

# Speaker Topics

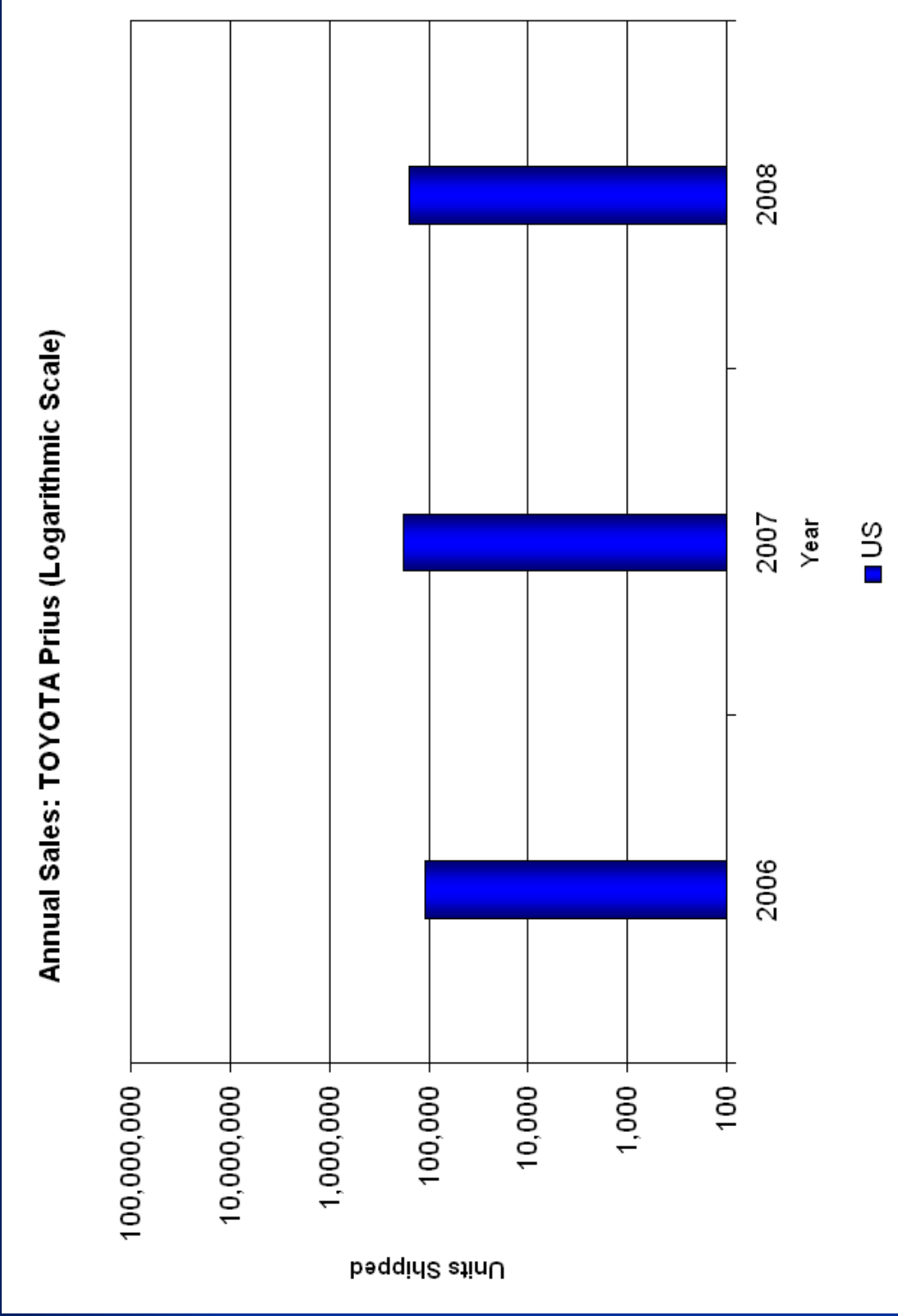
- **Green Vehicle Overview:**
  - Mr. Cliff Nakayama, UCGEC, Mostwell International LLC
- **Enabling Battery & System Technologies:**
  - Professor Andrew A Frank, Efficient Drivetrains Incorporated
- **Electric Recharging Infrastructure & Business Models:**
  - Mr. Saul Zambrano, PG&E
- **Dr. Peng Zhou, Electric Vehicle Technologist**
- **Policies, Incentives & Regulations:**
  - Mr. Matthew Crosby, California Public Utilities Commission

