To advance an environmentally sustainable transportation system through cutting-edge research, direct policy engagement, and education of our future leaders.
FUNDING PARTNERS

- U.S. Department of Transportation: $5.6 M
- CA Energy Commission: $1.1 M
- Caltrans: $2 M
- CA Air Resources Board: $1 M
RESEARCH FOCUS

- Low-Carbon Infrastructure and Efficient System Operation
- Low-Impact Travel and Sustainable Land Use
- Zero-Emission Vehicle and Fuel Technologies

Institutional Change

National Center for Sustainable Transportation
HAVE WE REACHED PEAK TRAVEL AND WHAT DOES IT MEAN?

Pat Mokhtarian
Georgia Tech
SEVERAL INDICATORS OF TRAVEL DEMAND IN THE U.S. HAVE PEAKED IN THE PAST YEARS:

IN ABSOLUTE TERMS...

[Source: Re-created from Sivak (2014), based on FHWA data]
... and in relative terms, for vehicles...

- **Vehicles per household**: peaked at 2.05 (2001, 2006)
- **Vehicles per licensed driver**: 1.16 (2001, 2006)
- **Vehicles per person**: 0.79 (2006)
...and miles driven

Peak in Average Miles Driven (per person, per driver, per vehicle, per household) in 2004

[Source: Sivak (2014), based on FHWA data]
WHY ARE WE SEEING THESE TRENDS?

- The recession?
- Increased reliance of Millennials (and others) on communications technology
- Demographic changes?
- Other
WILL THESE TRENDS CONTINUE?
IF THE TRENDS DO CONTINUE, THEN WHAT ARE THE IMPLICATIONS?
ADDITIONAL STUDIES FROM NCST

- White paper on future passenger travel demand in the U.S.
- New survey of travel-related attitudes and behavior of Gen Y (Millennials, ages 18-30)
DR. GIOVANNI CIRCELLA
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GEORGIA INSTITUTE OF TECHNOLOGY
TRANSITIONING TO ZERO-EMISSION VEHICLES: THE GOOD, THE BAD, AND THE UNEXPECTED

Tom Turrentine
UC Davis
2014 World EV/PHEV Sales 215,396 thru September

- USA, 84039, 39%
- Euro, 68391, 32%
- Asia, 62916, 29%

World PEV Sales 2013

- North America, 99148, 47%
- Europe, 66346, 31%
- Asia, 47453, 22%
Total new car sales in California in 2014 are projected as 1.9 million vehicles.
The development of the HEV market in Japan and California gives us a model of rollout and diffusion.
Graph from DOE – Jake Ward / data from EDTA
U.S. 2014 PHEV & BEV SALES THROUGH SEPTEMBER

- **Fuel Economic PHEVs**: 28,652
- **Extended Range PHEVs**: 15,425
- **Moderate Range BEVs**: 31,956
- **Long Range BEVs**: 11,267

Sales for various models:
- Accord PHEV
- Panamera
- C-MAX Energi
- Fusion PHEV
- Prius Plug-in
- ELR
- Volt
- iMiEV
- Mercedes B-EV
- Fit EV
- Spark
- RAV4 EV
- Fiat 500-E
- Focus E
- Smart ED
- BMW i3
- Leaf
- Model S
MAKES, MODELS AND REGIONAL AVAILABILITY FOR PEVS

- 400+ makes and models in US
- 24 PEVs makes and models in US
- 24 PEV in California
- 30 makes and models in Europe
- Approx. 10 makes and models in China and Japan
- In 2015, 12 new models / 2 new BEVs / 10 PHEVs
# LOOKING AT CALIFORNIA NISSAN AND GM DEALERS

<table>
<thead>
<tr>
<th>Dealer characteristic</th>
<th>Number of dealers (Statewide GM &amp; Nissan)</th>
<th>Percent of sales (Statewide Volt &amp; Leaf)</th>
<th>Avg. sales per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovators</td>
<td>12 dealers (~6%)</td>
<td>26.6%</td>
<td>30</td>
</tr>
<tr>
<td>Consistently in the top 10% of sales per month</td>
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<tr>
<td>Leaders</td>
<td>23 dealers (~12%)</td>
<td>25.3%</td>
<td>15</td>
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<tr>
<td>Consistently in the top 25% of sales per month</td>
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<tr>
<td>Majority</td>
<td>88 dealers (46%)</td>
<td>42.4%</td>
<td>6.5</td>
</tr>
<tr>
<td>Everyone else</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slow sales</td>
<td>69 dealers (36%)</td>
<td>5.7%</td>
<td>1.1</td>
</tr>
<tr>
<td>Consistently in the bottom 50% of sales per month</td>
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</tbody>
</table>
ADAPTATION AND RESILIENCY FOR STATE, REGIONAL, AND LOCAL TRANSPORTATION AGENCIES

Lisa Aultman-Hall
University of Vermont