

ITS-Davis e-news presents information on research, education, and outreach from the UC Davis Institute of Transportation Studies and its campus affiliates. [ITS-Davis e-news archive archives](#).

Research Update

- [Key Role for ITS-Davis in Governor's Executive Order for 1.5 Million ZEV's](#)
- [ITS-Davis EV Leadership: May in LA](#)
- [Asilomar Conference Summary Now Available](#)
- [Recent ITS-Davis Publications](#)

Education Highlights

- [Funding a Cleaner Future: McWick Vehicle Technology Fellowships](#)
- [Excellence Noted: Outstanding Thesis and Dissertation Awards](#)
- [Congratulations to our December 2011 Graduates!](#)

ITS-Davis Highlights

- [Enjoying Our Work: ITS-Davis at TRB 2012](#)
- [Taking Outreach Seriously: Dan Sperling Spreads the Word](#)
- [In the News](#)

Sustainable Transportation Center Update

- [Survey Looks at VMT Effects of Big Box Store](#)
- [STC Will Host Annual UCTC Student Conference April 20](#)
- [Organizational Update: New Region IX UTC](#)

Research Update

Key Role for ITS-Davis in Governor's Executive Order for 1.5 Million ZEVs

UC Davis research and expertise have long contributed to California clean vehicle policy making and will continue to play key roles as the state carries out Gov. Jerry Brown's recent order to have 1.5 million zero-emission vehicles on the road by 2025.

Anthony Eggert, director of the new UC Davis Policy Institute for Energy, Environment and the Economy, advised Gov. Brown on zero-emission-vehicle (ZEV) policy before he came to UC Davis in January. Eggert said, "The governor's groundbreaking new executive order sets an ambitious timeline and targets for ZEVs in California. These vehicles, which include plug-in electric vehicles (PEV) and hydrogen fuel-cell vehicles, have the potential to dramatically reduce pollution, increase energy diversity, and contribute to the state's climate goals.

"UC Davis researchers, especially those at ITS-Davis, are the global leaders in providing interdisciplinary research and analysis to help guide public agencies, the auto and energy industries, and other stakeholder groups working to address the significant challenges that remain to developing a sustainable market for these cars and trucks," he concluded.



The [Plug-In Hybrid & Electric Vehicle \(PH&EV\) Research Center](#) has conducted the most cutting-edge research on how to design and roll out regional recharging networks that are optimal for EV and PHEV drivers as well as the electricity grid, based on driving patterns and surveys of EV and PHEV drivers. The [Sustainable Transportation Energy Pathways \(STEPS\) research program](#) has done the most widely used comparisons of advanced auto fuels, including electricity, hydrogen (for fuel-cell vehicles), and biofuels.

Tom Turrentine, director of the PH&EV Research Center, said, "Our research provides the insights needed by industry and

public agencies for making the investments that will best serve the driving public. [Post-doctoral scholar] Mike Nicholas has led a team that integrates engineering, economics, consumer behavior, markets and business analyses. We are showing stakeholders how to spend their dollars most efficiently.”

For more information, see [Taking Charge: Establishing California Leadership in the Plug-in Electric Vehicle Marketplace](#) and [Sustainable Transportation Energy Pathways: A Research Summary for Decision Makers](#)

ITS-Davis EV Leadership: May in LA

As an international leader in electric vehicle technology and policy research, ITS-Davis will play an important part in two high-profile events in Los Angeles next month.



The UC Davis Plug-in Hybrid & Electric Vehicle (PH&EV) Research Center will host the first World Electric Vehicle Cities and Ecosystems conference on May 5 with co-sponsor UCLA. This one-day international conference will bring together 300 leaders from cities and regions across the globe. City and agency decision makers, business executives, and non-profit leaders will explore best practices and innovative solutions for the deployment of plug-in electric vehicles (PEVs).

The conference is part of the worldwide EV Cities and Ecosystems project spearheaded by PH&EV Research Center Director Tom Turrentine for the International Energy Agency. The project will incorporate data from the PEV experience of cities around the world in a web-based resource, allowing users to compare readiness plans, adoption rates, infrastructure and other important information between cities, and interact with other proactive cities.

