Hawaii Clean Energy Initiative
Transportation Sector Stakeholder Workshop

Date: November 13, 2014 (Thursday)

Location: The Royal Hawaiian, Regency Ballroom, 2259 Kalakaua Ave, Honolulu, HI 96815

Morning session to discuss the HCEI Transportation Sector Analysis Motivation and Goals		
8:30 – 9:00 am	**Registration**	
9:00 – 9:30 am	**Welcome and Introduction to HCEI** *Mark Glick (DBEDT)*	
9:30 – 10:30 am	**Transportation Sector Review** *Anup Bandivadekar (ICCT)* *This presentation and discussion session will summarize ICCT's initial assessment of Hawaii Transportation sector energy consumption, HCEI transportation plan, and current baseline.*	
10:30 – 11:00 am	**Break**	
11:00 – 12:00 pm	**Expectations from Transportation Sector Analysis** *The goal of this session is to gather ideas and expectations from the Transportation Sector Analysis from the broad stakeholder group.* *Results of the online survey will be presented, and additional comments from the participants will be solicited.*	
12:00 – 1:00 pm	**Lunch**	
Afternoon session split into two tracks before reconvening as a whole group. Note that electric-drive vehicles, vehicle efficiency issues will be addressed separately in follow up meetings/webinars.		
1:00 – 3:30 pm	**Breakout Session 1 – Managing Travel Demand** *This session will explore barriers and opportunities for reducing travel demand, and possible intervention tactics.* *Rapporteur: Margaret Larson (DBEDT)*	**Breakout Session 2 - Alternative Fuels** *This session will discuss the outlook for alternative fuels (biofuels, CNG/LNG) in Hawaii context, and possible areas of engagement in Hawaii.* *Rapporteur: Lynda Viray (DBEDT)*
3:30 – 4:00 pm	**Break**	
4:00 – 4:30 pm	***Report back from breakout sessions*** *Alan Lloyd (ICCT) will moderate this session. Rapporteurs and session chairs will summarize the discussions from each of the session.*	
4:30 – 5:00 pm	**Open Discussion and Wrap Up** *Alan Lloyd (ICCT) will moderate this session. Participants can react to the list of tactics, transportation sector analysis, or the breakout session discussions.*	
5:00 – 5:15 pm	**Next Steps** *Mark Glick (DBEDT)*	
5:15 pm	**Adjourn**	

Welcome

- Welcome Remarks by Mark Glick
- Presentation by Dr. Anup Bandivadekar
  - Part I – Hawaii Transportation Energy: Review and Outlook, Initial Feedback from Stakeholders
  - Q&A
- Break
  - Part II – Strategies and Tactics Under Consideration, Next Steps
  - Q&A
- Lunch
- Breakout Sessions – Managing Travel Demand, Alternative Fuels
- Break
- Summary of Breakout Sessions by Alan Lloyd
- Open Discussion and Wrap Up
  - Q&A
- Final Words by Mark Glick

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Hawaii Clean Energy Initiative

