Comparative Outline & Content Prompts

Title Page

- **Title:** Electric vs. Gas-Powered Vehicles: A Comparative Overview
- **Prepared for:** [Audience, e.g., City Council / Board of Directors]
- **Prepared by:** [Your Name]
- **Date:** [Date]

Executive Summary (~0.5 page, separate page)

- **Purpose:** Provide decision makers with a clear overview of findings.
- **Content Prompts:**
    - Summarize major points of comparison (environmental impact, costs, infrastructure, performance).
    - Highlight most significant differences and similarities.
    - State the report's objective (to inform, not persuade).
- **Evidence & Sources:** Summaries from Department of Energy (DOE), Environmental Protection Agency (EPA), automotive industry reports.

Introduction (~0.5 page)

- **Purpose:** Define scope, explain relevance for non-expert decision makers.
- **Content Prompts:**
    - Define key terms: "electric vehicle (EV)," "internal combustion engine (ICE) vehicle," "charging infrastructure."
    - State why the comparison matters (policy planning, consumer incentives, environmental goals).
    - Introduce categories of comparison (environmental impact, cost, infrastructure, performance).
- **Evidence & Sources:** DOE fact sheets, EPA transportation impact summaries, automotive industry market overviews.

Discussion

I. Environmental Impact (~1.5 pages)

- **Purpose:** Compare long-term environmental effects of EVs vs. gas vehicles.
- **Content Prompts:**
    - Greenhouse gas emissions (lifecycle emissions including battery manufacturing).

    - Air quality impacts (urban pollution reduction vs. tailpipe emissions).
    - Energy source differences (renewable vs. fossil fuel electricity generation).
    - Embedded case study: A city that adopted EV fleets and documented pollution changes.
- **Evidence & Sources:** EPA emissions reports, Intergovernmental Panel on Climate Change (IPCC) studies, National Renewable Energy Laboratory (NREL).

II. Cost of Ownership (~1.5 pages)

- **Purpose:** Compare direct and indirect costs for consumers and communities.
- **Content Prompts:**
    - Purchase price differences, including federal/state incentives for EVs.
    - Fuel vs. electricity costs.
    - Maintenance and repair (EVs require fewer moving parts).
    - Resale value and battery replacement considerations.
    - Case study: Municipal fleet cost analysis of EV vs. ICE over 10 years.
- **Evidence & Sources:** DOE cost calculators, Kelley Blue Book, AAA cost-of-ownership studies, BloombergNEF.

III. Infrastructure (~1.25 pages)

- **Purpose:** Explore current and required infrastructure for both systems.
- **Content Prompts:**
    - Fueling vs. charging availability and accessibility.
    - Urban vs. rural access differences.
    - Charging speed and convenience compared to gas fueling.
    - Required investment by municipalities.
    - Case study: Comparison of charging expansion plans in two states.
- **Evidence & Sources:** DOE Alternative Fuels Data Center, state infrastructure reports, International Energy Agency (IEA).

IV. Performance and Usability (~1.25 pages)

- **Purpose:** Compare functionality and convenience for users.
- **Content Prompts:**
    - Driving range, acceleration, and towing capacity.
    - Cold weather performance.
    - Consumer satisfaction trends.
    - Suitability for personal vs. commercial use.
    - Case study: Delivery service adoption of EVs compared to traditional vans.
- **Evidence & Sources:** Consumer Reports, J.D. Power surveys, manufacturer technical specifications.

Conclusion (~0.5 page)

- **Purpose:** Synthesize findings without making recommendations.
- **Content Prompts:**
  - Recap major differences and similarities.
  - Reinforce relevance of comparisons for community and policy decisions.
  - Note that results may vary by region, consumer needs, and future technological advances.
- **Evidence & Sources:** Draw selectively from above sections for summary.

References (not included in page length)

- **Purpose:** Provide verification and transparency.
- **Content Prompts:**
  - 8–10 credible sources, including DOE, EPA, industry analyses, peer-reviewed journals.
  - Use required citation style (e.g., IEEE, APA, or as assigned).