ITS-Davis will also be a major presence May 6–9 at the 26th International Electric Vehicle Symposium (EVS26). This is the premier international conference and exhibit on all aspects of EV technology, policy, infrastructure, commercialization, and consumer behavior. PH&EV Center researchers will deliver presentations on a range of topics:

- Can Green Electricity Accelerate PEV Demand?
- Mitigating PEV Charging with Photovoltaic Energy Systems
- Assessing the Potential Impact of PHEV Workplace Charging for a Group of Consumers
- Optimizing Fast Charger Networks in San Diego
- Energy Savings and Cost Projection for Advanced Hybrid, Battery Electric and Fuel Cell Vehicles in 2015–2030
- California Policy Model for Electric Drive Vehicles
- Who Wants and Who Can Buy a Plug-in Vehicle: Modeling the Spatial Demand for Plug-in Vehicles among Different Areas in the San Diego Region
- Learning by Driving: The UC Davis MINI E Consumer Study
- Fast Charging Tests of Lithium Titanate Cells and Modules: Electrical and Thermal Response
- Ultracapacitors in Hybrid Vehicle Applications: Testing of New High Power Devices and Prospects for Increased Energy Density

ITS-Davis will also have a booth (#1027) in the EVS26 exhibit hall. We hope to see you there!

Asilomar Conference Summary Now Available

What do people think about climate change? How do they respond to new technologies, messages and policies? How should researchers and policymakers communicate these complex topics to the public? The 13th Biennial Asilomar Conference on Transportation and Energy tackled the human factor as a central component of the continuing discussion around ways to improve mobility – a discussion that historically has focused more on policy and on technological advances in fuels and vehicles.

A record 280 leading transportation, energy and policy thinkers attended the fall 2011 gathering, hosted by ITS-Davis under the auspices of the Energy and Alternative Fuels Committees of the U.S. Transportation Research Board. The



- Read the full summary [here](#).
- Access Asilomar presentations [here](#).
- Books and other publications from past Asilomar Conferences are available [here](#).
- Photographs of Asilomar speakers and attendees are in albums at the [ITS-Davis Facebook page](#).

Recent ITS-Davis Publications

[Sperling, Daniel and Richard T. Forman \(2011\) **The Future of Roads: No Driving, No Emissions, Nature Reconnected.** *Solutions* 2011 \(September-October\), 10–23.](#)

[Yeh, Sonia and Edward S. Rubin \(2011\) **A Review of Uncertainties in Technology Experience Curves.** *Energy Economics* \(in press, doi: 10.1016/j.eneco.2011.11.006\).](#)

[Sperling, Daniel and Mary Nichols \(2012\) **Cooling the Sky: Creating Climate Policy in California.** *Boom: A Journal of California* \(Spring 2012\), 17 – 32](#)

[Wheeler, Stephen M. and Craig W. Beebe \(2011\) **The Rise of the Postmodern Metropolis: Spatial Evolution of the Sacramento Metropolitan Region.** *Journal of Urban Design* 16 \(3\), 307–332.](#)

[Yang, Christopher, and Sonia Yeh \(2012\) **The Future of Low-Carbon Transportation Fuels.** in *Physics of Sustainable Energy II: Using Energy Efficiently and Producing it Renewably*, edited by D. Hafemeister, D. Kammen, B. Goss Levi and P. Schwartz. Berkeley, California, USA, 5–6 March 2011: Springer.](#)

[Sun, Yongling, Mark A. Delucchi, Joan M. Ogden \(2011\) **The Impact of Widespread Deployment of Fuel Cell Vehicles on Platinum Demand and Price.** *International Journal of Hydrogen Energy* 36 \(17\), 11116–11127](#)

Education Highlights

Funding a Cleaner Future: McWick Vehicle Technology Fellowships

In 2008, Larry Rudwick and Kathleen McBride created the McWick Technology Foundation Fund for Clean Vehicle Technology Fellowship/Scholarship Program to fund scholarships and a fellowship to help attract outstanding undergraduates and graduate students into clean-vehicle research, especially vehicles utilizing plug-in electricity. Since then, five undergraduates and three graduate students have received McWick awards, allowing them to participate in high-impact research and outreach through the Plug-in Hybrid & Electric Vehicle Research Center.



Justin Woodjack

McWick Fellows have included Civil and Environmental Engineering master’s student Bryan Jungers and Transportation Technology and Policy (TTP) master’s students Justin Woodjack and Susan Ejlalmaneshan. All three have now completed their M.S. degrees. Currently, Woodjack is a TTP Ph.D. student, Jungers works for E Source, and Ejlalmaneshan works for the California Department of Transportation.

