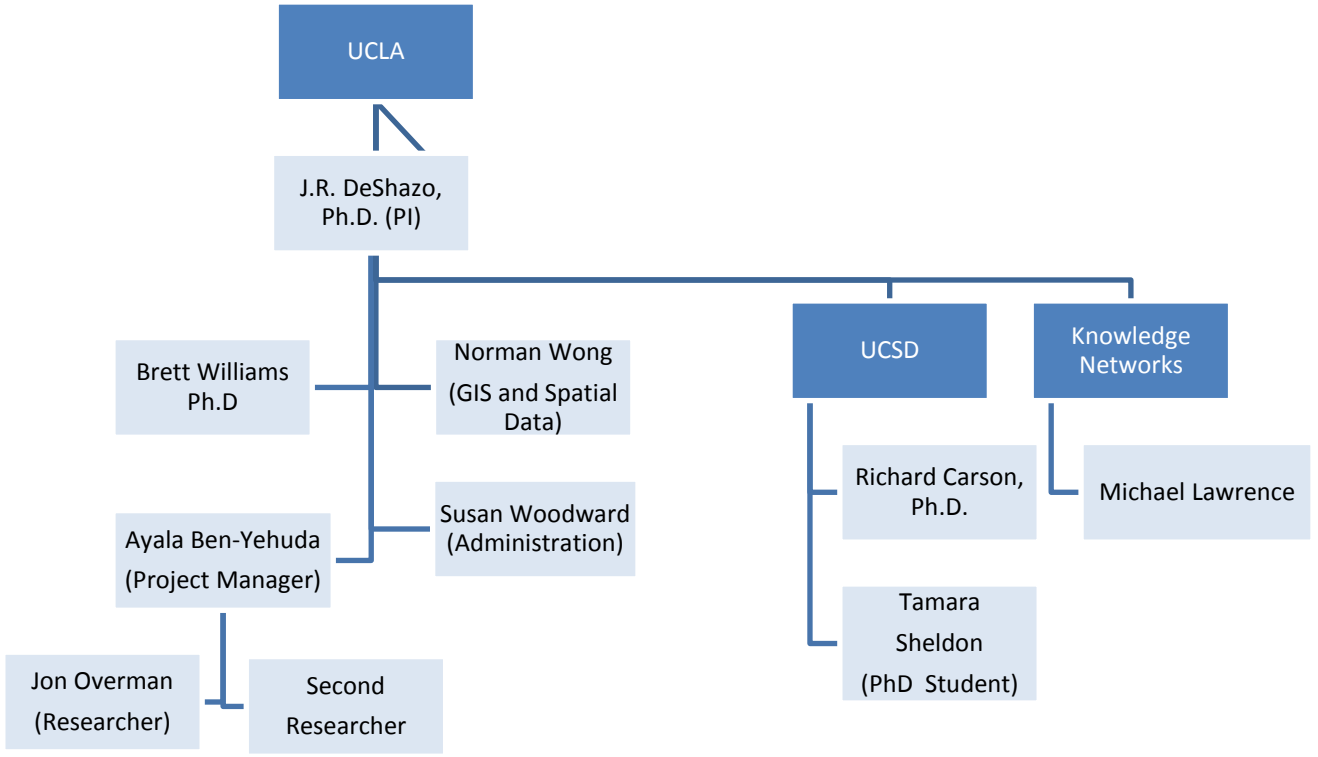
UCLA Luskin School *of* Public Affairs

Luskin Center for Innovation

Progress report: SCAG PEV Readiness Plan

June 5, 2012

The Team


UCLA
J.R. DeShazo, Ph.D. (PI)
Brett Williams Ph.D
Norman Wong (GIS and Spatial Data)
Susan Woodward (Administration)
Ayala Ben-Yehuda (Project Manager)
Jon Overman (Researcher)
Second Researcher
UCSD
Richard Carson, Ph.D.
Tamara Sheldon (PhD Student)
Knowledge Networks
Michael Lawrence

Early in Project but on Target

- Notice to proceed April 19
- Data collection underway
- Model development underway
- Early reports underway
- Half team in place, half starting
  - Brett Williams (newly arrived EV & Alt. Fuels Program Director) and Norman Wong (GIS and spatial data) working
  - Ayala Ben Yehuda (Project Manager) and Jon Overman (Researcher) start June 15