# Market for Electric Vehicles in China

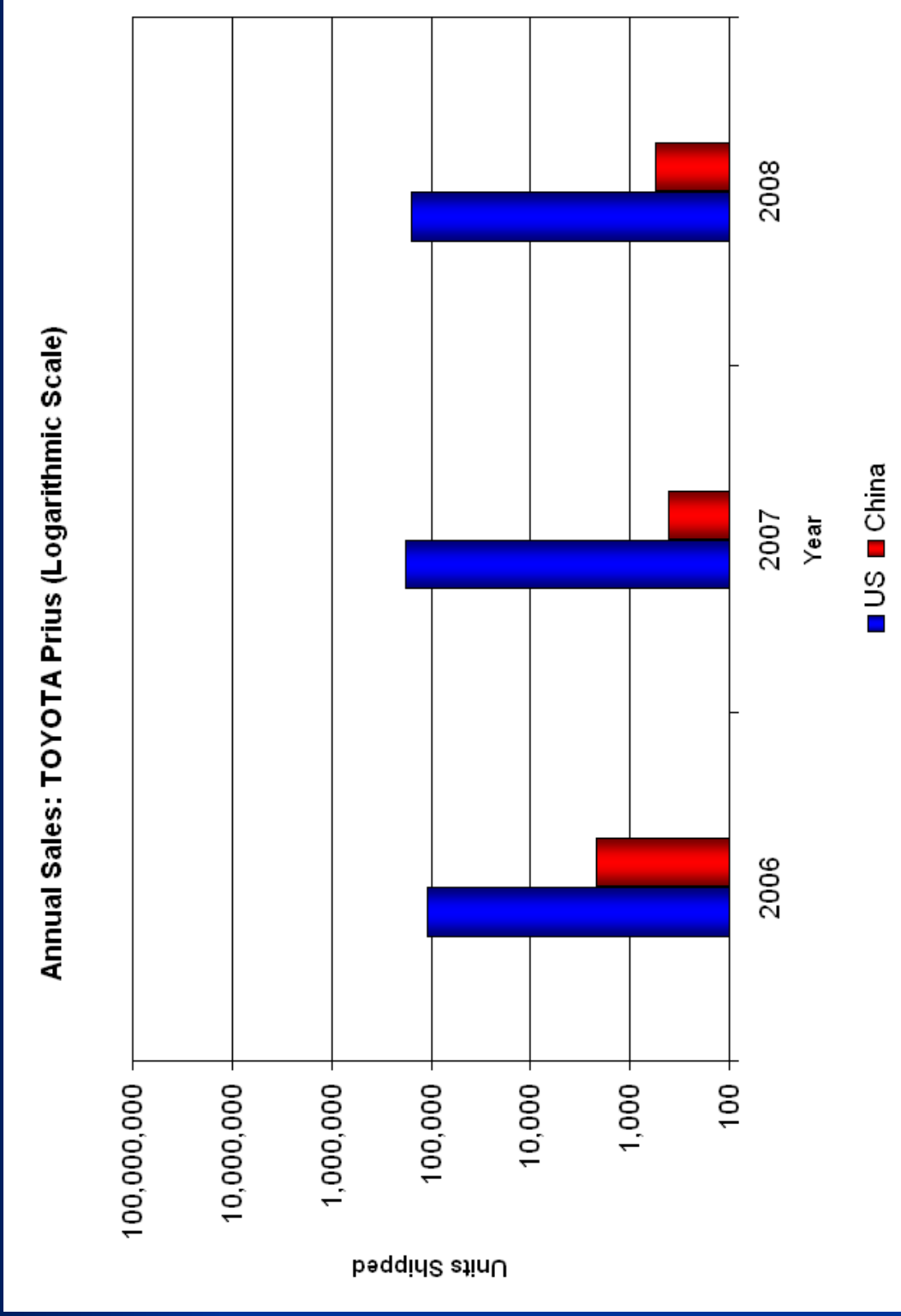
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# What US Consumers Want...



