



INEEL

Idaho National Engineering & Environmental Laboratory

U.S. Department of Energy Field Operations Program

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Program Goal

- *Provide fleet managers and other advanced-technology vehicle purchasers with the information they require to make informed purchase and leasing decisions, and to increase the overall awareness and acceptance of advanced-technology alternative fuel vehicles.*

Program Activities

Electric Vehicle Testing

- *Includes baseline performance, accelerated reliability, and fleet testing*

Incremental Funding Program

- *Provides incremental funding to Federal Fleets leasing electric vehicles*

National Loaner Program

- *In conjunction with six electric utilities, electric vehicles are loaned free to Federal fleets*

Baseline Performance Testing

EVAmerica Testing

- *Closed track and dynamometer testing, with repeatable results, allowing year-to-year and vehicle-to-vehicle comparisons*

Pomona Loop Testing

- *Series of 8 range tests on city streets (Urban Loop) and highways (Freeway Loop) in Southern California. Subject to traffic and traffic control factors*

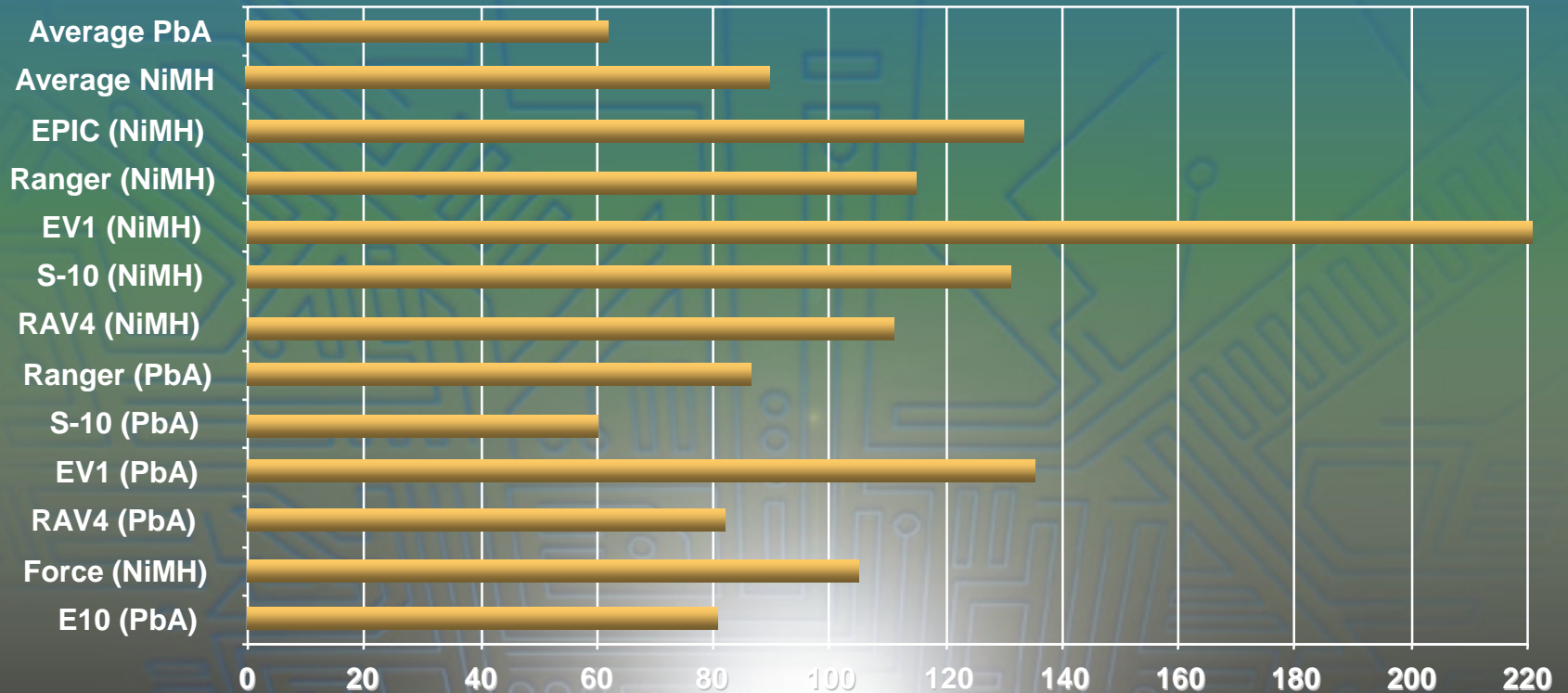
EVAmerica Baseline Performance Testing

- ***Measures performance statistics***

- Acceleration 0 - 50 mph
- Maximum speed at 1/4 mile and 1 mile
- Range at constant 45 and 60 mph speeds
- Driving cycle range (SAE J1634)
- Braking from 60 mph (wet and dry)
- Handling (various SOC)
- Gradeability (calculated)
- Charger and Charging efficiency