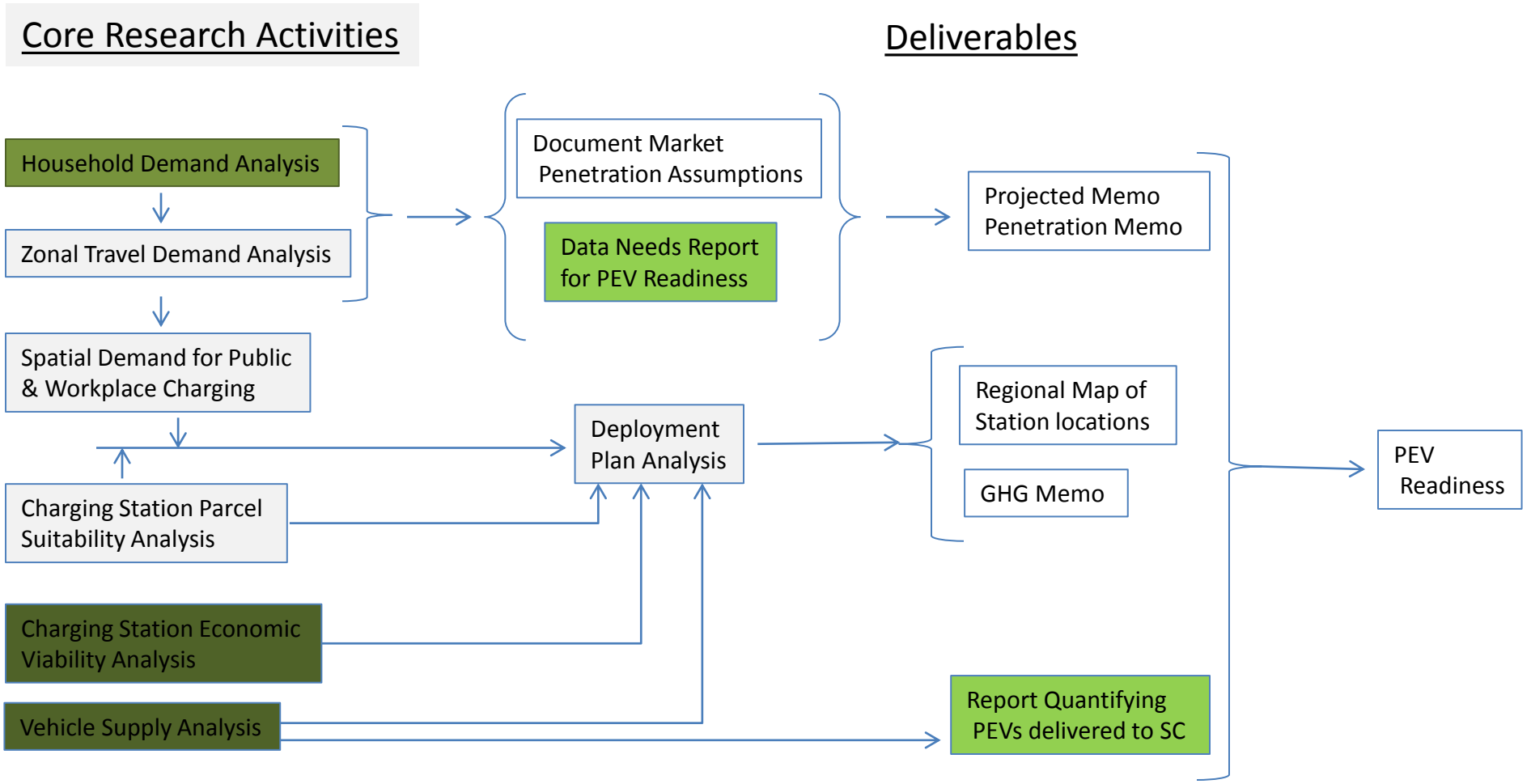
Progress to date (1)

- Demand analysis
  - Draft survey instrument
  - Draft contract Knowledge networks
  - Next steps--scheduling focus groups
- Vehicle supply analysis
  - Current sales data BEV and PHEV; supply-constraint discussion
  - Next steps drafting report
  - Also collecting existing market PEV forecasts

Progress to Date (2)

- Charging Station Economic Viability Analysis
  - Economic models developed
    - Variable installation costs
    - O&M cost
    - Alternative cost recovery strategies
    - Estimated low levels of ROI
    - Next steps –estimate high market penetration and costs to drivers
  - On track to have Vehicle Supply Constraint analysis and Draft Data Report soon.

Technical Approach – Regional



Charger Level	2	**Daily Utilization**	14.4 kWh (3 hours)
Fee Structure	Variable	**Discount Rate**	10%
Per Charge Fee	$ 1.00	**Revenue Share**	5% Variable, 25% per charge

