



The Parker Ranch installation in Hawaii

Sustainable Communities and Vehicle Miles Traveled Reduction Programs

October 5, 2010 - 2:00-3:00 PM EST

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(ACEEE)

Facilitated by: Eric Mackres, ACEEE

- Technical Assistance Project (TAP) Overview
- Sustainable Communities projects in EECSBG & SEP
- Situating your project as part of a long-term strategy
- Part 1: Quantifying energy savings from sustainable communities programs
 - Example, Resources, Discussion
- Part 2: Education and Marketing of your program
 - Example, Resources, Discussion
- Additional TAP Resources

DOE's Technical Assistance Program (TAP) supports the Energy Efficiency and Conservation Block Grant Program (EECBG), the State Energy Program (SEP) and the Better Buildings grantees by providing state, local, and tribal officials the tools and resources needed to implement successful and sustainable clean energy programs.



TAP offers:

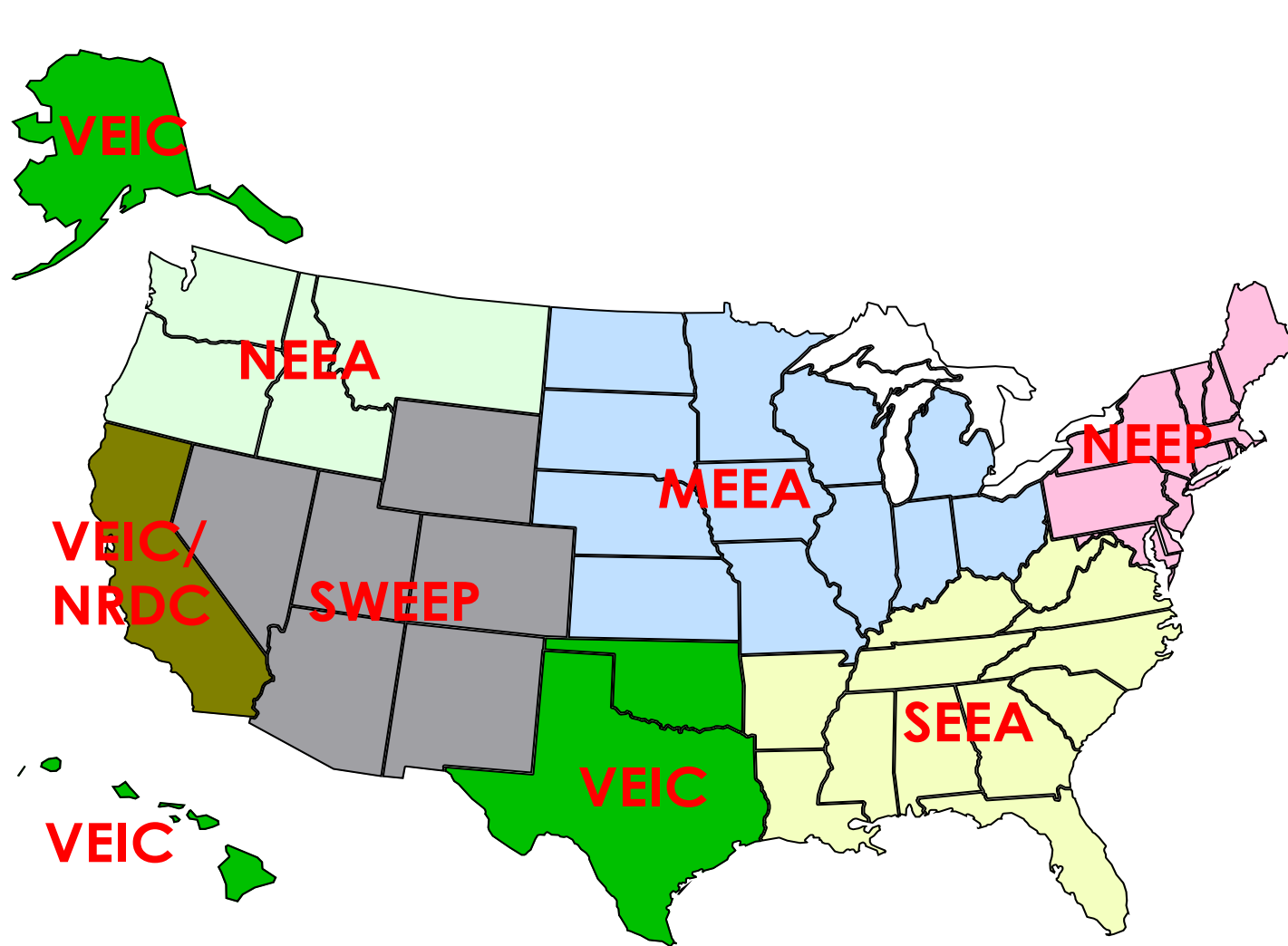
- One-on-one assistance
- Extensive online resource library, including:
 - Webinars
 - Events calendar
 - TAP Blog
 - Best practices and project resources
- Facilitation of peer exchange

