

Electric Vehicles

Not if, but when?



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STRATEGYANALYTICS

Increased Vehicle Electrification Inevitable



- **The conventional car faces:**

- Increasing environmental legislation
- Increasing costs to meet legislation
- Increasing fuel costs
- Increasing CO2-related taxes



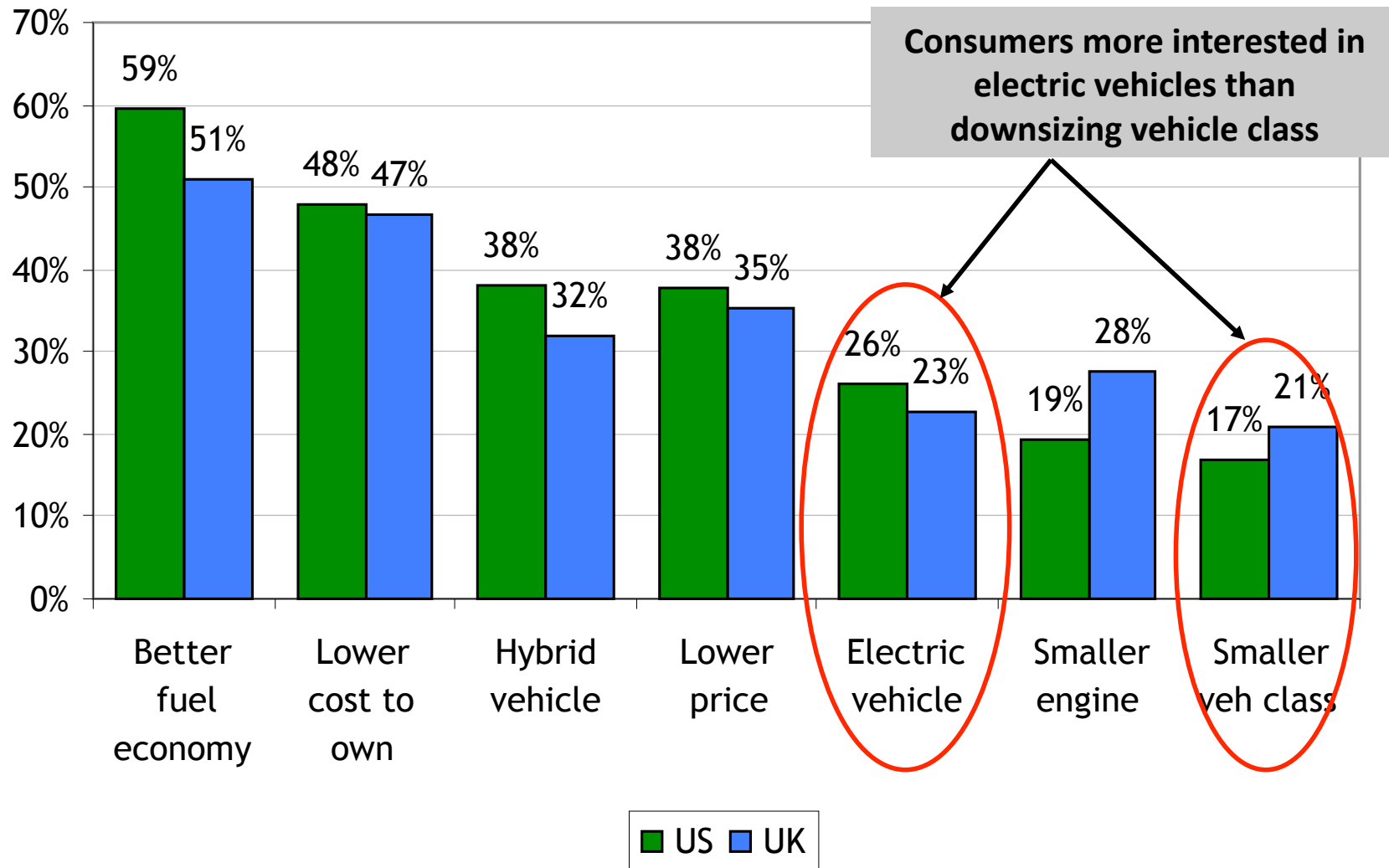
- **The electric car faces:**

- Reducing costs due to better technology
- Reducing costs due to volume increases
- Lower per-mile fuel costs than gas/diesel
- Lower taxation than gas/diesel