Electricity Markup

Installed Project Cost

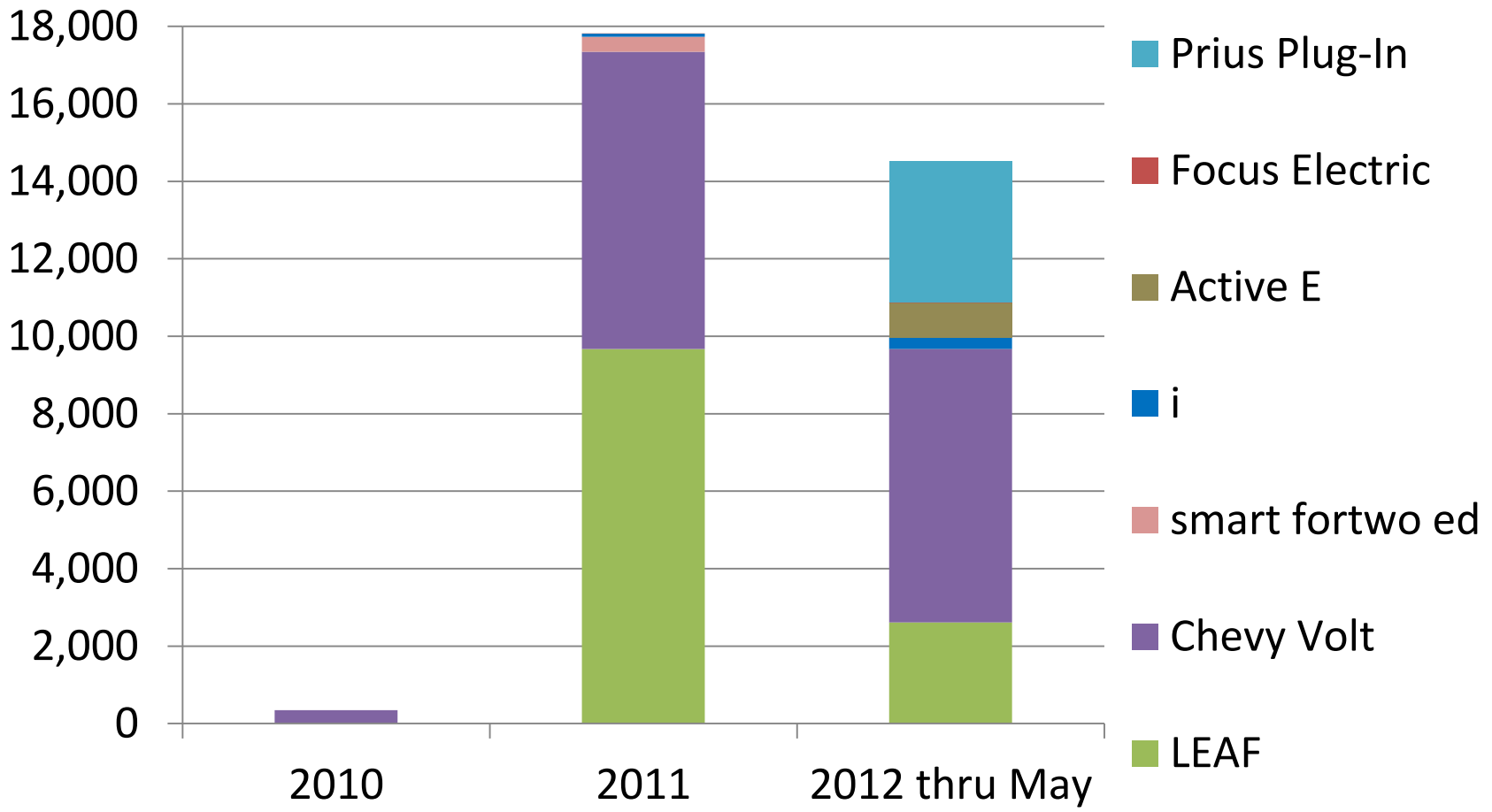
Project Cost	$ -	$ 0.10	$ 0.15	$ 0.20	$ 0.25	$ 0.30
$ 1,000.00	$ (195.72)	$ 2,038.45	$ 3,155.54	$ 4,272.63	$ 5,389.71	$ 6,506.80
$ 3,000.00	$ (2,603.77)	$ (369.59)	$ 747.49	$ 1,864.58	$ 2,981.67	$ 4,098.76
$ 5,000.00	$ (5,011.81)	$ (2,777.64)	$ (1,660.55)	$ (543.46)	$ 573.62	$ 1,690.71
$ 7,000.00	$ (7,419.86)	$ (5,185.68)	$ (4,068.60)	$ (2,951.51)	$ (1,834.42)	$ (717.33)
$ 9,000.00	$ (9,827.90)	$ (7,593.73)	$ (6,476.64)	$ (5,359.55)	$ (4,242.47)	$ (3,125.38)
$ 11,000.00	$ (12,235.95)	$ (10,001.77)	$ (8,884.68)	$ (7,767.60)	$ (6,650.51)	$ (5,533.42)
$ 13,000.00	$ (14,643.99)	$ (12,409.82)	$ (11,292.73)	$ (10,175.64)	$ (9,058.56)	$ (7,941.47)
$ 15,000.00	$ (17,052.04)	$ (14,817.86)	$ (13,700.77)	$ (12,583.69)	$ (11,466.60)	$ (10,349.51)
$ 17,000.00	$ (19,460.08)	$ (17,225.91)	$ (16,108.82)	$ (14,991.73)	$ (13,874.65)	$ (12,757.56)
$ 19,000.00	$ (21,868.13)	$ (19,633.95)	$ (18,516.86)	$ (17,399.78)	$ (16,282.69)	$ (15,165.60)

Charger Level	1	**Daily Utilization**	10.8 kWh (7.5 hours)
Fee Structure	Variable	**Discount Rate**	10%
Monthly Fee	$ 30.00	**Revenue Share**	5% Variable, 10% Monthly