HCEI – Transportation Sector Stakeholder Workshop

Mark B. Glick

Administrator
Hawaii State Energy Office

November 13, 2014

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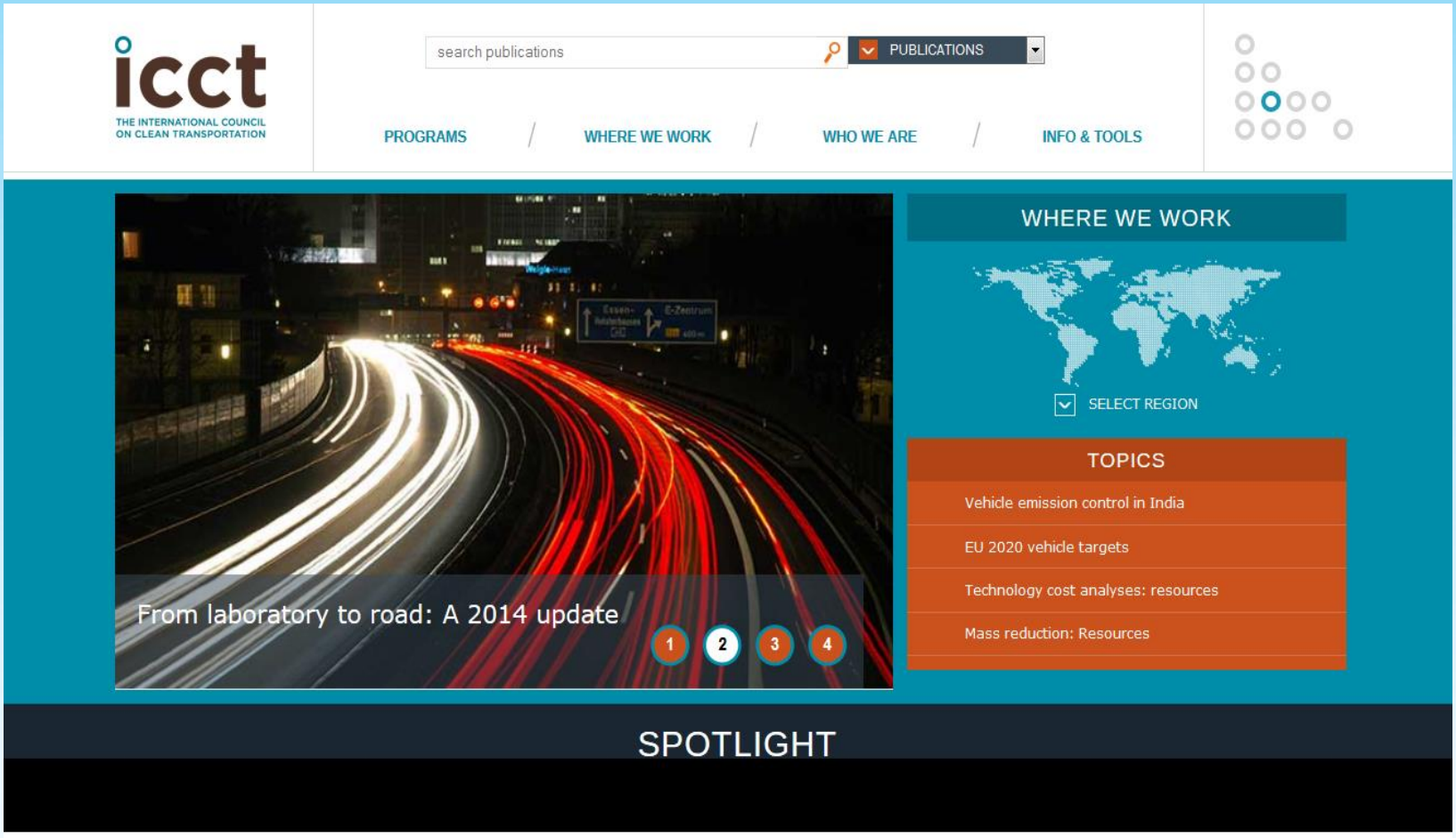
ICCT: A World Class Partner



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HCEI's Original Transportation Strategies

The original goal for the transportation sector was to reduce the consumption of petroleum in ground transportation by 70 percent by 2030.

- ✓ Improve standard vehicle efficiency of fleet
- ✓ Reduce vehicle miles traveled
- ✓ Incorporate renewable fuels into transportation sector
- ✓ Accelerate the deployment of EVs and infrastructure

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A Fresh Look

A revamped HCEI will foster stakeholder engagement to take on critical challenges & opportunities to make a major, lasting difference in our clean energy future

- ✓ Analysis
- ✓ Action Plans
- ✓ Necessary Policy Drivers and Incentives
- ✓ Funding/Investment Opportunities

Realistic Timeline & Expectations

Recommendations

- How the transportation plan is being retooled.
- Review best practices and case studies internationally.
- Review options
- Establish a timeline and set of realistic expectations
- Present the planning, policy/regulatory and funding requirements necessary to carry out next steps.