Undergraduate McWick Scholars have created and programmed the web surveys and databases for the PH&EV Research Center’s consumer survey research. This research is leading to new projects with private companies such as Nissan, as well as with municipal planning agencies and other universities. Former McWick Scholar Yelena Wu has graduated but will move on to a master’s program and is still collaborating with the PH&EV Research Center. Christopher Cruz worked for the Center for two years and has now completed his bachelor’s degree as has Alex Lin. Daniel Scrivino began as an undergraduate assistant in 2010; he is now working on the interactive map-based portion of consumer surveys as a staff programmer with the PH&EV Center.



Susan Ejlalmaneshan

“The McWick funding has been invaluable to the PH&EV Research Center even beyond supporting student research,” says program manager Dahlia Garas. “Outreach is vital to our mission, and many of

our undergraduate scholars have assisted with newsletters and with maintaining and updating our website, our main portal for reaching out to the public, our funders and other stakeholders.”

Excellence Noted: Outstanding Thesis and Dissertation Awards

The *Friends of ITS-Davis* Outstanding Dissertation and Master's Thesis Awards recognize and promote the highest-quality research conducted by Institute graduate students, and come with a \$1,500 prize funded by donations to *Friends of ITS-Davis*. The awards for degrees completed during the 2010 calendar year have recently been announced:

Jonn Aksen received the outstanding dissertation award for “Interpersonal Influence within Car Buyers’ Social Networks: Observing Consumer Assessment of Plug-in Hybrid Electric Vehicles (PHEVs) and the Spread of Pro-Societal Values.” Aksen’s advisor was Ken Kurani; he is currently an assistant professor at Simon Fraser University in British Columbia.



Jonn Aksen



Gouri Shankar Mishra

Gouri Shankar Mishra received the outstanding master's thesis award for “Analysis of Lifecycle Water Requirements of Alternative Energy Pathways: Case Study of Ethanol from Corn Grain and Crop Residue, and Electricity from Geothermal Resources.” Mishra’s advisor was Sonia Yeh; he is now a Ph.D. student in Transportation Technology and Policy.

The process of selecting the recipients of the 2011 awards is now underway, with winners to be announced later this year.

Congratulations to our December 2011 Graduates!

The Institute congratulates our newest alumni! Degrees were given in Transportation Technology and Policy (TTP), Mechanical and Aerospace Engineering (MAE), Agricultural and Resource Economics (ARE) and Geography.

Chien-Wei (Steven) Chen, Ph.D., TTP

Adviser: Yueyue Fan

Dissertation: “Optimal Design of Sustainable Bioenergy Infrastructure System and Resource Allocation under Uncertainties”

Current Position: Taiwan Research Institute

Alea German, M.S., MAE

Adviser: Paul Erickson

Thesis: “Effects of Flow Channel Surface Hydrophobicity on Cell Performance and Liquid Water Mobility in a PEM Fuel Cell”

Current Position: Davis Energy Group

Geoffrey Morrison, M.S., ARE

Adviser: Yueyue Fan

Thesis: “The Driving Culture of the U.S. Military”

Current Position: Ph.D. student, TTP

Nadia Richards, M.S., MAE

Adviser: Paul Erickson

Exam

Current Position: Ph.D. student, UC Davis

Adam Same, M.S., ARE

Adviser: Paul Erickson

Exam

Current Position: Ph.D. student, UC Davis

Scott Varnhagen, M.S., ARE

Adviser: Jae Wan Park

Thesis: “Experimental Investigation of the Wankel Engine for Extending the Range of Electric Vehicles”

Yang Wang, M.S., TTP

Adviser: James Quinn

Thesis: "Hedonic Regression of Local-Level Attraction Influences on Housing Price: Evidences from California Statewide Rent Modifier Estimation"

Current Position: Ph.D. student, TTP

Eric Winford, M.S., Geography

Adviser: Deborah Elliott-Fisk

Thesis: "Climate Adaptation and Mitigation Strategies for Sierra Nevada Forests Using a Life-Cycle Assessment of Carbon Potential"

ITS-Davis Highlights

Enjoying Our Work: ITS-Davis at TRB



ITS-Davis Director Dan Sperling and NextSTEPS Program Manager Paul Gruber enjoy the reception

The 91st annual Transportation Research Board meeting in Washington, D.C., in January provided a wealth of opportunities for ITS-Davis researchers to talk transportation with a wide spectrum of attendees, from seasoned transportation and research pros to new students with fresh ideas. [Nearly 60 of our students and faculty participated](#) in the formal meeting sessions, while the relaxed, casual atmosphere of the ITS-Davis annual reception mixed fun into the discussion. For more photos, visit the [ITS-Davis Facebook page](#).