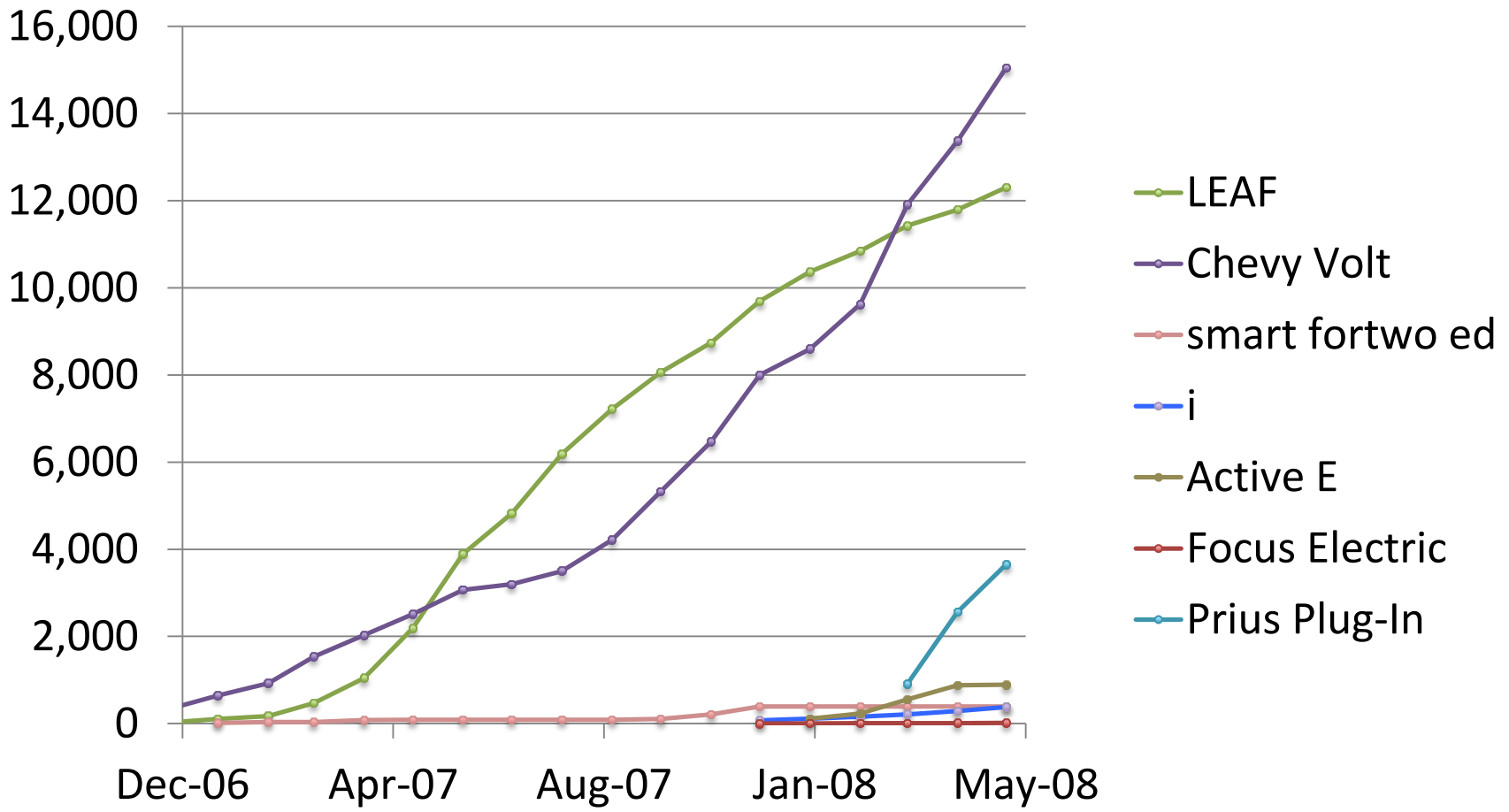
Electricity Markup

Installed Project Cost	$ -	$ 0.10	$ 0.15	$ 0.20	$ 0.25	$ 0.30
$ 1,000.00	$ 137.50	$ 1,813.13	$ 2,650.94	$ 3,488.76	$ 4,326.57	$ 5,164.39
$ 2,000.00	$ (1,066.53)	$ 609.10	$ 1,446.92	$ 2,284.74	$ 3,122.55	$ 3,960.37
$ 3,000.00	$ (2,270.55)	$ (594.92)	$ 242.90	$ 1,080.71	$ 1,918.53	$ 2,756.34
$ 4,000.00	$ (3,474.57)	$ (1,798.94)	$ (961.12)	$ (123.31)	$ 714.51	$ 1,552.32
$ 5,000.00	$ (4,678.59)	$ (3,002.96)	$ (2,165.15)	$ (1,327.33)	$ (489.52)	$ 348.30
$ 6,000.00	$ (5,882.62)	$ (4,206.98)	$ (3,369.17)	$ (2,531.35)	$ (1,693.54)	$ (855.72)
$ 7,000.00	$ (7,086.64)	$ (5,411.01)	$ (4,573.19)	$ (3,735.38)	$ (2,897.56)	$ (2,059.75)
$ 8,000.00	$ (8,290.66)	$ (6,615.03)	$ (5,777.21)	$ (4,939.40)	$ (4,101.58)	$ (3,263.77)
$ 9,000.00	$ (9,494.68)	$ (7,819.05)	$ (6,981.24)	$ (6,143.42)	$ (5,305.61)	$ (4,467.79)
$ 10,000.00	$ (10,698.70)	$ (9,023.07)	$ (8,185.26)	$ (7,347.44)	$ (6,509.63)	$ (5,671.81)