Afternoon Breakout Sessions

Regency I –

Managing Travel Demand

Regency II –

Alternative Fuels

Mahalo!

Hawaii Clean Energy Initiative

http://www.hawaiicleanenergyinitiative.org

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Hawaii Transportation Energy: Review and Outlook

Anup Bandivadekar
Josh Miller
Stephanie Searle
Alan Lloyd

13 November, 2014,
Honolulu, HI

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ICCT mission and activities

The mission of ICCT is to dramatically improve the environmental performance and efficiency of cars, trucks, buses and transportation systems in order to protect and improve public health, the environment, and quality of life.

- Non-profit research Institute
- Air Pollution and Climate Impacts
- Focus on regulatory policies and fiscal incentives
- Activity across modes including aviation and marine
- Global outreach, with special focus on largest markets

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Disclaimer

The International Council on Clean Transportation (ICCT) is a consultant to the Department of Business, Economic Development, and Tourism (DBEDT) under contract number 63188: Professional Services for Transportation Industry Analyst.

The views and opinions expressed in this presentation are that of the ICCT, and may not necessarily represent the position of the DBEDT.

Hawaii Transportation Energy Consumption: From HCEI 2011 roadmap to the next phase

- What has been accomplished since HCEI 2011 roadmap was established?
- What is the current outlook for Hawaii's Transportation Energy Demand?
- What are the possible tactics to affect Hawaii's transportation energy consumption?
  - Which tactics are most promising?
  - What are the barriers to realizing these tactics?
- Deeper dive into two possible areas of intervention
  - Managing travel demand
  - Alternative fuels
- Continued engagement with all stakeholders to refine tactics, and identify appropriate interventions

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Timeline for transportation energy analysis

- Continued stakeholder engagement
  - Workshop on Electric drive vehicles: mid-December 2014
  - Web-meetings on vehicle efficiency, aviation and marine tactics: Late December 2014/early January 2015
- Narrow down strategies and tactics (December/January)
- Qualitative and quantitative evaluation of tactics (January/February 2015)
- Assess complementarity with existing Hawaii policies/plans and budgets (February/March 2015)
- Seek consensus on plan and implementation steps (April/May 2015)
- Final report (June 2015)

- Late 2015: Actual work begins on implementing an integrated transportation energy strategy with shared roles and responsibilities