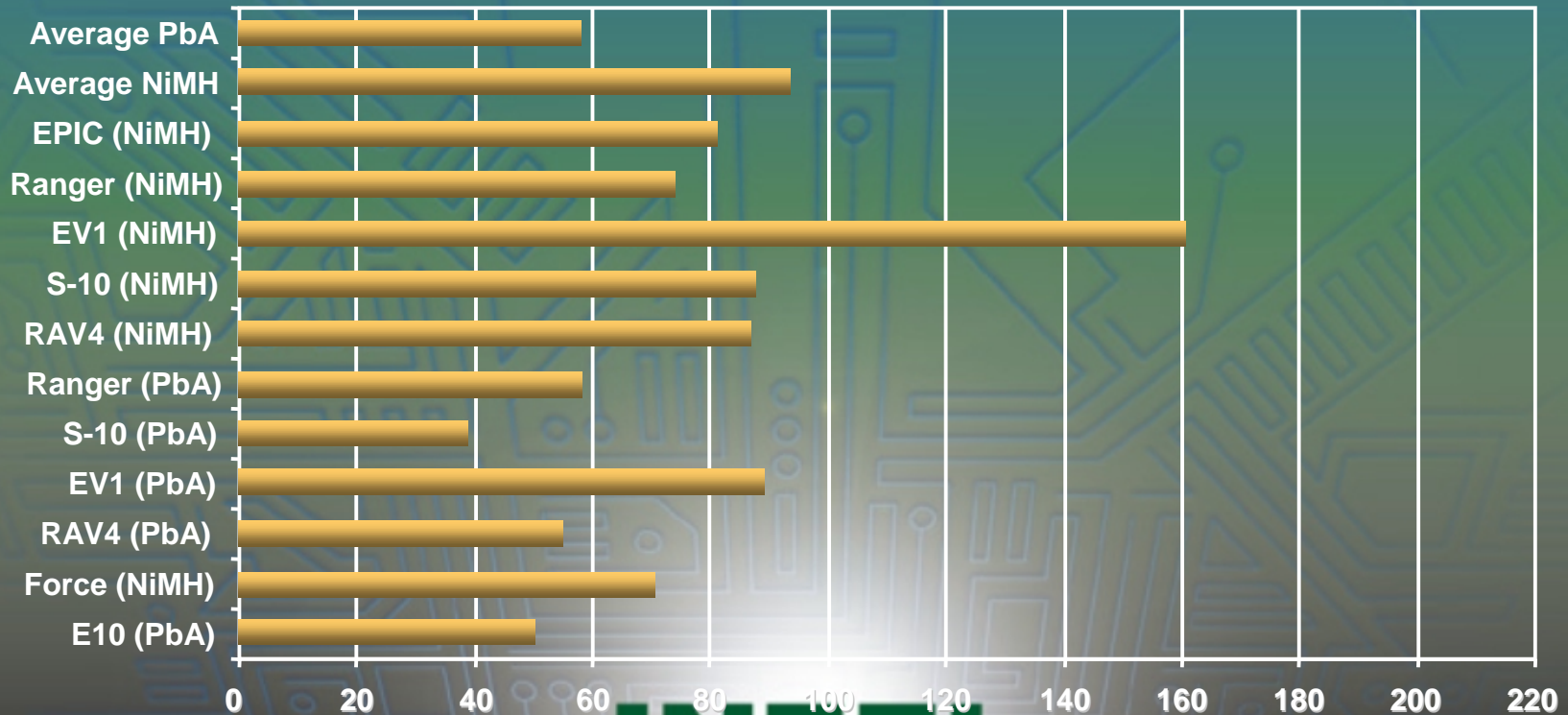
EVAmerica Testing Results

45 mph Constant Speed Range - Miles



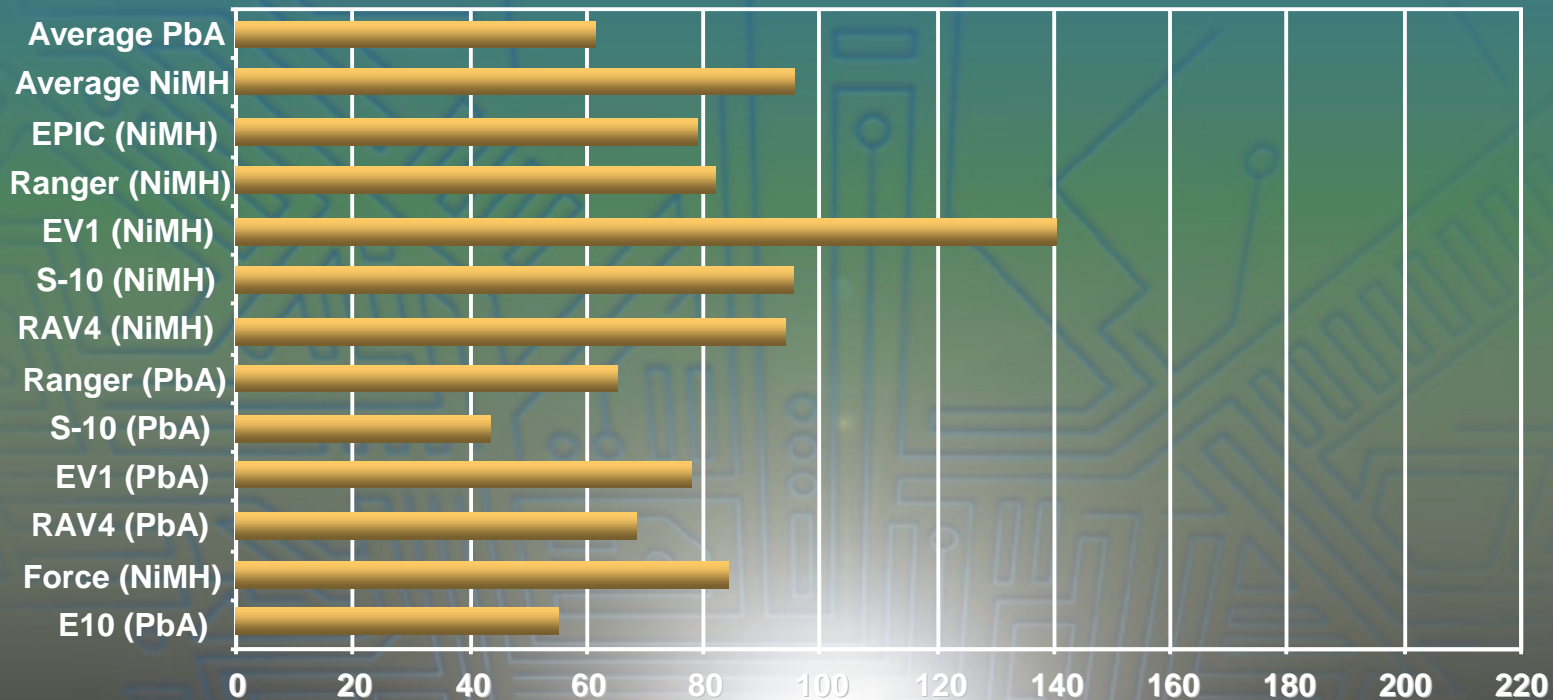
EVAmerica Testing Results

60 mph Constant Speed Range - Miles