Calendar-year sales by PEV model

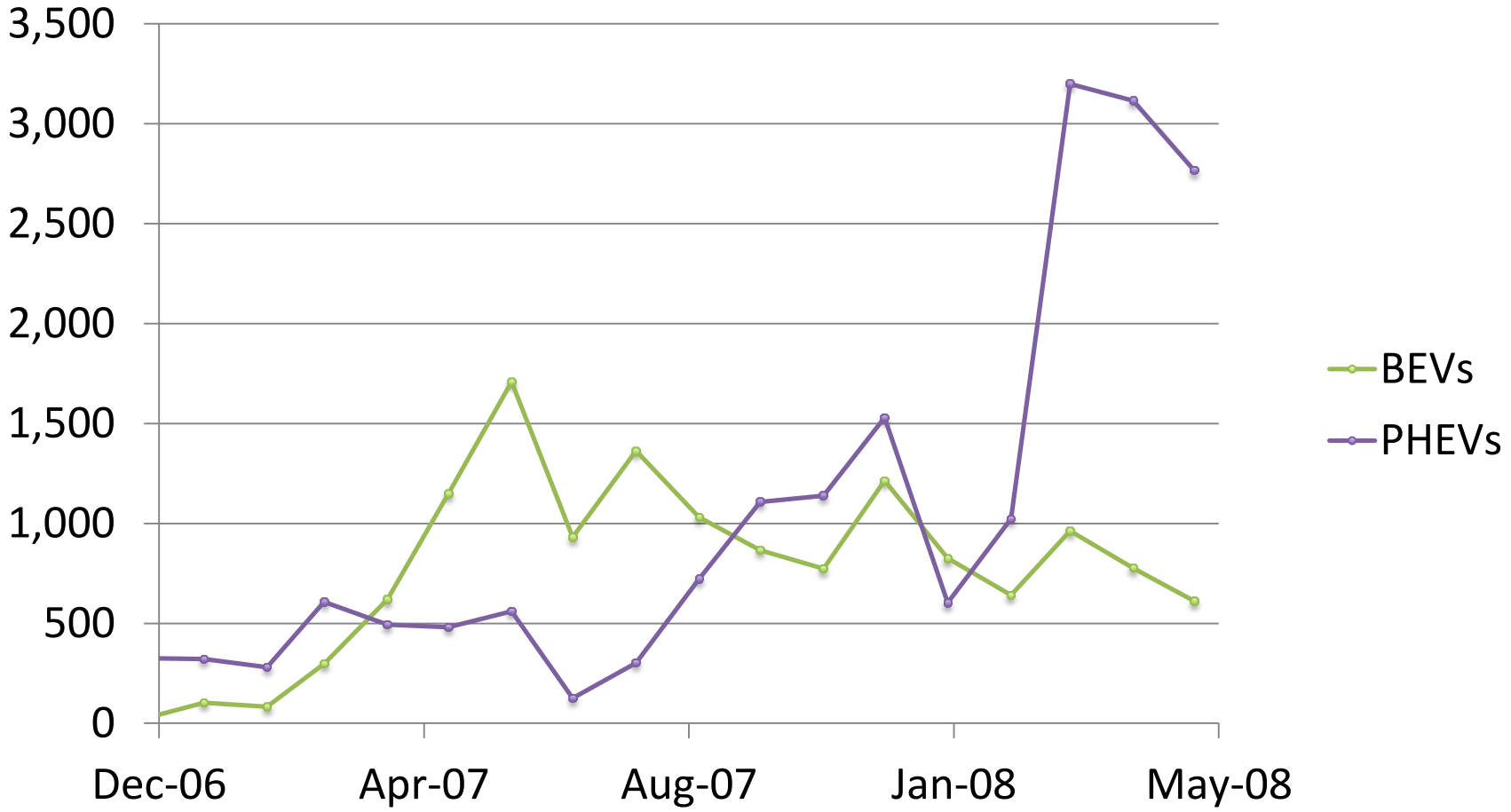


Cumulative U.S. sales by PEV model



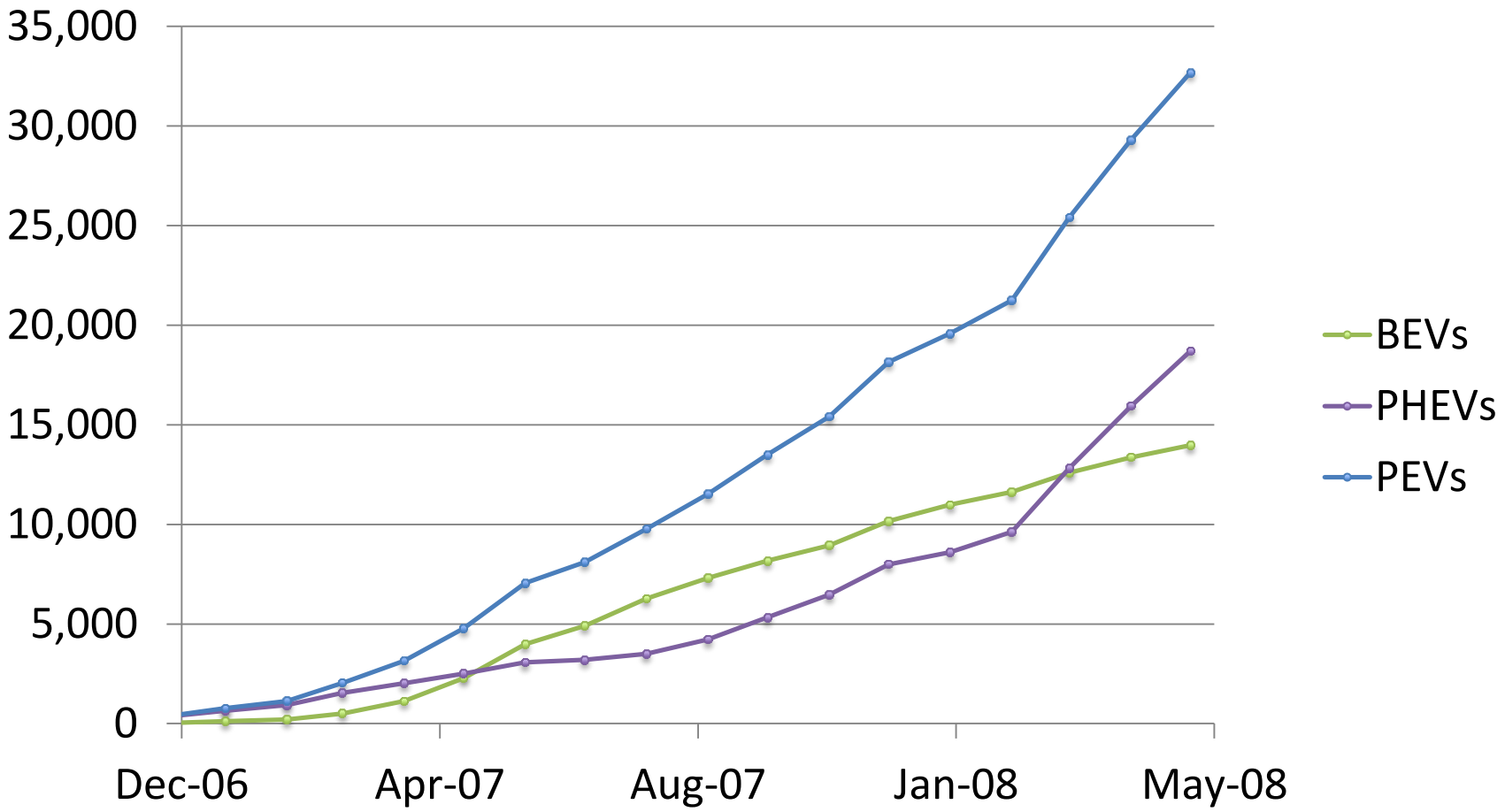
Monthly U.S. sales by PEV type

(previously listed models only)