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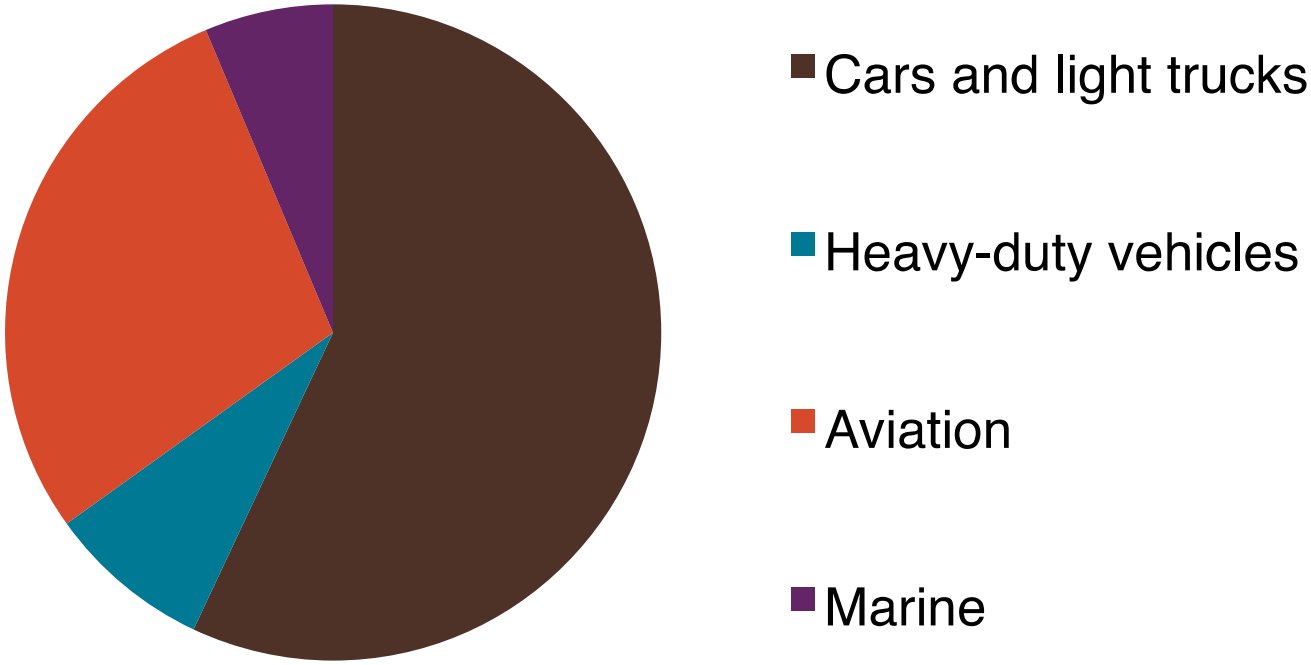
HCEI Transportation Energy Review

Hawaii Transportation Energy Consumption in 2013

2013 Transportation Energy Use

800 million gallons



*Marine estimated based on share in DBEDT Hawaii State Energy Office |Hawaii Energy Facts & Figures, May 2014

HCEI 2011 roadmap established an aggressive goal

Goal: Reduce the use of petroleum in ground transportation by 70% or ~ 385 MGY by 2030

Strategy with 2010 baseline	2015 target	2020 target	2030 target
Reduce vehicle miles traveled (VMT)	2% VMT reduction	4% VMT reduction	8% VMT reduction
Incorporate renewable fuels into transportation sector	E10 and biodiesel consumption at 2010 level		150 million gallons
Improve standard vehicle efficiency of fleet	25 mpg cars 18 mpg LT	30 mpg cars 22 mpg LT	35 mpg cars 28 mpg LT
Accelerate the deployment of electric vehicles (EVs) and related infrastructure	4K EV sales (10K on road)	10K EV sales (40K on road)	30K EV sales

Near-term Vehicle Miles Traveled (VMT) reduction goal unlikely to be achieved

		Historical		Goals		
		2010	2013	2015	2020	2030
VMT (billion)		10.11	12.08	*9.91*	*9.71*	*9.30*
Percent change from 2010		0%	19%	*-2%*	*-4%*	*-8%*
Percent change from 2013	–		0%	*-18%*	*-20%*	*-23%*
De facto population (million)		1.47	1.51	*1.54*	*1.60*	*1.73*
Population change from 2010		0%	3%	*5%*	*9%*	*18%*
Population change from 2013	–		0%	*2%*	*6%*	*15%*
VMT per capita		6,882	7,999	*6,438*	*6,051*	*5,370*
VMT per capita change from 2010		0%	16%	*-6%*	*-12%*	*-22%*
VMT per capita change from 2013	–		0%	*-20%*	*-24%*	*-33%*

Data sources: VMT (DBEDT Monthly Energy Data), Population (DBEDT 2040 long-range forecast)
Italics indicate forecasts or goals rather than historical data

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HCEI 2020 target for biofuels will be met through imports

	Production	Consumption
Ethanol	0	52 MGY
Biodiesel	1.6 MGY	~ 0 MGY

- Current policy incentives:
  - Ethanol production incentive (income tax credit up to 30% until 2017)
  - Ethanol fuel blend standard (E10)
  - Energy feedstock program
- Although several projects are planned, current production of biofuels in Hawaii is low
- HCEI 2030 target of 150 MGY needs to be reevaluated based on feasible cost-effective pathways

