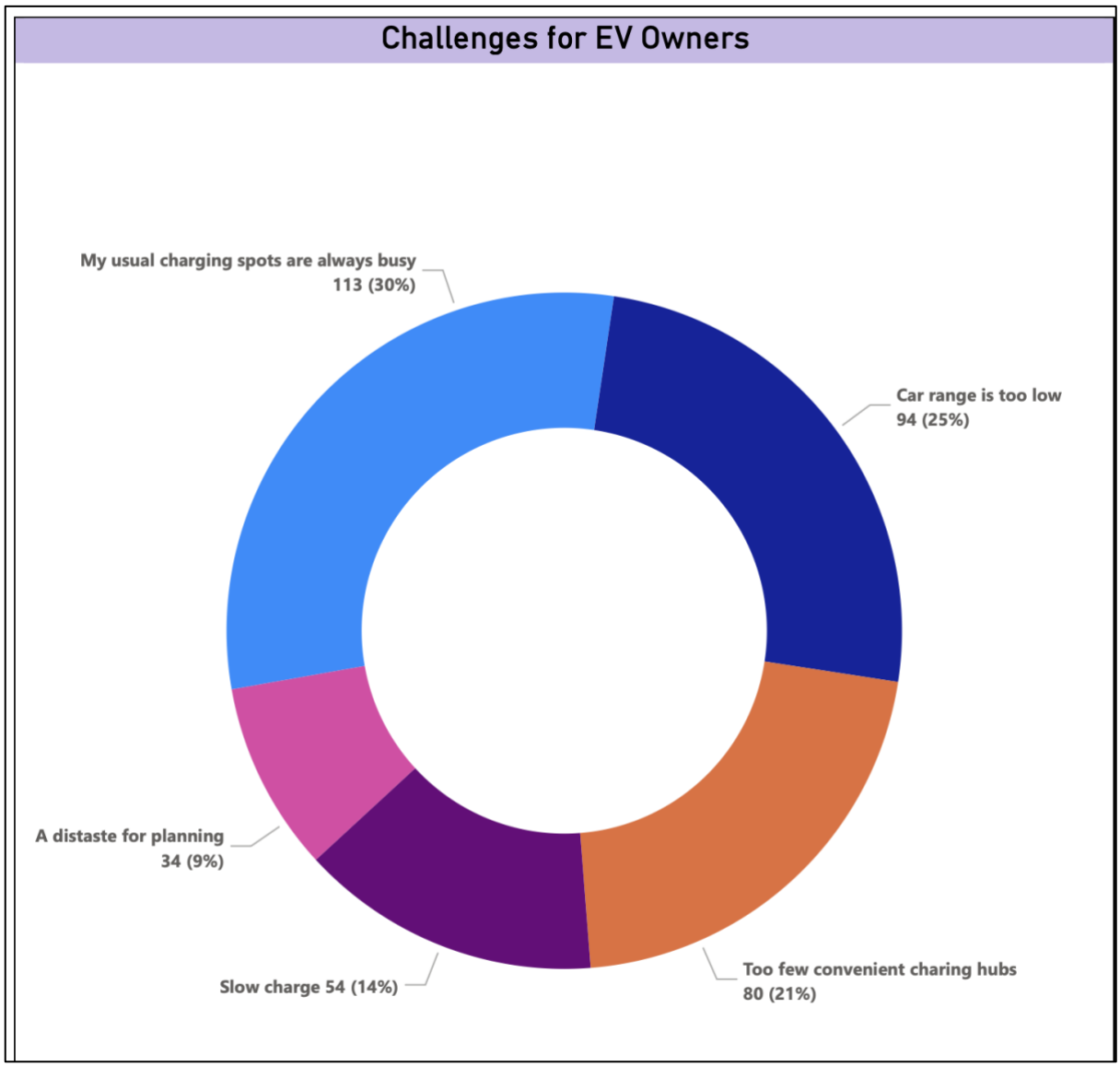
Overall, half (50%) of participants experience some level of EV range anxiety (35% very anxious, 15% moderately anxious).