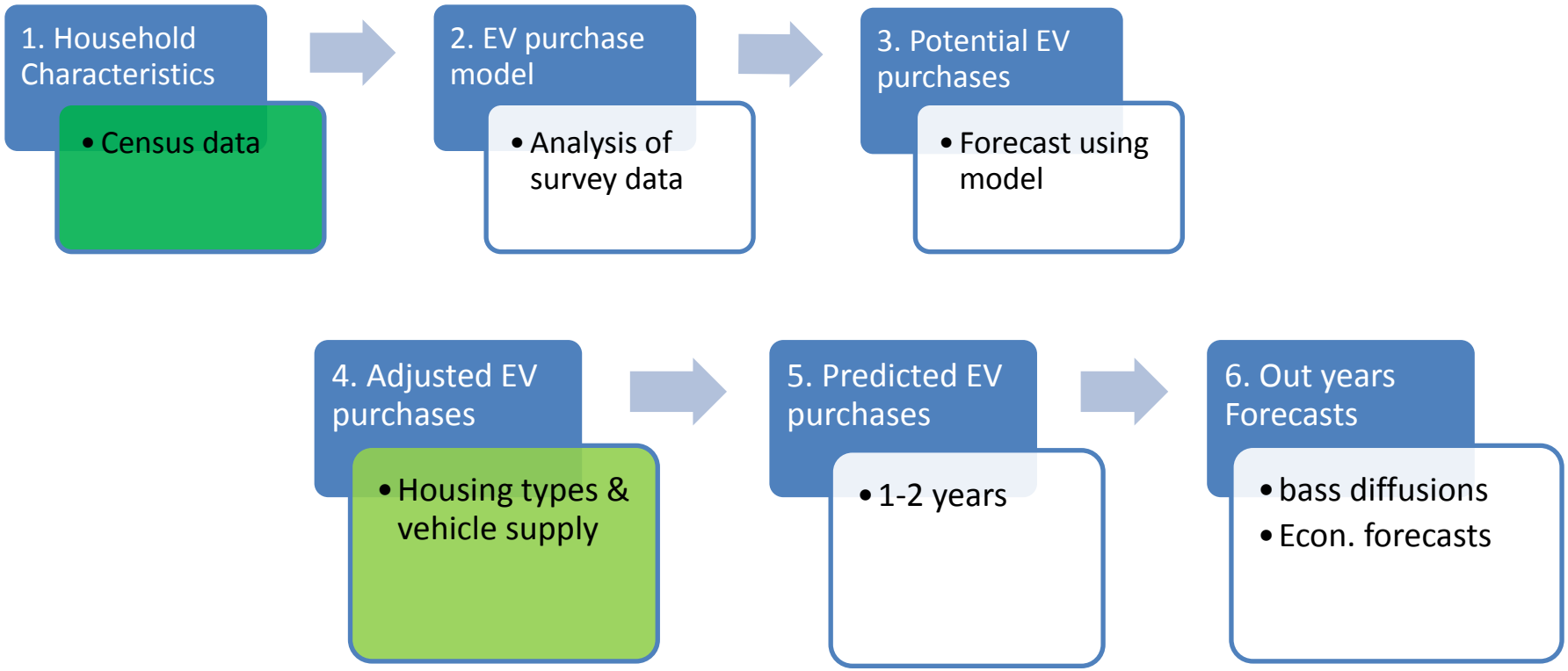


Cumulative U.S. sales by PEV type

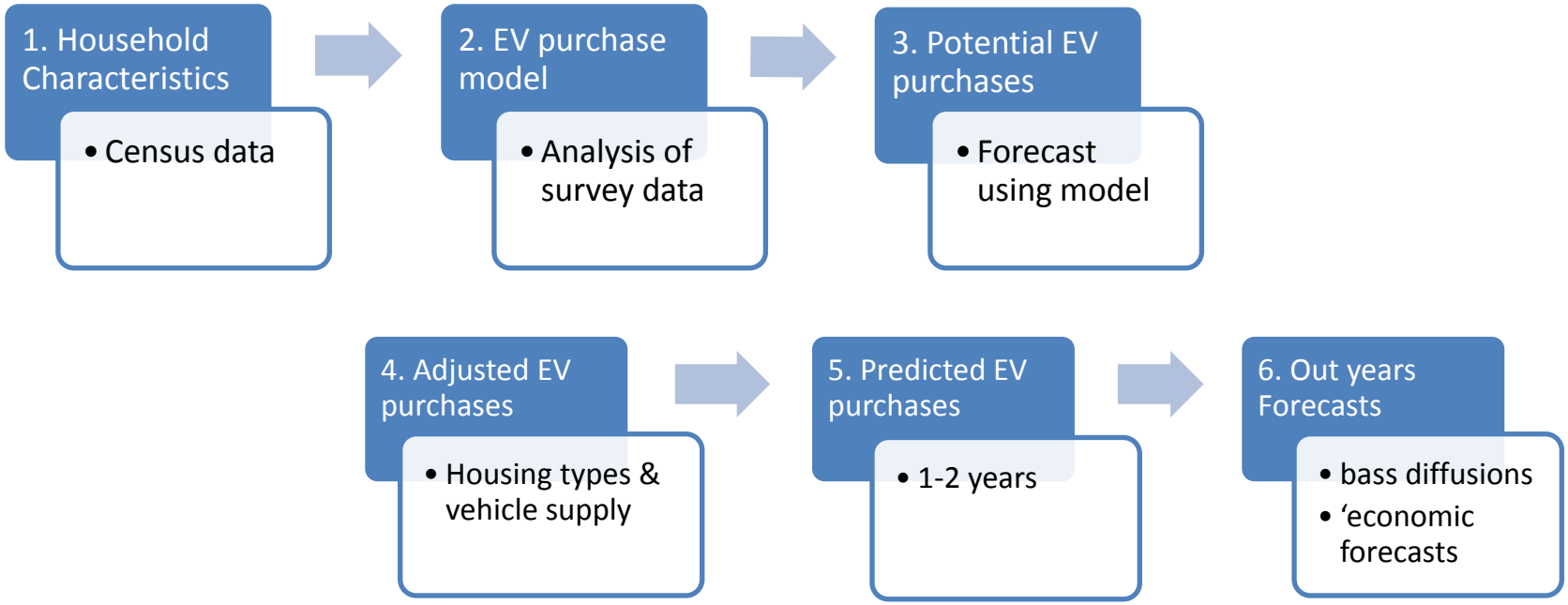
