

EVs Without OEMs

Tom Gage
President
AC Propulsion, Inc.
San Dimas, California

The Seattle Electric Vehicle to Grid Forum
V2G Technical Symposium
June 6, 2005



The Electric Vehicle Imperatives

- Air quality
- Global warming
- Energy security

Electric Vehicles = Transportation without Petroleum

EVs Available 1998 - 2002



Toyota RAV4 EV



Chevy S10 EV



Honda EV Plus



GM EV1



Ford Ranger EV



Chrysler EPIC EV

2003: EV Availability Denied



Toyota RAV4 EV
out of production



Chevy S10 EV
out of production



Honda EV Plus
out of production



GM EV1
out of production



Ford Ranger EV
out of production



Chrysler EPIC EV
out of production

Fleets Still Want EVs



- SCE
- LADWP
- Santa Monica
- SMUD
- APS
- Georgia Power
- FP&L
- NYPA

Automakers Haul Them Away



Automakers produced over 5000 EVs from 1997 through 2002. Most are being systematically recalled, hauled away, and destroyed.

Destination: Destruction



photo: www.saveEV1.org

Business as Usual?



“... flattening the vehicle so it can go through the various mechanics of recycling,”
- Dave Barthmuss, General Motors, quoted in *Washington Post*, March 10, 2005

photo: www.saveEV1.org

EVs Without OEMs

- Re-power conventional vehicles
- Design for low-volume production
- Re-certify to FMVSS compliance
- Apply up-to-date technology
- Sell to receptive niches