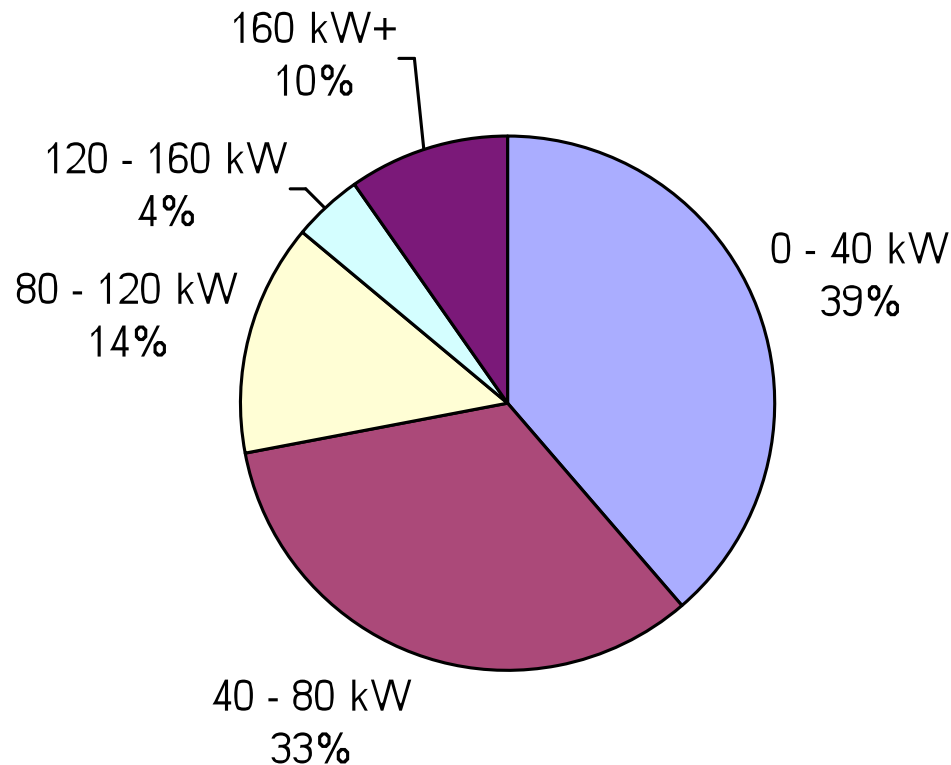




Consumers Looking to Improve Fuel Economy with Next Vehicle Purchase



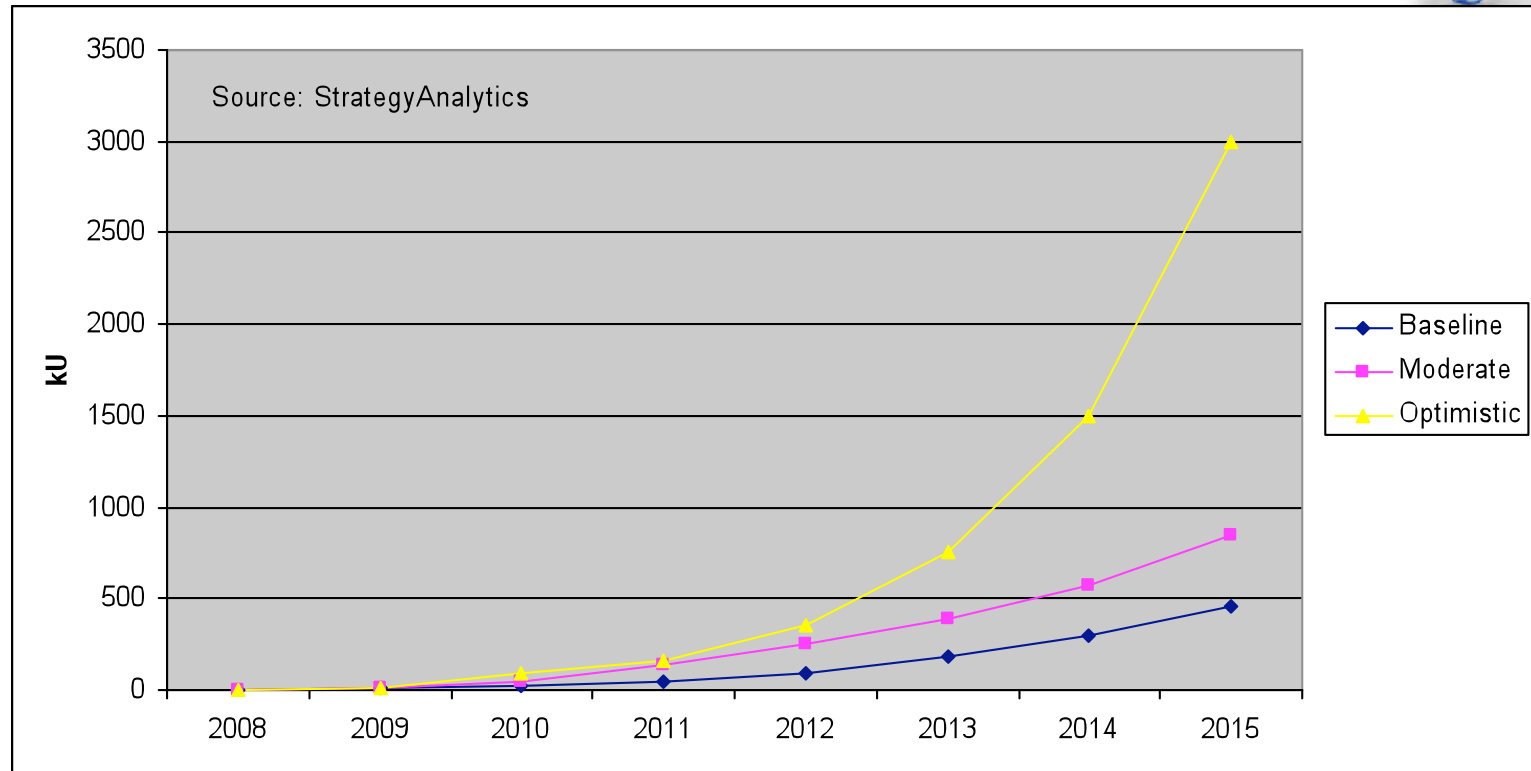
Over 140 Examples of Development/Production EVs



- **EVs under development across wide range of sizes and power outputs – but focused on smaller vehicles**
- **Tracking ~300 pieces of legislation/incentives encouraging sustainable road transport across the globe**
- **Private investments ALSO**
 - \$232M stake in BYD taken by Warren Buffett – Battery/Car maker
 - \$100M VC to A123 Systems – Battery Maker
 - \$85M VC to Fisker Automotive – Plug-in hybrid manufacturer



Electric Vehicle Demand Scenarios



- **Baseline:** Current most likely scenario
- **Moderate:** More optimistic assumptions for how many concepts will make it into production, and for Better Place success
- **Optimistic:** Assumes best-case scenarios across the board: huge government incentives, rapidly rising oil prices, rapidly falling battery prices



EV Demand Implications

- **Baseline scenario has 500,000 EVs manufactured in 2015. This would mean:**
 - Less than 1% of global light vehicle production would be EV
 - \$4B Market for EV Batteries
 - \$200M Market for EV Powertrain Semiconductors (3% of total automotive powertrain semiconductor market)
- **Projections of baseline scenario suggest possible market of 3 million EVs in 2025. This would mean:**
 - Around 3% of global light vehicle production would be EV
 - \$18B Market for EV Batteries
 - \$1B Market for EV Powertrain Semiconductors
- **There are significant barriers to entry to this market, BUT:**
 - Conventional automakers **HAVE** to keep investing in conventional technology – cannot meet legislative requirements by EV alone
 - Required business models to sell and maintain EVs conflict with current OEM & Dealer models
 - Many core EV technologies do not belong to the automotive industry

Any Questions