(previously listed models only)



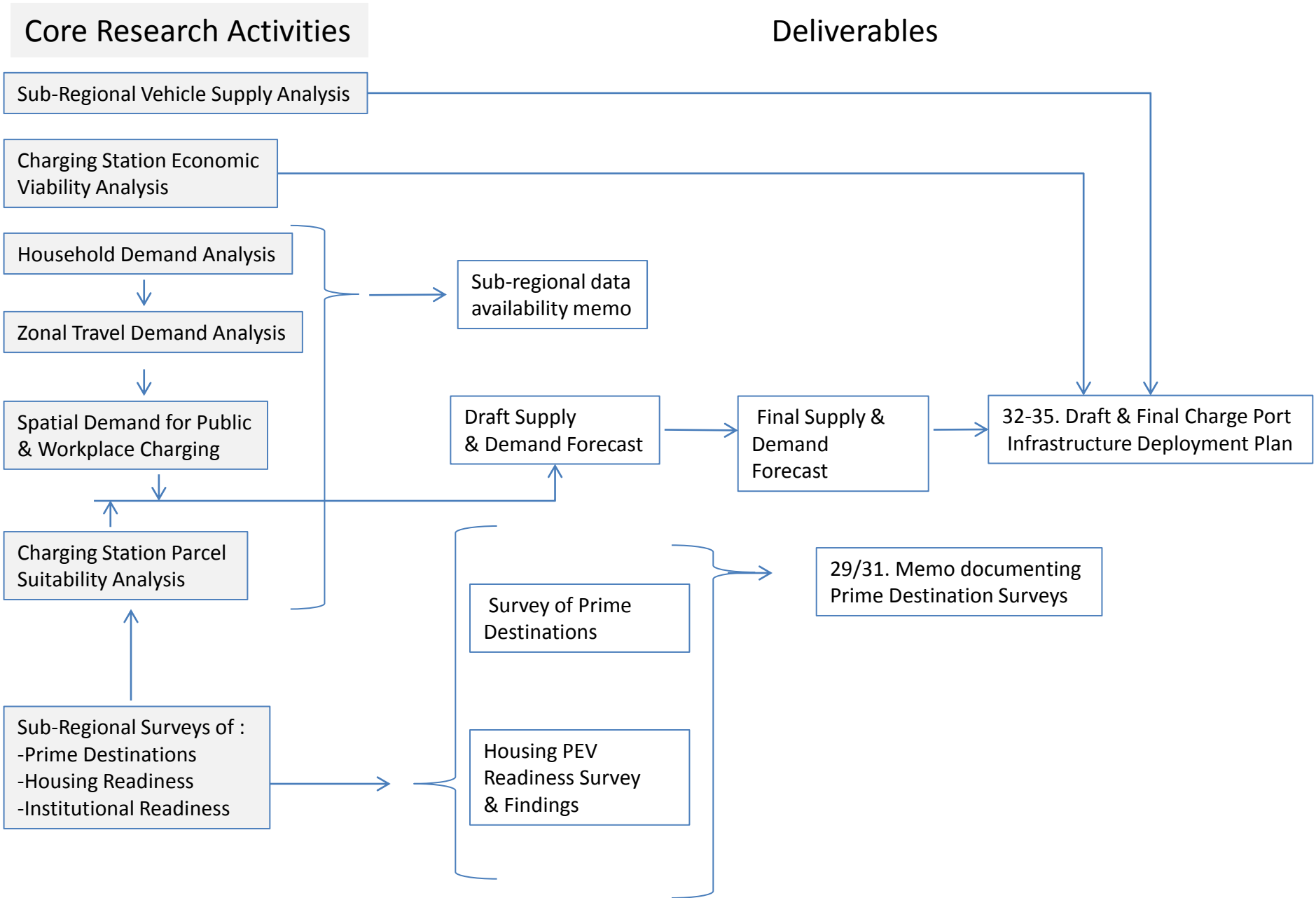
EV demand: steps for each travel analysis zone