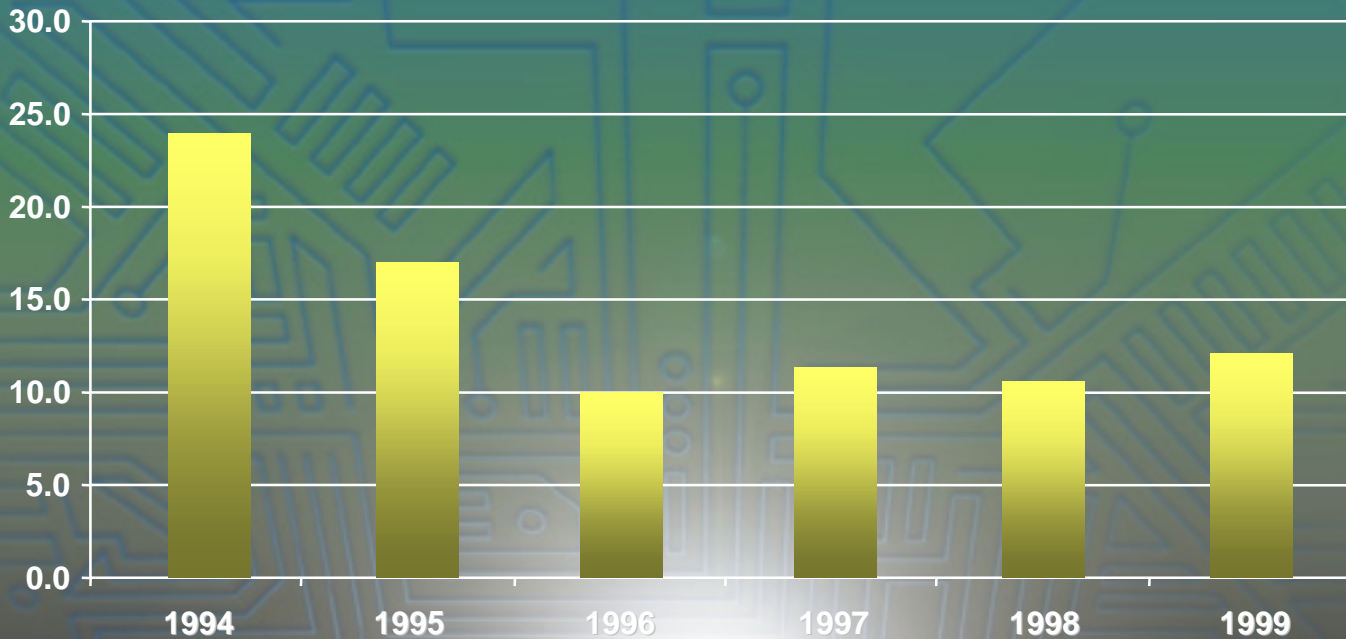
EVAmerica Testing Results

Drive Cycle Range - Miles



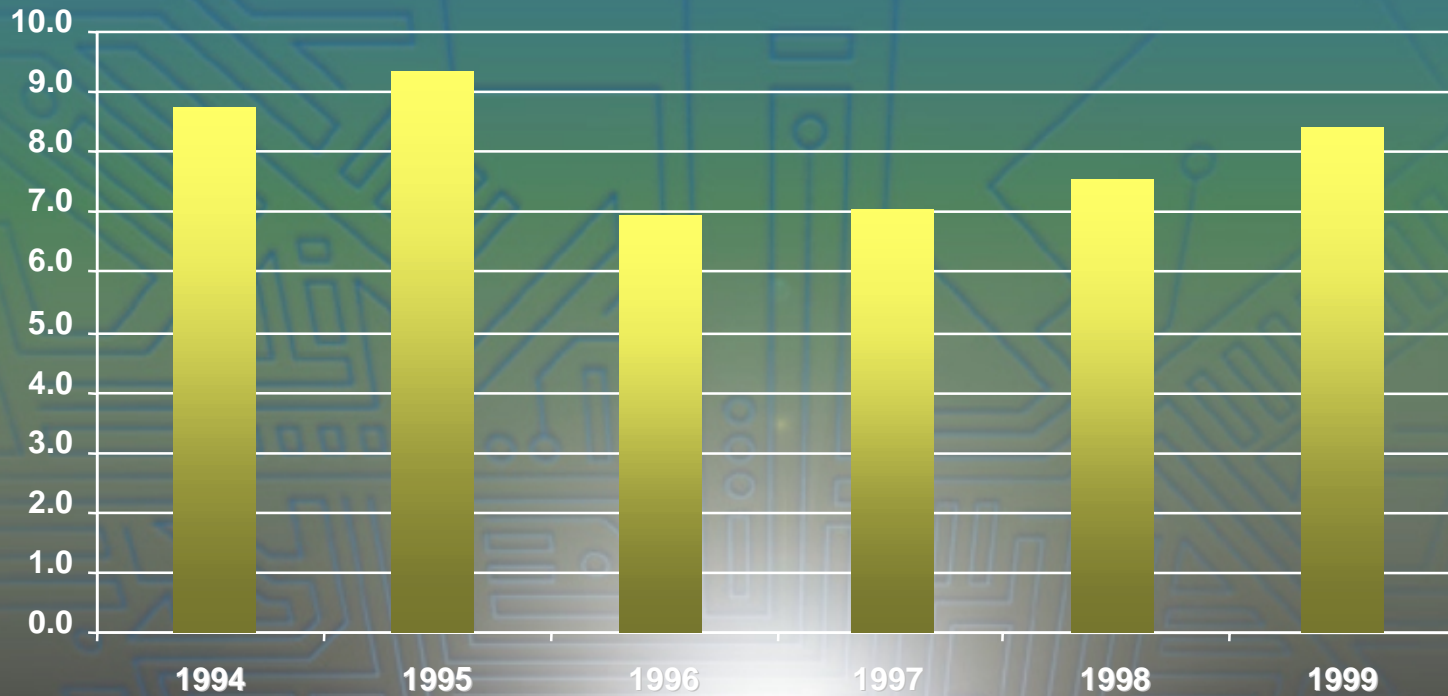
EVAmerica Testing Results

Acceleration at 50% SOC (0 to 50 mph) - Seconds