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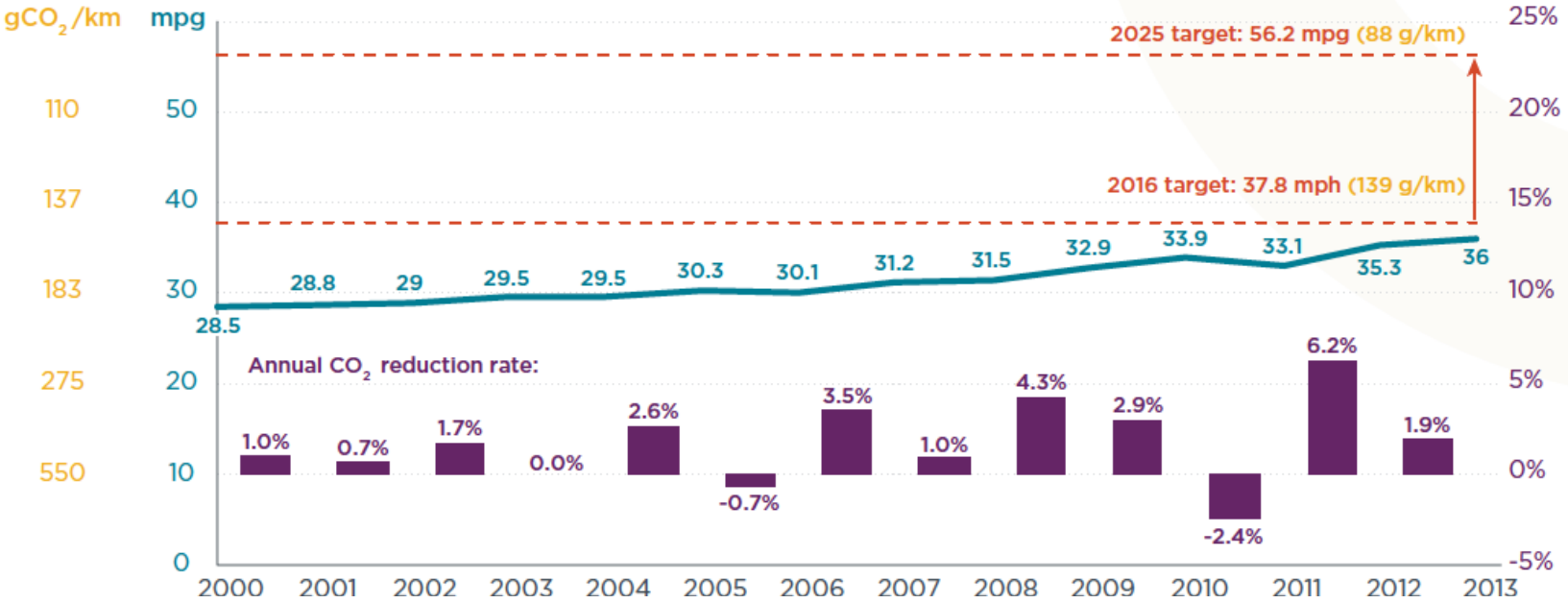