Taking Outreach Seriously: Dan Sperling Spreads the Word

ITS-Davis Director Dan Sperling helps puts transportation priorities and policies in context as a frequent speaker at high-profile events. Some of his recent and upcoming addresses are listed here:

- Transportation Energy Partners 2012 Energy Independence Summit [2012 Energy Independence Summit](#) (March 28)
- University of Kansas Energy Club [2012 KU Energy Conference](#) (April 12)
- Silicon Valley Leadership Group [2012 Sustainable Corporation: Sustainability as Business Strategy](#) (May 2)
- U.S. Department of Energy [Annual Merit Review & Peer Evaluation Meeting](#) (May 14)

In the News

[Clean energy for a healthy future: Delucchi and Jacobson 100% renewables proposal \(February 2012\)](#)

[Dan Sperling discusses how California will meet CARB's new ZEV mandate \(February 2012\)](#)

[Quieter pavements: Morning Edition](#) and [Quest talk to John Harvey \(February 2012\)](#)

[Susan Handy comments on proliferating pedal-powered businesses \(March 2012\)](#)

[Cynthia Lin comments on long-term effects of rising gasoline prices \(March 2012\)](#)

[UC Davis students build green racer for Formula Hybrid SAE competition \(March 2012\)](#)

[Inelastic demand for gasoline? Dan Sperling comments \(March 2012\)](#)

Sustainable Transportation Center Update

Survey Looks at VMT Effects of Big Box Store

What happens to shopping and travel patterns when a big box store comes to town? A UC Davis team led by Transportation Technology and Policy Ph.D. student Kristin Lovejoy and STC Director Susan Handy has just completed a study on this topic, with some surprising results. The study, "[Measuring the Impacts of Local Land Use Policies on Vehicle Miles of Travel: The Case of the First Big Box Store in Davis, California](#)" was conducted to gather empirical evidence on the effect of the decision to allow a new Target to open in the city.



STC Director
Susan Handy

Surveys of residents' shopping behavior conducted before and after the opening of the store in 2009 revealed a significant shift in where people shopped and a measurable reduction in overall vehicle-miles-traveled (VMT) for shopping. Surprisingly, local downtown businesses did not see a substantial reduction in shopping frequency. Instead, the biggest change was a reduction in shopping outside of Davis. This result was noted in [local](#) and [national](#) news and [television](#) stories.

Concerns over climate change have brought new impetus to the goal of reducing vehicle travel through land use policy, and to the need for evidence on the effects of policies. Although the VMT change seen in this study is specific to the Davis context, the findings support the general proposition that bringing retail destinations closer to residences will reduce vehicle travel, particularly where the comparable alternatives for the newly introduced store are far away. The study also offers important insights into the challenges of conducting before-and-after studies of the impact of local land use changes.

STC Will Host Annual UCTC Student Conference April 20

Registration is still open for the 2012 UCTC Student Conference at UC Davis on Friday, April 20. The annual conference brings together graduate students engaged in transportation research at UC and CSU campuses. This year's one-day conference will highlight 18 student presentations as well as a student poster session and the annual Mel Webber lecture, to be given by Joseph Schofer, professor at Northwestern University and member of the ITS-Davis Board of Advisors.

The UCTC Student Conference is a great opportunity for students to present their work and to network with students and faculty from other campuses. We hope to see you there—[visit the conference website](#) for the conference schedule and information about registration and lodging.

Organizational Update: New Region IX UTC

In 2011 UC Davis joined with the University of California Transportation Center (UCTC) in submitting a successful proposal to the U.S. Department of Transportation (DOT) for the new Region IX UTC. As a result ITS-Davis will share a \$3.5 million grant from U.S. DOT with a consortium of five UC and four CSU campuses, led by UC Berkeley. UC Davis joins the Berkeley, Irvine, Los Angeles, Riverside and Santa Barbara campuses as core members; the four affiliate members from the CSU system are Pomona, Sacramento, San Bernardino and San Luis Obispo. The consortium will also receive \$3.5 million in matching funds from Caltrans.

The new UCTC will focus on the themes of environmental sustainability, economic competitiveness and livability, and the connections between them. ITS-Davis will receive over \$1 million to support faculty research, dissertation fellowships, student fellowships, transportation courses, and outreach on these themes. More information is available on the [STC website](#).