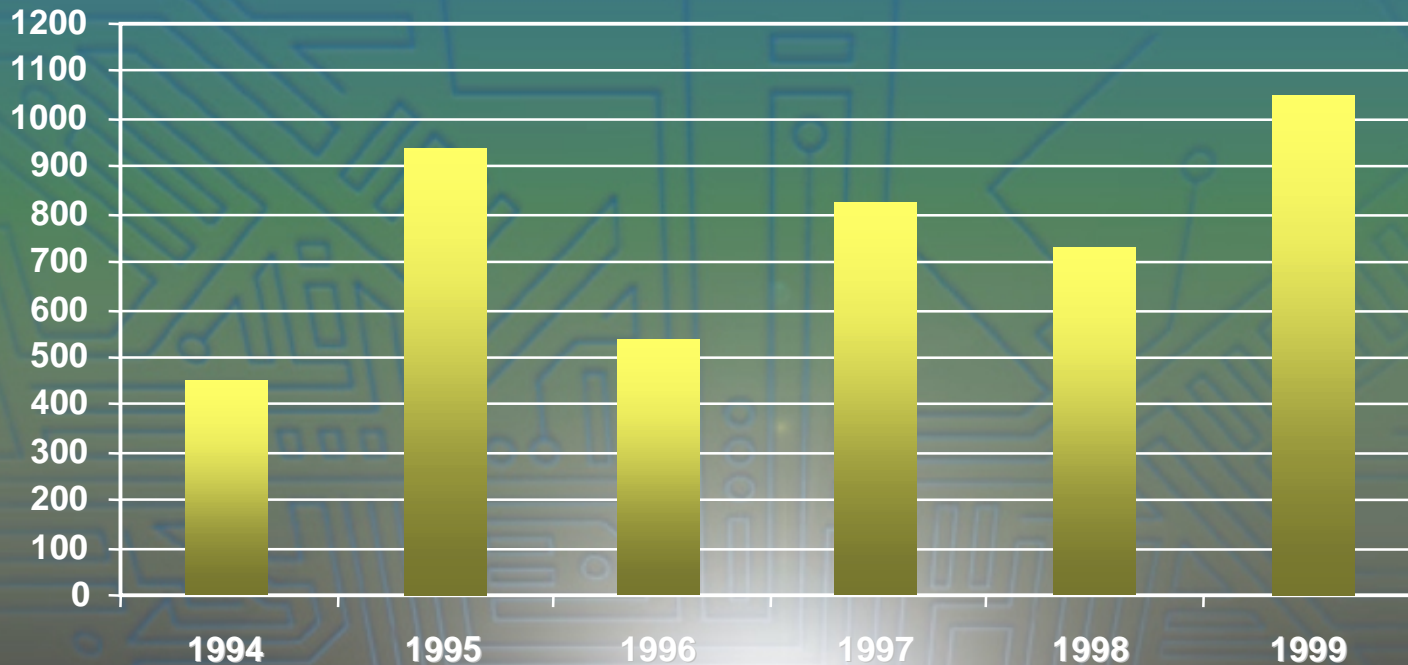
EVAmerica Testing Results

Time to Recharge - Hours



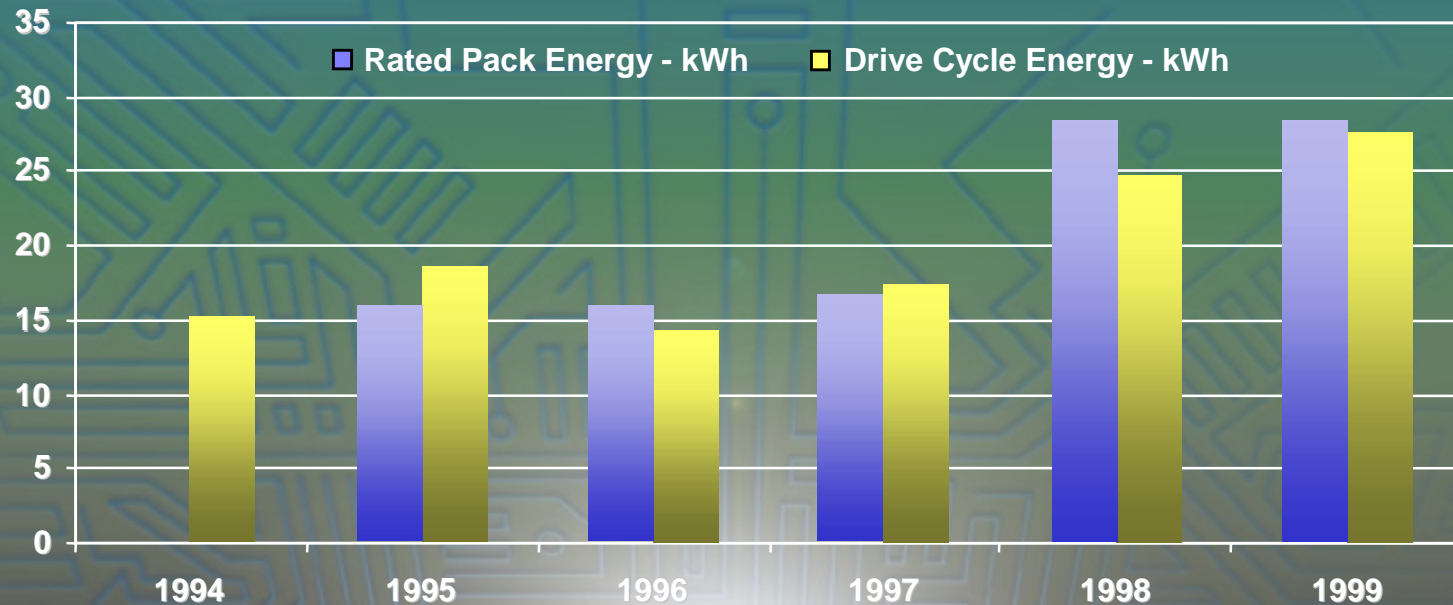
EVAmerica Testing Results

Payload -Pounds