On topics including:

- State and local capacity building
- Energy efficiency and renewable energy technologies
- Program design and implementation
- Financing
- Performance contracting

<p>State and Local Capacity Building</p>	<ul style="list-style-type: none"> • Trainings • Workshops • Peer-to-peer matching
<p>Technical</p>	<ul style="list-style-type: none"> • Renewable energy siting and development • Review of technical specs for RFPs • Strategic planning, energy management, and conservation strategies • Green building technologies • Building codes
<p>Program Design and Implementation</p>	<ul style="list-style-type: none"> • Policy and program development • Coordinating rate-payer funded dollars with ARRA projects and programs • Sustainable community and building design • State and regional EE and RE assessments and planning • EE and RE portfolio program design elements
<p>Financial</p>	<p>Program design support and guidance on financing mechanisms such as:</p> <ul style="list-style-type: none"> • Revolving loan funds (RLFs) • Property-assessed clean energy (PACE) • Loan loss reserves and enhanced credit mechanisms
<p>Performance Contracting</p>	<ul style="list-style-type: none"> • Designing and implementing a performance contract • Leveraging private investment • Reducing institutional barriers • Tracking and comparing programs

Who We Are: TAP Team 4



NORTHWEST
ENERGY
EFFICIENCY
ALLIANCE



ACEEE, NRDC: National Support

- Questions and discussion after each topic section
 - Have your questions ready
- To ask a question/make a comment
 - If you want facilitator to read your question – Type your question in “questions” box
 - If you want to speak – use “Raise hand” function and type question in “questions” box, when you are recognized you will be un-muted

Sustainable Communities Projects Funded under EECBG and SEP

- Stimulus – unprecedented money for local energy efficiency
- All EECBG and SEP projects - 5,651
 - Transportation projects - 526
 - Sustainable Communities projects – 124
 - Bike/Ped 31
 - Bicycle 31
 - Planning 10
 - Transit 10
 - Pedestrian 9
 - Mode shift 8
 - Zoning 8
 - Ride share 4
 - Education 4
 - Telecommute 4
 - TOD 3
 - Car share 2

- Opportunity to use this money to advance a long term and sustainable transportation/land-use strategy for your community
 - Plan for transition to a self-sustaining project from the outset
 - Document benefits as well as possible to demonstrate program value locally (as well as to meet grant reqts.)
 - Establish program/project as an element of a sustainability agenda for the community that adds to quality of life
 - Consider future funding or assistance (employer/business support; user fee; state/local government support if project contributes to meeting other goals e.g. SIP, GHG; participation of educational institution).

Part 1: Quantifying Energy Savings

- DOE EECEBG reporting requirements not tailored to most grantees in this group

- “Transportation” metrics may not apply –

Number of alternative fuel vehicles purchased
Number of conventional vehicles converted to alternative fuel use
Number of new alternative re-fueling stations emplaced
Number of new carpools and vanpools formed
Number of energy efficient traffic signals installed
Number of street lane miles for which synchronized traffic signals were installed

- “Energy Savings” metrics likely steps removed from data collection –

Reduction in natural gas consumption (MMcf)
Reduction in electricity consumption (MWh)
Reduction in electricity demand (MW)
Reduction in fuel oil consumption (gallons)
Reduction in propane consumption (gallons)
Reduction in gasoline and diesel fuel consumption (gallons)
Dollars Saved

- Performance measures proposed by applicants may or may not allow calculation of energy benefits

- Approaches to quantification:
 - Estimates from literature (Moving Cooler, Growing Cooler)
 - Spreadsheet-based calculators (CCAP Transportation Emissions Guidebook, EPA COMMUTER)
 - Map-based local land use/transportation models (UrbanSim, I-PLACE³S)
- All require data
 - Off the shelf (base case)
 - Direct measurement
 - Surveys, reporting
 - The more the better!