# Is Not Necessarily What Chinese Consumers Care ...



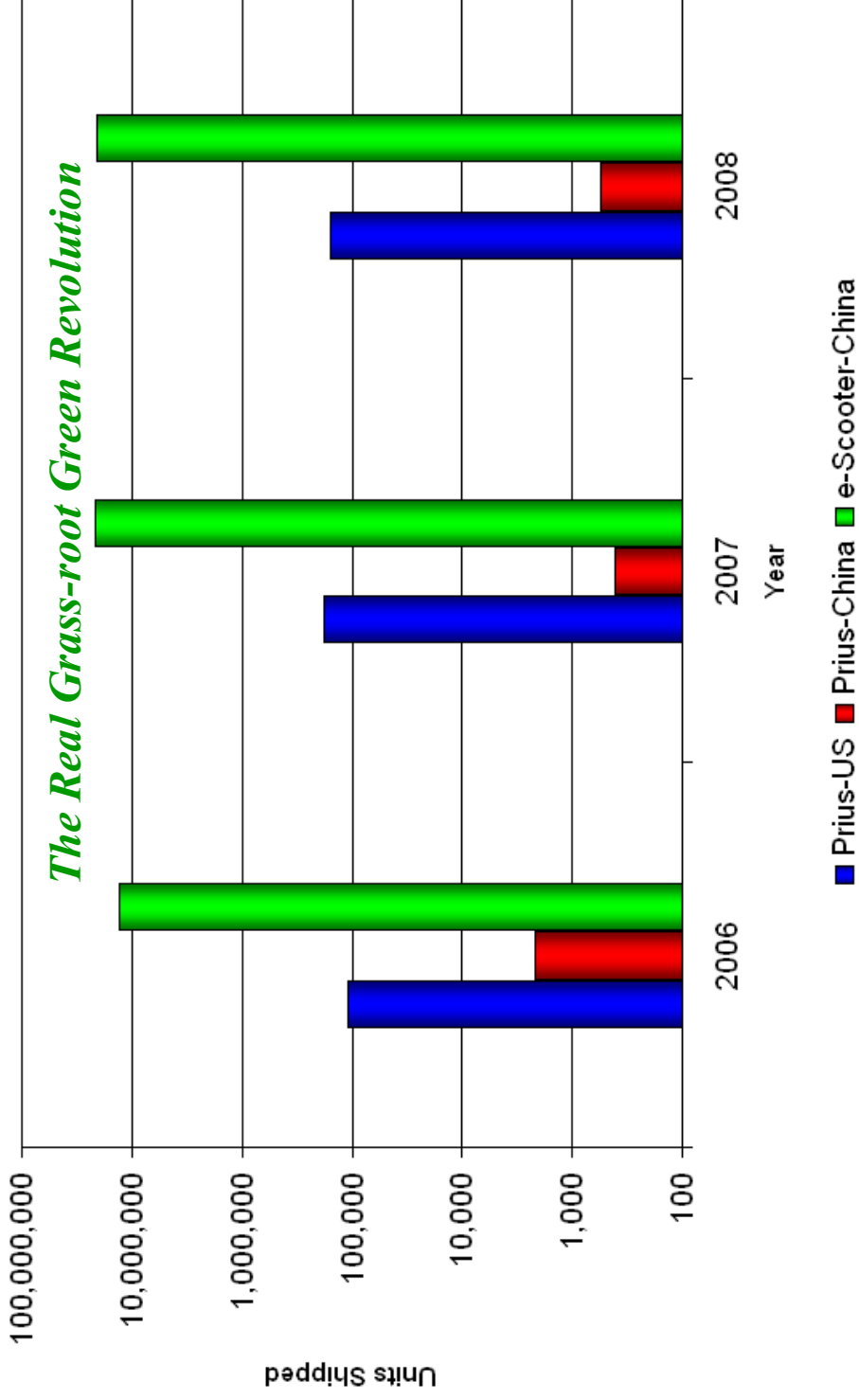
## Who Are Buying Prius in the US?