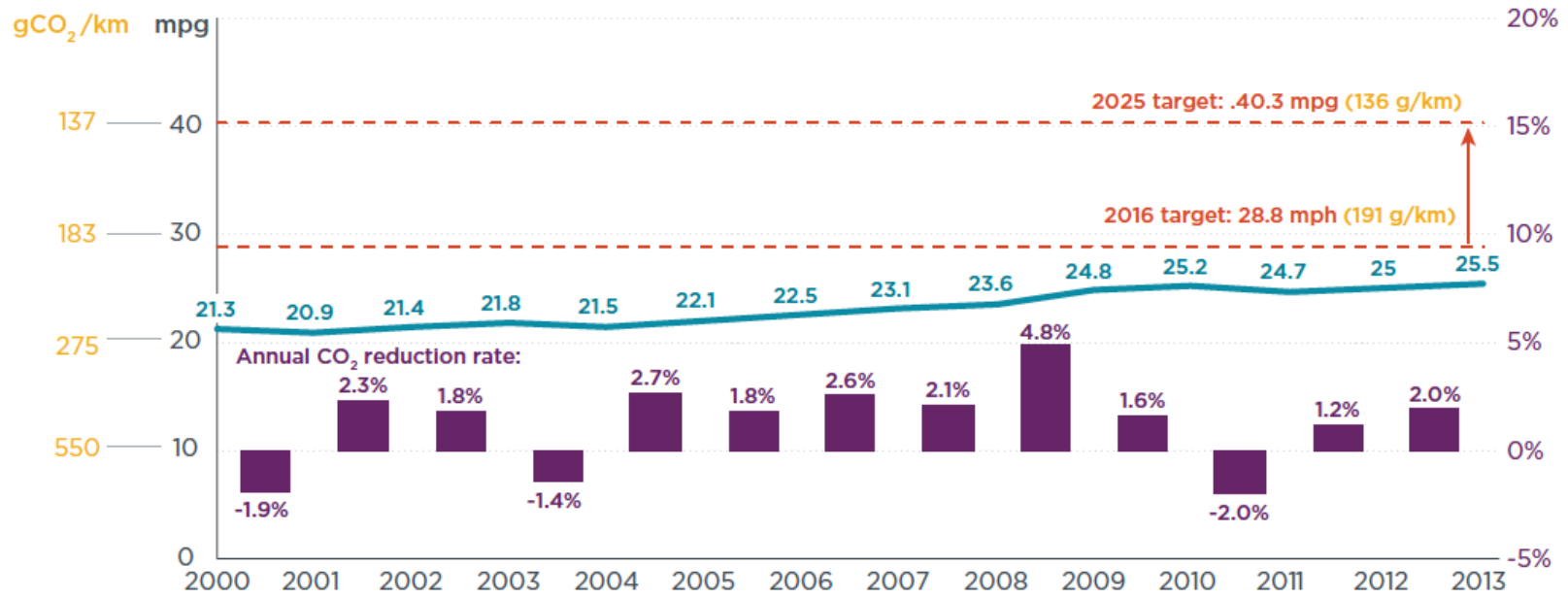
PASSENGER CAR FUEL CONSUMPTION HISTORICAL TREND AND FUTURE TARGETS