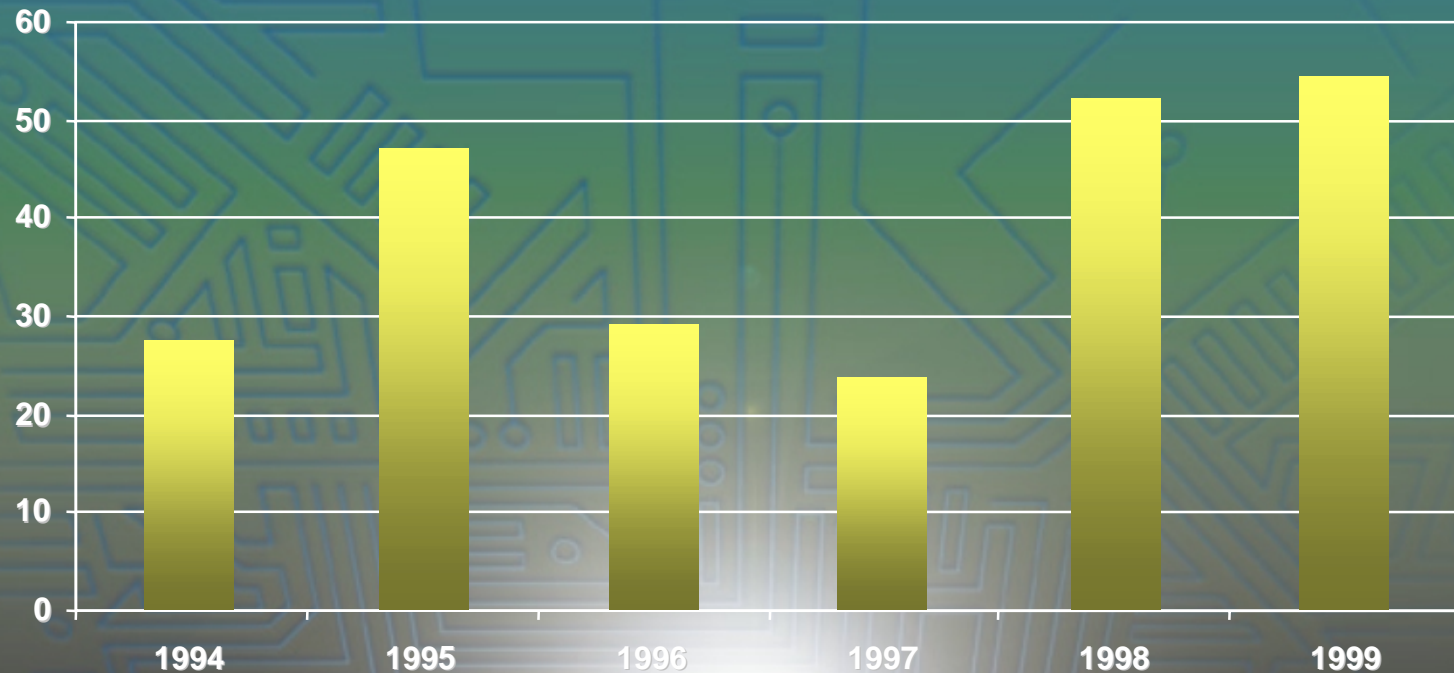
EVAmerica Testing Results

Battery Pack and Drive Cycle Energy - kWh



EVAmerica Testing Results

Drive Cycle specific Energy - Wh/Kg



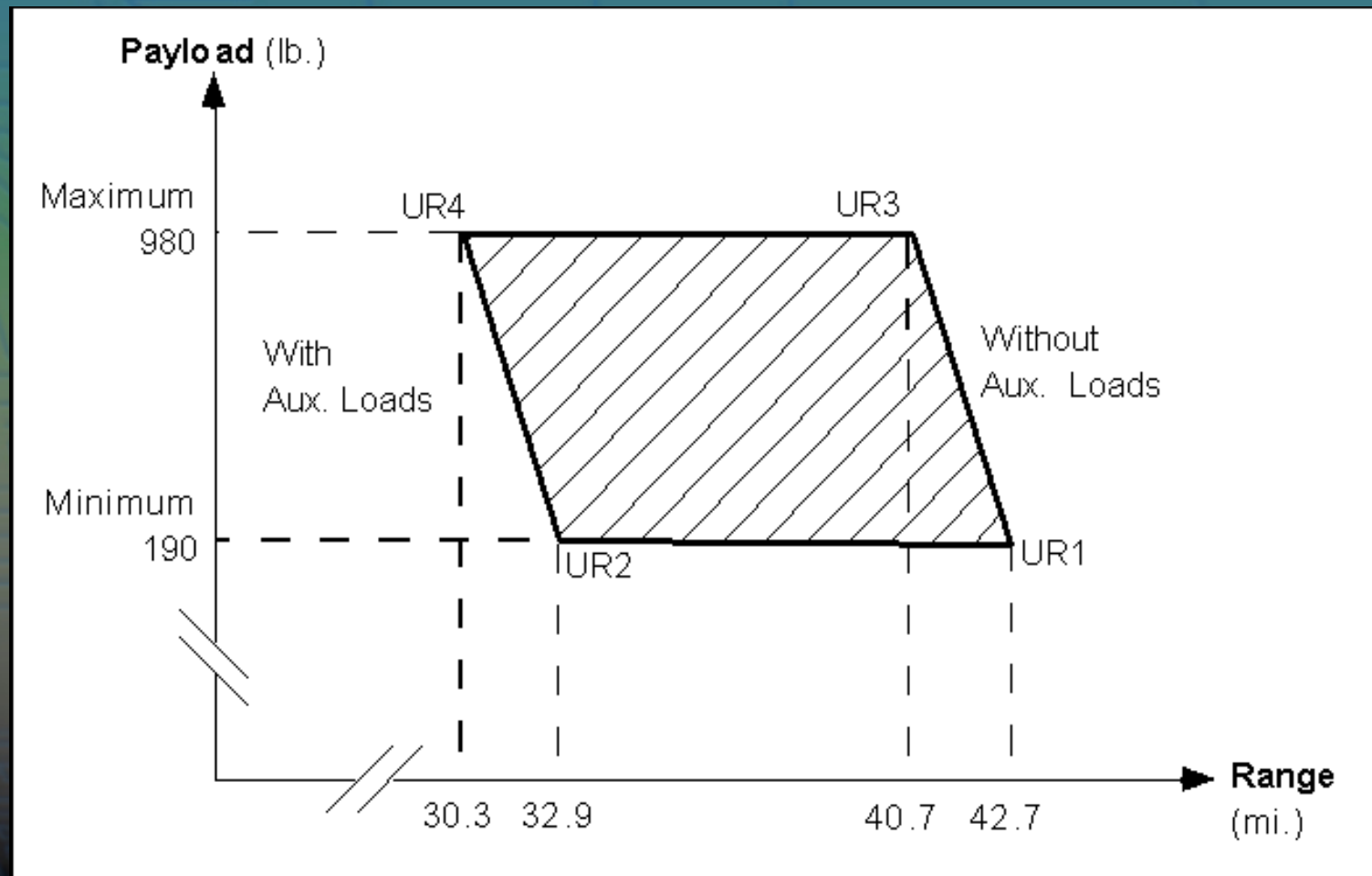
Pomoma Loop Baseline Performance Testing

- *Testing methods and results targeted to fleet managers*
- *Two Pomona Loops (“real-world” testing)*
 - *Urban Loop, 19.3 miles long, 900 to 1,500 feet elevation, 50 stop signs and traffic lights - 4 range tests*
 - *Freeway Loop, 37.2 miles long, 700 to 1,150 feet elevation, 4 connected freeways - 4 range tests*
- *Performed by Southern California Edison*