- Male of female and between 30 and 50 years old (mid-life)
- Likely to be married (Full nest or Empty Nest) and with family responsibilities
- Affluent and well-informed and educated adults, classed in the AB (top 5%) socio-economic segment
- In higher managerial, administrative or professional occupations and of upper middle class
- Prepared to purchase environmentally-friendly
- Able to pay more for it (higher disposable income)
- Either their own property owner or rent privately
- Most likely to already own a lower medium car or similar
- Of no specific ethnic or religious background

*“Toyota Prius, Marketing Communications Plan”*

# What Sells in China Now...e-Scooters!

Annual Sales: TOYOTA Prius v.s. e-Scooters (Logarithmic Scale)



## The Reason Behind e-Scooter's Success

- Electric vehicle for the mass, not for the class
- Primary means of personal mobility
- Cheap to purchase
- Cheap to operate
- Thrives against government opposition

## What Else Sells in China Now...LSEV

- Low speed electric vehicle is the ideal replacement for heavily polluting three wheelers
- Primary means of rural mobility
- Cheap to purchase
- Cheap to operate
- ~ 50,000 units shipped in 2008
  - ~ 40,000 domestic
  - ~ 10,000 export market

## The Crystal Ball Says...

Market Segment	Growth Opportunity
e-Scooter	Proliferation of lithium-ion battery pack
LSEV	Proliferation of lithium-ion battery pack
Pure electric e-City Car (A0/A00)	New development for mass domestic market
Hybrid and plug-in hybrid passenger vehicles (A/B/C)	New development for export market and high-end domestic market
Special Purpose Fleet	City bus, postal fleet, service fleet, waste management fleet...

# Where Are the Customers in China?

Market Segment	Target Customer
Lithium e-Scooter	Growth market, trade up
Lithium LSEV	Growth market, trade up
Pure electric e-City Car (A0/A00)	e-Scooter/LSEV trade up, existing ICE switch over
Hybrid and plug-in hybrid passenger vehicles (A/B/C)	Foreign customer, made in China Domestic green collar
Special Purpose Fleet	Government!!

## Key Barriers...

Market Segment	Target Customer
Lithium e-Scooter	Cost
Lithium LSEV	Cost
Pure electric e-City Car (A0/A00)	Cost, Infrastructure
Hybrid and plug-in hybrid passenger vehicles (A/B/C)	Export: FMVSS Domestic: Cost, Infrastructure
Special Purpose Fleet	Fragmented market Requires sustained government subsidy

# Who are the Players

Market Segment	Target Customer
e-Scooter	100s of manufactures
LSEV	Over 40 manufacturers, most have big technology gap
Pure electric e-City Car (A0/A00)	At least 14 have plans and/or prototypes
Hybrid and plug-in hybrid passenger vehicles (A/B/C)	Chery, Chang'An, BYD, SAIC
Special Purpose Fleet	TCTV Program: 13 Cities

## Don't Forget the Rest of the Electrification Puzzle

- Electric power assisted steering
- Electric cooling pump
- Electric cooling fan
- Electric compressor and HVAC
- Electric vacuum pump
- Electric hydraulic pump