Example: CCAP Transportation Emissions Guidebook



- Spreadsheet model based on “rules of thumb” from literature
- Default and customizable GHG, VMT, and fuel reduction calculations for various policies at scales from site to region
- Data inputs needed for base and policy cases, e.g:
 - Trips per day, mode split, average auto trip length, gasoline price, average MPG

Policy	
Land Use	
1.1	Transit Oriented Development
1.2	Infill/Brownfield Development
1.3	Pedestrian Oriented Design
1.4	Smart School Siting
1.5	Permitting/Zoning Reform
Transportation Alternatives	
2.1	Improved Transit Service
2.2	Light Rail Transit Corridor
2.3	Bus Rapid Transit Corridor
2.4	Bicycle Initiatives
Fiscal Tools & Incentives	
3.1	Targeted Infrastructure Spending
3.2	Road Pricing
3.3	Commuter Incentives (with parking pricing)
3.4	Pay-As-You-Drive Insurance (5% penetration rate)
3.5	Green Mortgages
State & Local Programs	
4.1a	Limited Smart Growth
4.1b	Comprehensive Smart Growth
4.1c	Agressive Smart Growth
4.2	Public Participation
4.3	Open Space Preservation
4.4	Municipal Parking Programs (with parking pricing)
4.5	Safe Routes to School

CCAP Option: Bicycle Initiatives

Enter Your Actual Data Here	
Base Case	
Total Trips per Day	100,000
Mode Split	
Automobile	85%
Transit/Walking/Biking	15%
Average Automobile Trip Length	5.0
Price per Gallon Gasoline	\$2.00
MPG	25.0
Grams CO2 per Gallon	9,816
With Improved Bicycle Programs	
Total Trips per Day	100,000
Mode Split	
Automobile	80%
Transit/Walking/Biking	20%
Average Automobile Trip Length	5.1
Price per Gallon Gasoline	\$ 2.00
MPG	25.0
Grams CO2 per Gallon	9,816
Results	
Vehicle Trips-Baseline	85,000
VMT-Baseline	425,000
Vehicle Trips-Bike Infrastructure	80,000
VMT-Bike Infrastructure	409,877
VMT Savings	15,123
Fuel Savings (gallons of gasoline)	605
CO2 Savings (metric tons/day)	6
Fuel Cost Savings per day	\$1,210
Default Emission Factors grams/vmt	

[Go to Default Matrix](#)

[Go to User Matrix](#)

Rule of Thumb
Bike Infrastructure
1-5%

Rule of Thumb: An order of magnitude estimate for the range of VMT reduction based on the latest literature.

Default Data

Bicycle Programs	VMT Reduction (%)	CO ₂ (annual metric tons)	N ₂ O (annual metric tons)	CH ₄ (annual metric tons)	Annual Fuel Cost Savings	Annual Fuel Savings (Gallons)
Total	2%	1433	0.102	0.307	\$292,000	146,000

Bicycle Programs	NOx	PM-10	PM-2.5	SO ₂	CO	VOC
Annual Emission Reductions (Tons)	5.636	0.262	0.190	0.310	85.387	11.170
Tons Per Day	0.015	0.001	0.001	0.001	0.234	0.031

With Region Specific Data

Bicycle Programs	VMT Reduction (%)	CO ₂ (annual metric tons)	N ₂ O (annual metric tons)	CH ₄ (annual metric tons)	Annual Fuel Cost Savings	Annual Fuel Savings (Gallons)
Total	4%	2167	0.155	0.464	\$441,605	220,802

Bicycle Programs	NOx	PM-10	PM-2.5	SO ₂	CO	VOC
Annual Emission Reductions (Tons)	8.523	0.396	0.288	0.468	129.135	16.893
Tons Per Day	0.023	0.001	0.001	0.001	0.354	0.046

- Victoria Transport Policy Institute resources: <http://www.vtpi.org/tdm/index.php> - voluminous resources including case studies, transportation-related price elasticities
- Moving Cooler (particularly Appendix B, Section II): <http://www.movingcooler.info/> - Comprehensive 2009 evaluation of transport GHG reduction potential nationally
- CCAP Transportation Emissions Guidebook: <http://www.ccap.org/guidebookAccess/login.php> - spreadsheet tool for variety of measures; includes case studies

- EPA State & Local Transportation Resources: http://www.epa.gov/otaq/stateresources/policy/pag_transp.htm#cp – includes COMMUTER – spreadsheet-based, with built-in mode choice model; employer-based measures; can be used for SIP credit
- California Energy Commission's PLACE³S tool: <http://places.energy.ca.gov/places/>
- USDOT Transportation and Climate Change Clearinghouse: <http://climate.dot.gov/index.html>

- What quantification needs are you experiencing in your community?
 - Are project performance measures well defined?
 - Is there sufficient data available to establish a baseline to measure your project against?
 - What methods are you using to collect the necessary data?
 - Can energy savings be determined from performance measures?