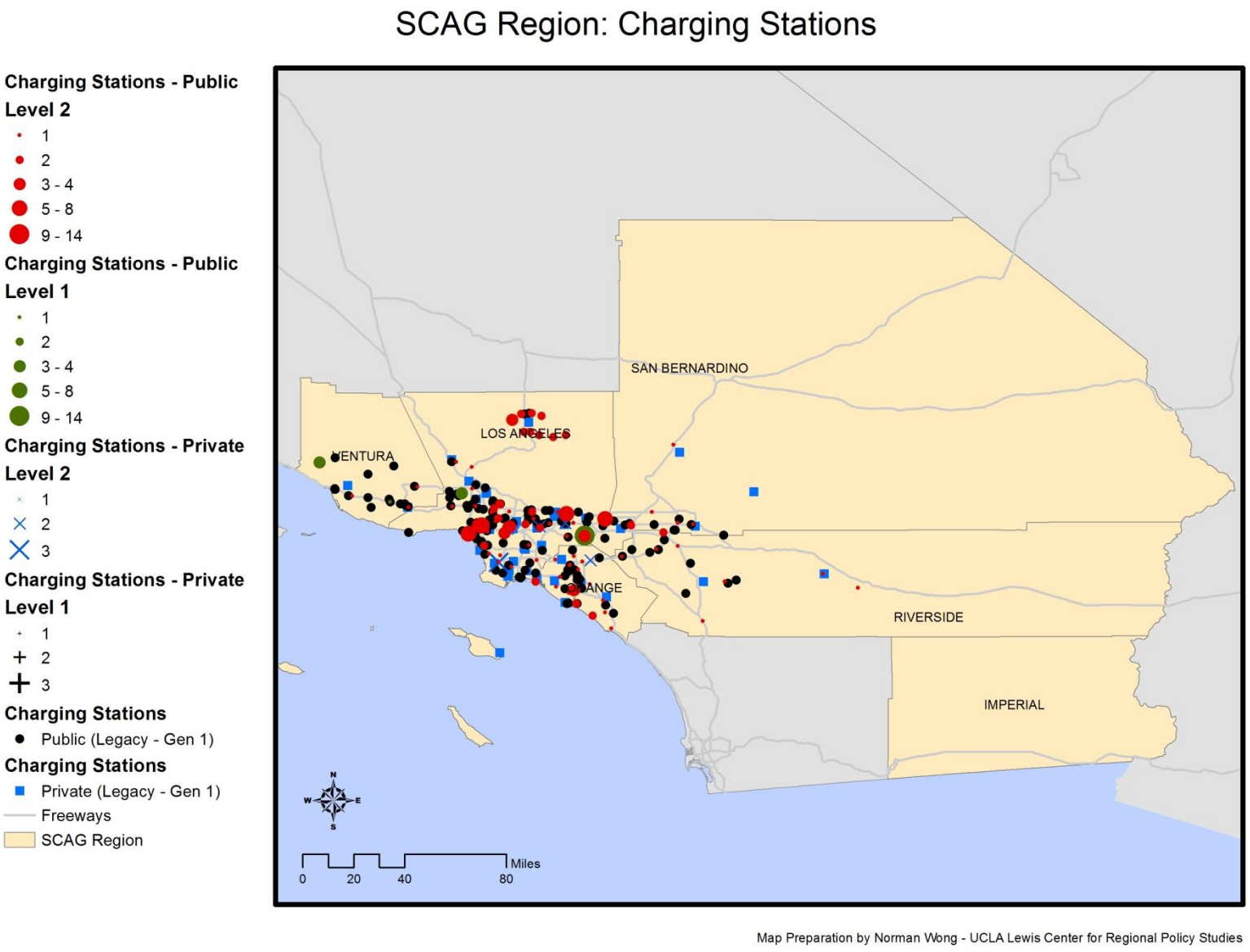
EV demand estimation steps for each travel analysis zone



Technical Approach - Subregional



Thank You


SCAG Region: Charging Stations
Charging Stations - Public
Level 2
1
2
3 - 4
5 - 8
9 - 14
Charging Stations - Public
Level 1
1
2
3 - 4
5 - 8
9 - 14
Charging Stations - Private
Level 2
1
2
3
Charging Stations - Private
Level 1
1
2
3
Charging Stations
Public (Legacy - Gen 1)
Charging Stations
Private (Legacy - Gen 1)
Freeways
SCAG Region
SAN BERNARDINO
LOS ANGELES
VENTURA
ORANGE
RIVERSIDE
IMPERIAL
N
W
E
S
Miles
0
20
40
80
Map Preparation by Norman Wong - UCLA Lewis Center for Regional Policy Studies