Pomoma Loop Baseline Performance Testing

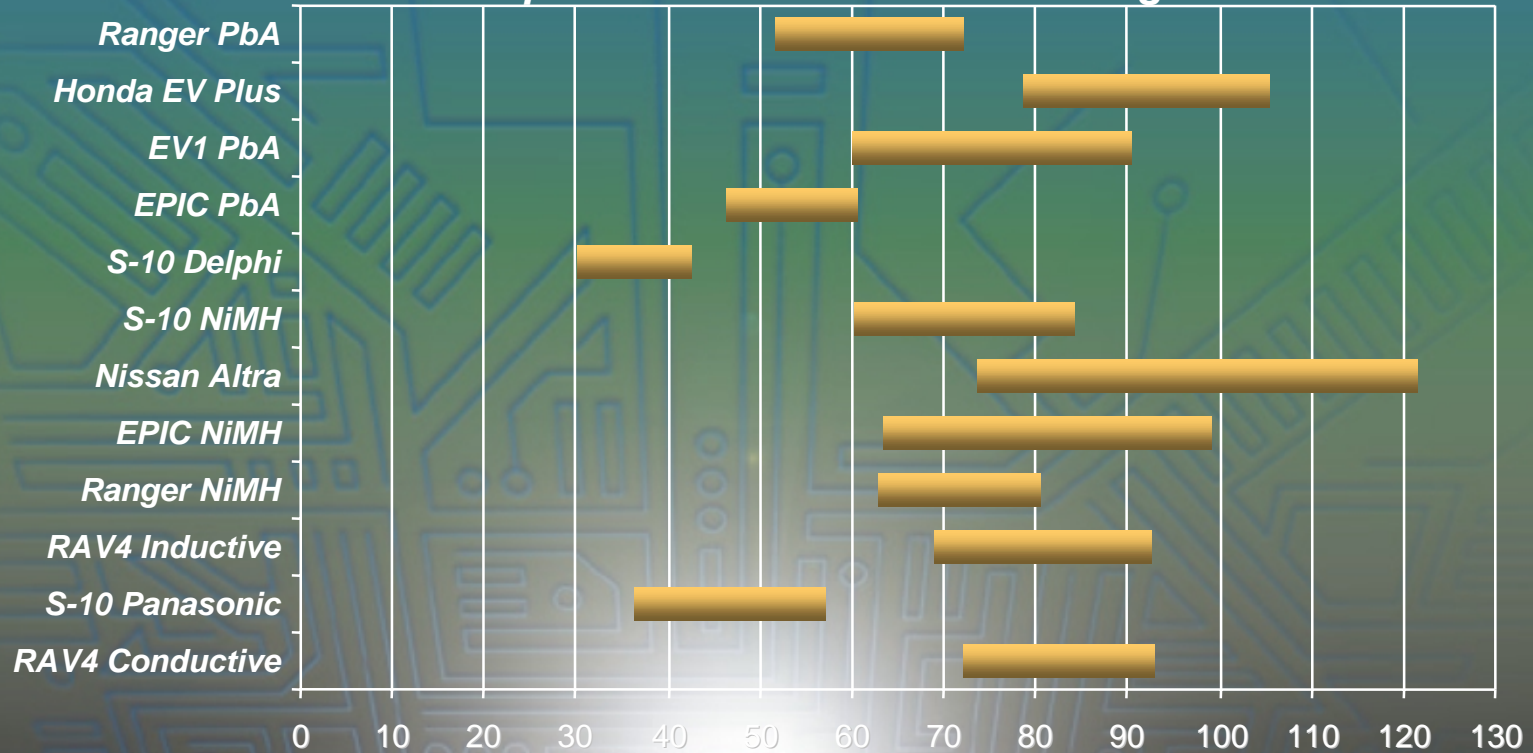
- *Testing scenarios include 4 Urban (UR) Loops and 4 Freeway (FW) Loops*
 - *UR1 & FW1 - Minimum payload, no auxiliary loads*
 - *UR2 & FW2 - Minimum payload, air conditioning on high, headlights on low, radio on*
 - *UR3 & FW3 - Maximum payload, no auxiliary loads*
 - *UR4 & FW4 - Maximum payload, air conditioning on high*

- Pomona Loop Testing - Chevrolet S-10 (PbA) Urban Loop



Pomoma Loop Baseline Performance Testing

Pomona Loop Minimum and Maximum Range Results - Miles



Accelerated Reliability Testing

- *25,000 miles operations experience within one year, per vehicle*
- *Collect and document*
 - *Maintenance and repair requirements*
 - *Energy use*
 - *Mileage*
 - *Drivers' opinions*
- *Chevrolet S-10 and Toyota RAV4 reports on the web*

Fleet Testing

- ***Collect and document***
 - *Vehicle mileage*
 - *Charging data*
 - *Average miles per kWh*
 - *Charging profiles*
 - *Average miles per charge*
 - *Average/total charging times*
 - *Provided per vehicle, model, and fleet*

Fleet Testing

- *Fleet data confirms accelerated reliability testing results*
- *Long time required to complete fleet testing*
- *Electric vehicle generations very short, lessening value of fleet testing results*
- *DOE minimizing use for light-duty vehicle testing*

National Loaner Program - Utility Activities

- *1 to 2 month loans*
- *Identifying, contacting, coordinating with agencies*
- *Placement of vehicles and training drivers*
- *Providing temporary charging infrastructure*
- *Help install permanent charging infrastructure*
- *Help fleets match vehicles with mission needs*
- *Provide assistance with any maintenance problems*

National Loaner Program Utility Partners

- *Boston Edison*
- *Georgia Power*
- *Potomac Electric Power Company*
- *San Diego Gas and Electric*
- *Southern California Edison*
- *Virginia Power*

National Loaner Program Utility Activities

- *30 Federal Fleets*
- *40 vehicle loans have been made*
- *Over 100 Federal employees have used the vehicles*
- *Drivers are averaging 115 miles*

Incremental Funding Program

- *DOE provides 50% of the incremental cost when a Federal agency leases an electric vehicle*
- *This activity is driven by Executive Order 13031 (Federal Alternative Fueled Vehicle Leadership)*
- *25 Federal Fleets have ordered 175 electric vehicles*
- *95 Ford Rangers and 80 Chrysler EPICs leased*
- *\$800,000 in incremental funding provided by DOE*

Future

- *Continue testing advanced pure electric vehicles*
- *Develop test procedures and test light-duty hybrid electric vehicles*
- *Develop test procedures for medium-duty and heavy-duty pure electric and hybrid vehicles in conjunction with industry and other Federal Agencies*
- *Continue supporting other Federal Fleets' deployment efforts*

Field Operations Program Web Page

<http://ev.inel.gov/sop>

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