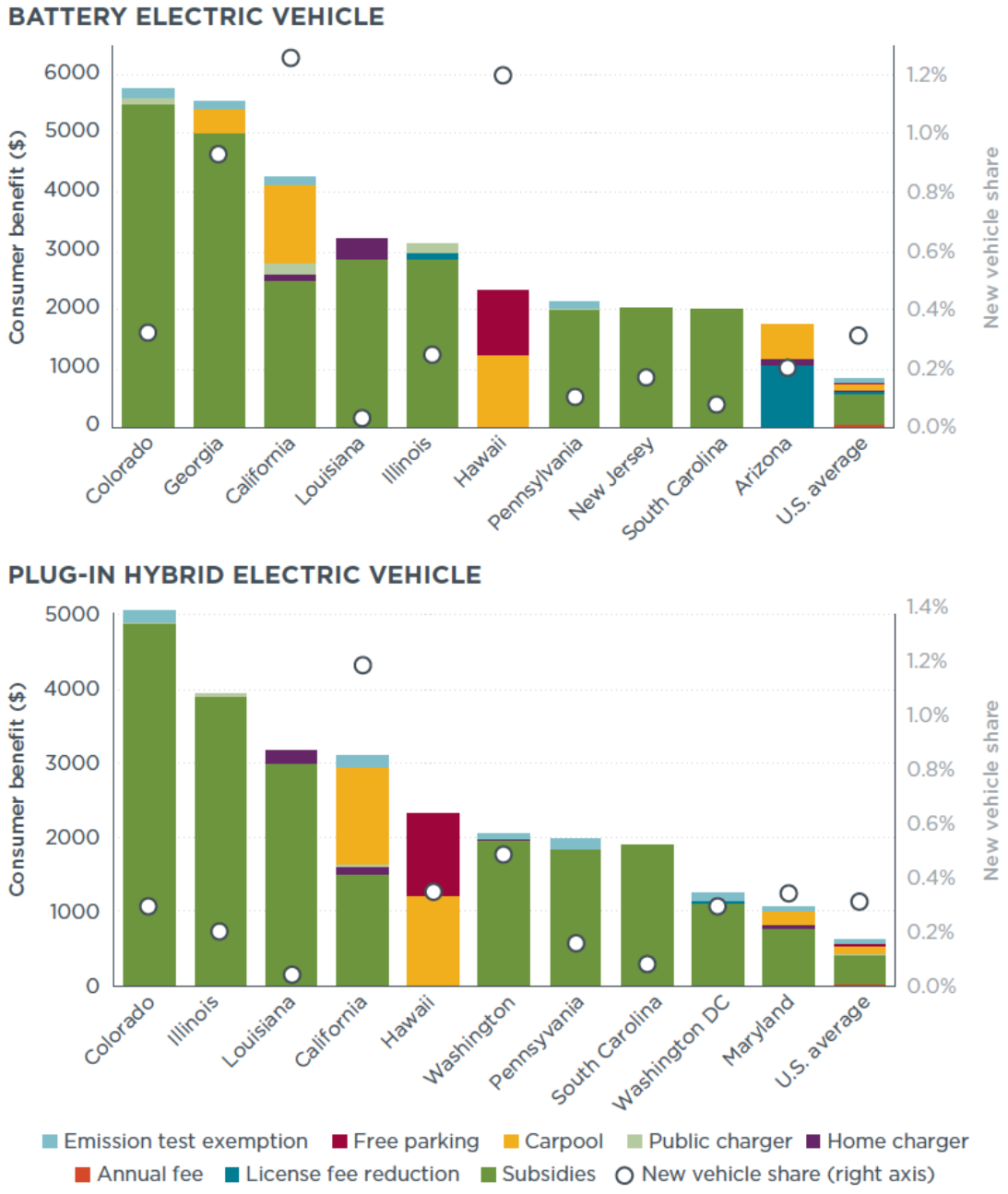
LIGHT TRUCK FUEL CONSUMPTION HISTORICAL TREND AND FUTURE TARGETS



974 EVs sold 2013: 1.44% of state vehicle sales (national average 0.55%)

- YTD 2014 EV sales: ~1000
- 3026 EVs on road as of October 2014
- 160 public charging stations (364 outlets) across Hawaii
- 2015 EV goals (4K sales, 10K on road) unlikely to be met, but the overall trend is encouraging and should be promoted.

Consumer benefit and new vehicle share for U.S. states with largest total battery electric and plug-in hybrid electric incentives



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Comparing 2015/2020 goals with 2013 status

Strategy with 2010 baseline	2015 target	2020 target	2013/2014 Actual
Reduce vehicle miles traveled (VMT)	2% VMT reduction	4% VMT reduction	19% increase in VMT
Incorporate renewable fuels into transportation sector	E10 and biodiesel consumption at 2010 level		52 million gallons
Improve standard vehicle efficiency of fleet	25 mpg cars 18 mpg LT	30 mpg cars 22 mpg LT	25 mpg for cars & LT combined
Accelerate the deployment of electric vehicles (EVs) and related infrastructure	4K EV sales (10K on road)	10K EV sales (40K on road)	1K EV sales

On-road fuel use of 525 MGY in 2013 as compared with 496 MGY in 2010; a 6% increase.