High Product Demand: Regardless of current EV ownership or range anxiety levels, nearly a quarter (23%) of participants made a pre-order. This figure rises significantly to over two-thirds (66.9%) among those with high range anxiety, indicating a strong correlation between anxiety and purchase intent.

2.4. Challenges for EV Owners

Understanding the challenges faced by current EV owners provides insights into the pain points that a portable battery could address.

Figure 4: Challenges for EV Owners



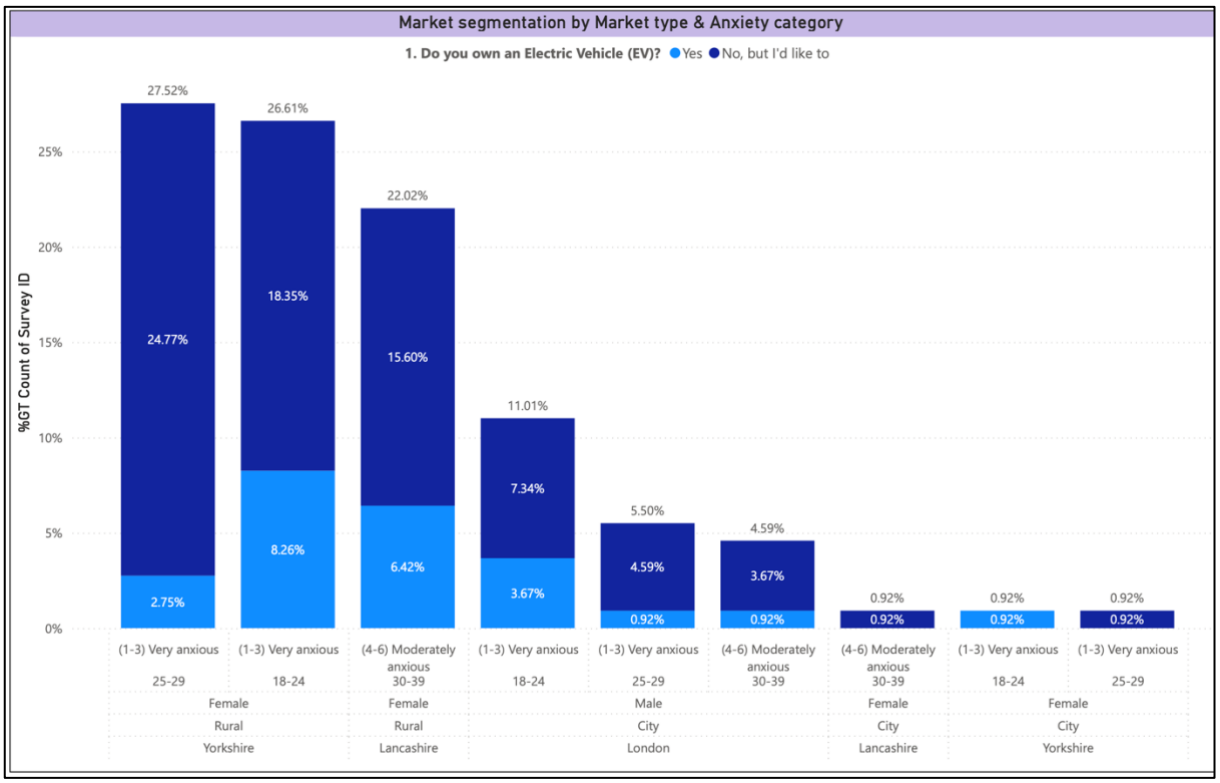
- **My usual charging spots are always busy:** 30% (113 respondents)
- **Car range is too low:** 25% (94 respondents)
- **Too few convenient charging hubs:** 21% (80 respondents)
- **Slow charge:** 14% (54 respondents)
- **A distaste for planning:** 9% (34 respondents)

The primary challenges revolve around charging infrastructure availability and convenience, and car range limitations.