Enabling technology exists to support
EV production by the thousands

Enabling Technology

Propulsion

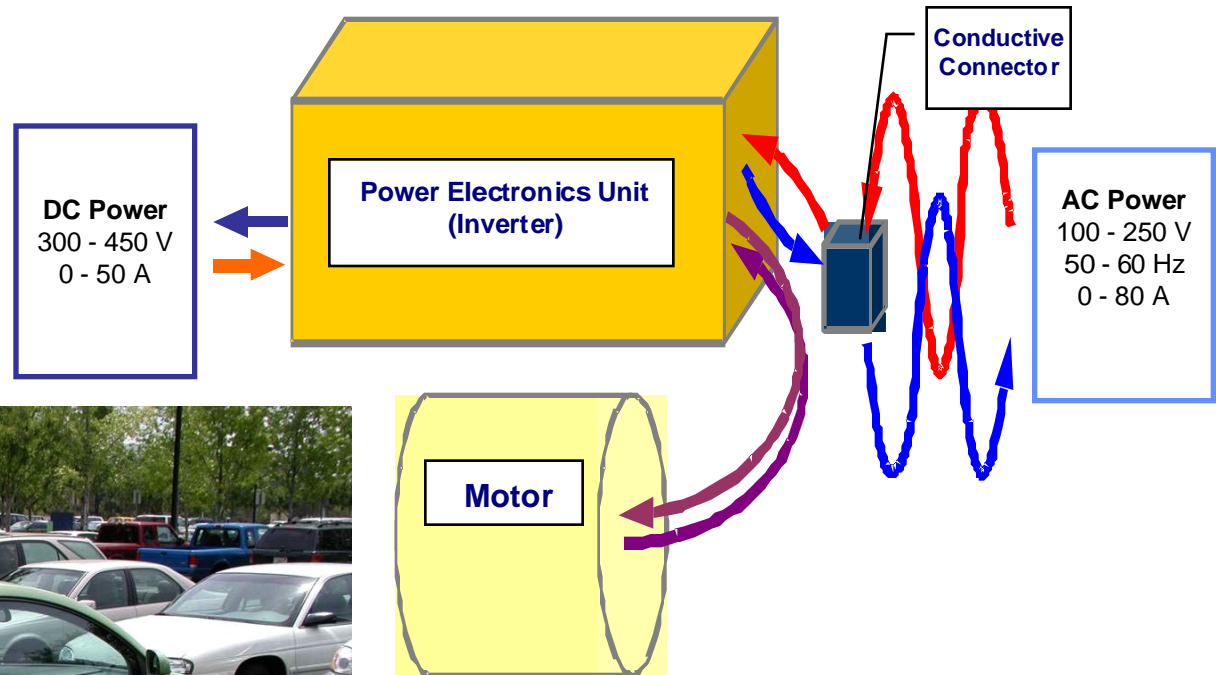


0 emissions
0-60 mph in 6.2 seconds
0-125,000 miles in 10 years

Enabling Technology

Bi-Directional Charging for V2G

- Integrated
- High power
- Low cost

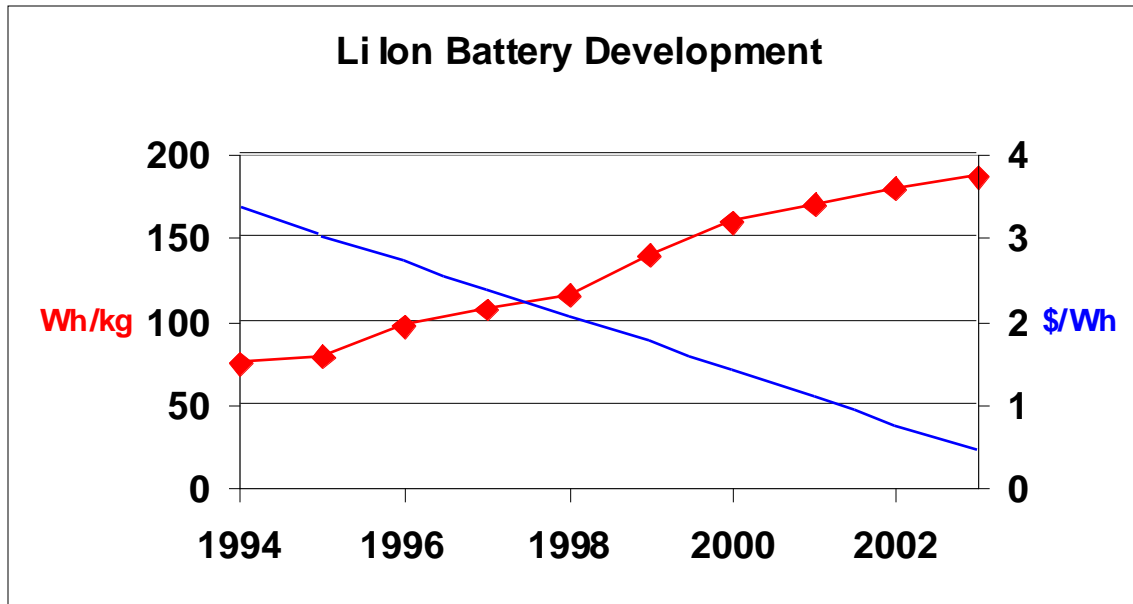
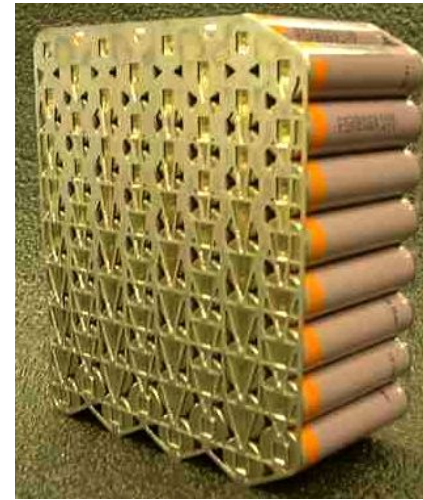


- Grid tied
- Stand alone

Enabling Technology

Battery Progress

Small cells
assembled
into large
packs



Mass markets
drive rapid
improvement
and cost
reduction

The AC Propulsion EV

FMVSS-certified EV conversion of Scion xA and xB



Scion xB



Scion xA

Features

- AC Propulsion drive system
- Li Ion battery
- Bi-directional charging
- Regenerative braking
- Onboard battery diagnostics
- A/C, full power

Performance

- 160 mile range
- 0-60 < 7 sec
- 90 mph
- 1 mile per minute charging

The AC Propulsion EV



xB

- Roomy
- Versatile
- Well-appointed



Courtesy Scion

xA

- Sporty
- Stylish
- Fully-equipped

Plan for Production of EVs

Manufacture new electric vehicles by converting conventional vehicles to electric power

- Low investment
- Fast to market
- Responsive to new technology
- Product proliferation for market growth
- Process replication for capacity expansion