Part 2: Outreach and Marketing

- **Goals:**
 - Increase awareness of, interest and participation in programs or use of infrastructure
 - Sustain demand and support over time, work toward for additional or expanded programs
- **Messages:**
 - Quality of life – spend time with family, enjoy your community, improved safety
 - Choices – alternative modes, sustainable communities provide more of them
 - Economic vitality – new opportunities for business growth
- **Techniques:**
 - Show, don't tell – use visuals to describe problem and opportunity, close to home is best
 - Work *with* stakeholders – create dialogue, not debate
 - Work in different ways with different audiences
 - Internet offers great opportunities

- *Downtown: On the Go!* transportation management association - overview
- Outreach critical to long-term sustainability
 - Primary focus in first year of EECBG funds = build a sustainable organizational and funding structure
 - Required significant layers of outreach to major stakeholder groups and leaders to build brand familiarity and garner support for mission
 - Built a formal Board of Directors involving upper management of 18 downtown businesses
 - Used direct advocacy as a mechanism for “big wins” that achieved further political support and legitimacy

- Marketing critical to immediate impact on target audience
 - Education
 - Pilot a Small Business Support Program
 - Host several forums in partnership with other organizations
 - Encouragement
 - Create WALK Tacoma downtown walking maps
 - Partner on Bike Month
- Helped to assess and provide value, build brand recognition, fulfill mission, achieve “small wins” through indirect advocacy
- Marketing tools include a monthly newsletter, Facebook, press releases, and access to contacts gained through Outreach efforts

- Institute for Sustainable Communities Resource Guide on Transportation Efficiency
http://www.iscvt.org/who_we_are/publications/Chicago_CLA_Resource_Guide.pdf
- Smart Growth America, “How to Talk about Smart Growth”
<http://www.smartgrowthamerica.org/howtotalk.html>
- EPA, “Smart Growth: The Business Opportunity for Developers and Production Builders”
http://www.epa.gov/smartgrowth/sg_business.htm

- What outreach and marketing needs are you experiencing in your community?

We encourage you to:

1) Explore our online resources via the [Solution Center](#)

2) Submit a request via the [Technical Assistance Center](#)

The screenshot shows the 'Solution Center' page for the U.S. Department of Energy. The header includes the DOE logo and 'Energy Efficiency & Renewable Energy'. Below the header, there are navigation tabs for 'Webcasts', 'Project Map', and 'Request Technical Assistance'. The main content area is divided into several sections: 'Buildings' with a description of the Solution Center's purpose; 'Energy Education' with a link to 'Upcoming Webcast' titled 'Getting to Net Zero Today' (March 18, 2010, 12:00 EST); 'Industry' with a 'Need Help?' section containing a 'Click Here to Request Technical Assistance' button and the phone number '1-877-EERE-TAP (1-877-337-3827)'; and 'Activities' with a description and a diagram showing various energy efficiency and conservation strategies like 'Material Conservation Programs', 'Reduction and Capture of Methane and Greenhouse Gases', 'Energy Efficient Networks', and 'Renewable Energy Technologies'.

The screenshot shows the 'Technical Assistance Center' page in a Windows Internet Explorer browser. The header features the DOE logo and 'Energy Efficiency & Renewable Energy'. The main content area has a 'Log In' section with 'Username:' and 'Password:' input fields, and 'Log In' and 'Reset' buttons. Below the login section, there are links for 'EERC Home', 'SEP Home', 'EERE Home', 'U.S. Department of Energy', 'Web Site Policies', 'Security & Privacy', and 'USA.gov'. The footer indicates 'Content Last Updated: 02/19/2010' and 'Version: 1.0.7'.

3) Ask questions via our call center at 1-877-337-3827 or email us at solutioncenter@ee.doe.gov

Please join us again:

Title: **Energy Savings Performance Contract (ESPC) Pricing and Financing**
Date: October 12, 2010
Time: 1:30 - 2:30pm EST

Title: **Future Funding: Effective Models for Leveraging Public Funds**
Date: October 13, 2010
Time: 12:00 - 1:30pm EST

Title: **Energy Code Compliance and Enforcement Best Practices**
Date: October 14, 2010
Time: 2:00 - 3:00pm EST

Title: **Energy Management Systems: Maximizing Energy Savings**
Date: October 15, 2010
Time: 12:00 - 1:30pm EST

Title: **Driving Demand #2: Lessons from the Field**
Date: October 19, 2010
Time: 2:00 - 3:15pm EST

For the most up-to-date information and registration links, please visit the Solution Center webcast page at www.wip.energy.gov/solutioncenter/webcasts

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