3. Market Segmentation Proposal

Based on current/potential EV ownership and range anxiety sensitivity, three primary segments are recommended for the portable battery prototype:

Figure 5: Market Segmentation by Market Type & Anxiety Category



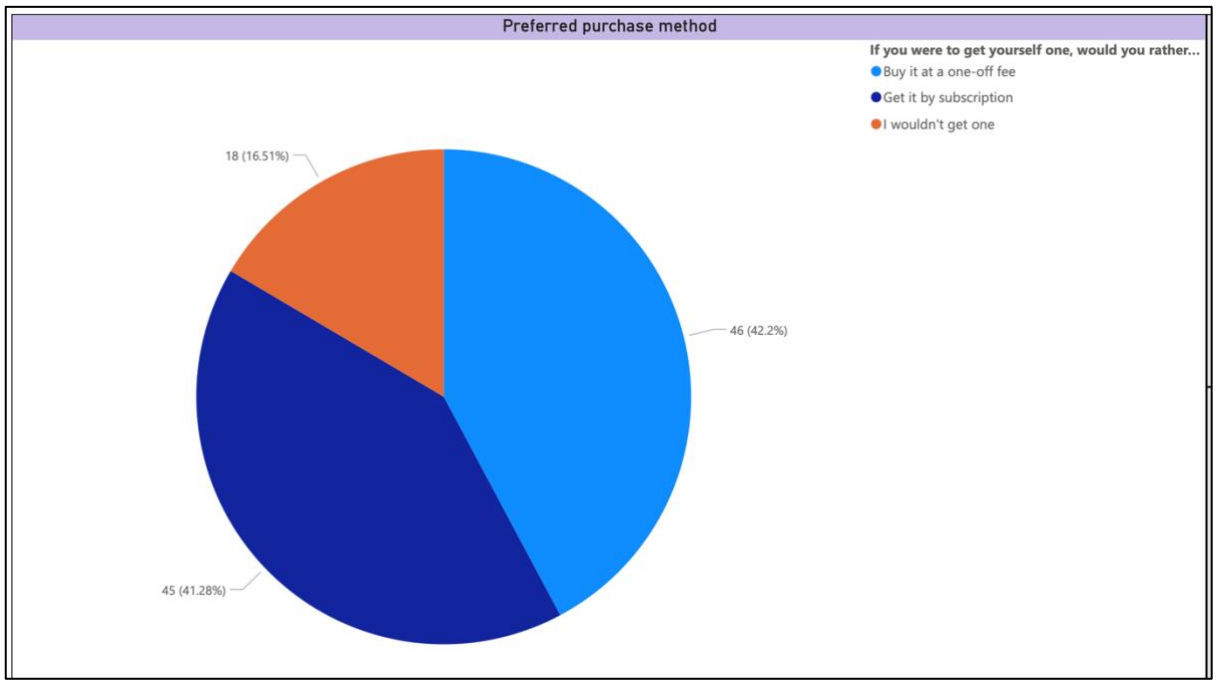
(This section represents the bar chart on Page 7 of the PDF)

1. **Yorkshire Rural Commuters (Female aged 18-24 & 25-29):**
    - High current (combined 11%) and high potential (combined 43%) EV ownership.
    - Very high range anxiety.
    - This segment represents a significant opportunity due to existing EV interest and a strong need for range solutions.
2. **London City Commuters (Male aged 18-24 & 25-29):**
    - High current (combined 4.5%) and high potential (combined 12%) EV ownership.
    - Very high range anxiety.
    - Despite lower overall percentages than Yorkshire, the high anxiety levels make this a valuable segment.
3. **Lancashire Rural Commuters (Female aged 30-39):**
    - High current EV ownership (6.4%) and potential (15.6%) ownership.
    - Moderate anxiety.
    - This segment represents a stable market with existing EV users who could benefit from extended range and convenience.

4. Pricing Strategy Recommendation

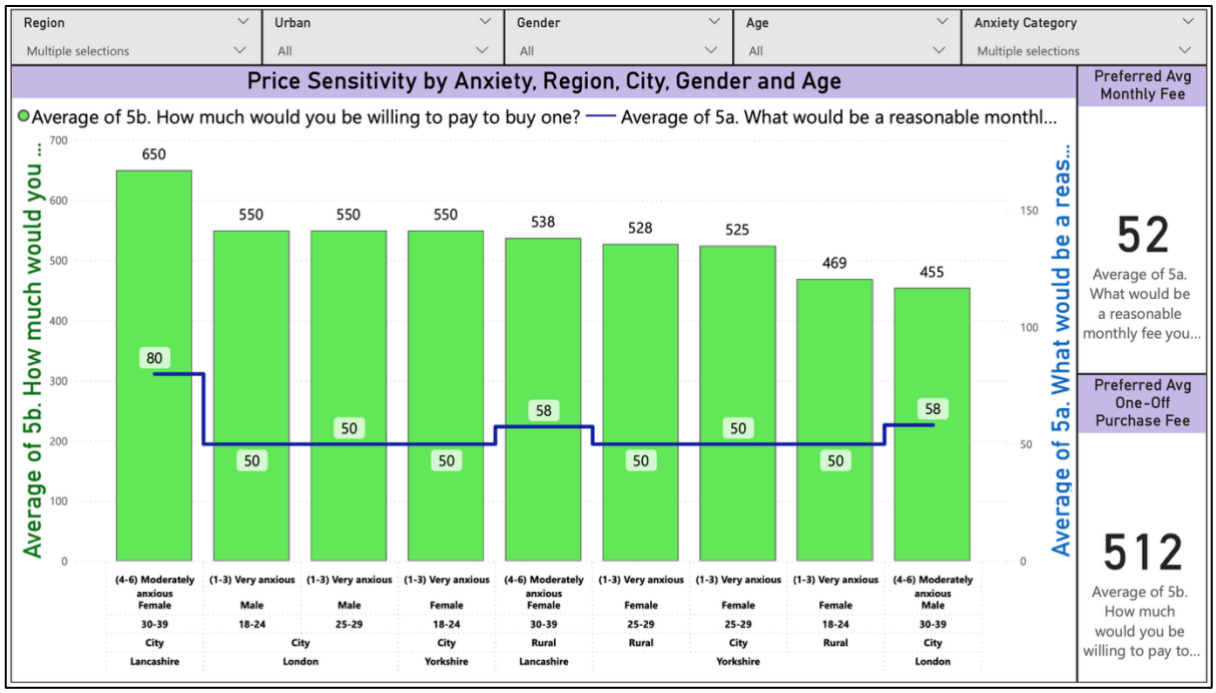
A parallel pricing model is advisable, given the nearly equal preferences for one-off purchases versus subscriptions.

Figure 6: Preferred Purchase Method



- **Buy it at a one-off fee:** 41.28% (45 respondents)
- **Get it by subscription:** 42.2% (46 respondents)
- **I wouldn't get one:** 16.51% (18 respondents)

Figure 7: Price Sensitivity by Anxiety, Region, City, Gender and Age



- **One-off purchase:**
  - **Target Price:** £512 (can be rounded to £510 or £515).
  - The highest willingness to pay for a one-off purchase is observed in the "(4-6) Moderately anxious, Female, 30-39, City, Lancashire" segment (£650).
- **Monthly subscription:**
  - **Target Price:** £52 (can be rounded to £50 or £55).
  - The highest willingness to pay for a monthly subscription is observed in the "(4-6) Moderately anxious, Female, 30-39, City, Lancashire" segment (£80).

The data suggests that individuals with moderate to high anxiety are willing to pay more for both purchase methods.

5. Suggestions for Further Survey

For the prototype product, further data collection is recommended on:

- **Product features:** E.g., charging speed, weight preference, portability.
- **Customer behaviours:** E.g., storage habits, charging habits, typical use-case scenarios.

These additional insights will help refine product development and marketing strategies.

Conclusion

The market for a portable EV battery shows strong potential, driven by growing EV adoption and prevalent range anxiety. By targeting specific demographic and anxiety-level segments with a flexible pricing strategy, the start-up can effectively capture market share and attract initial investment. Further research into product features and customer behaviours will enable more precise product development and market positioning.