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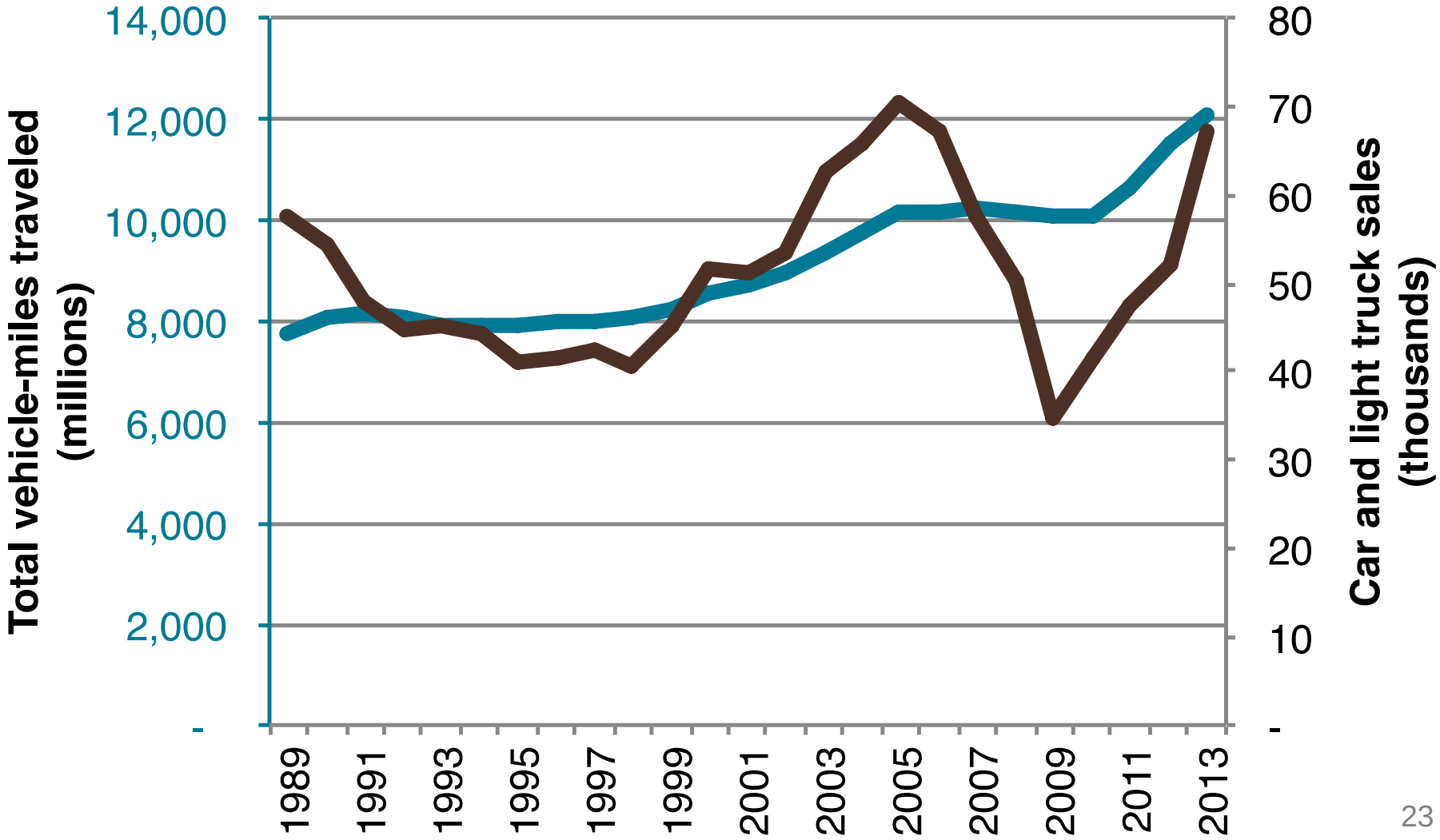
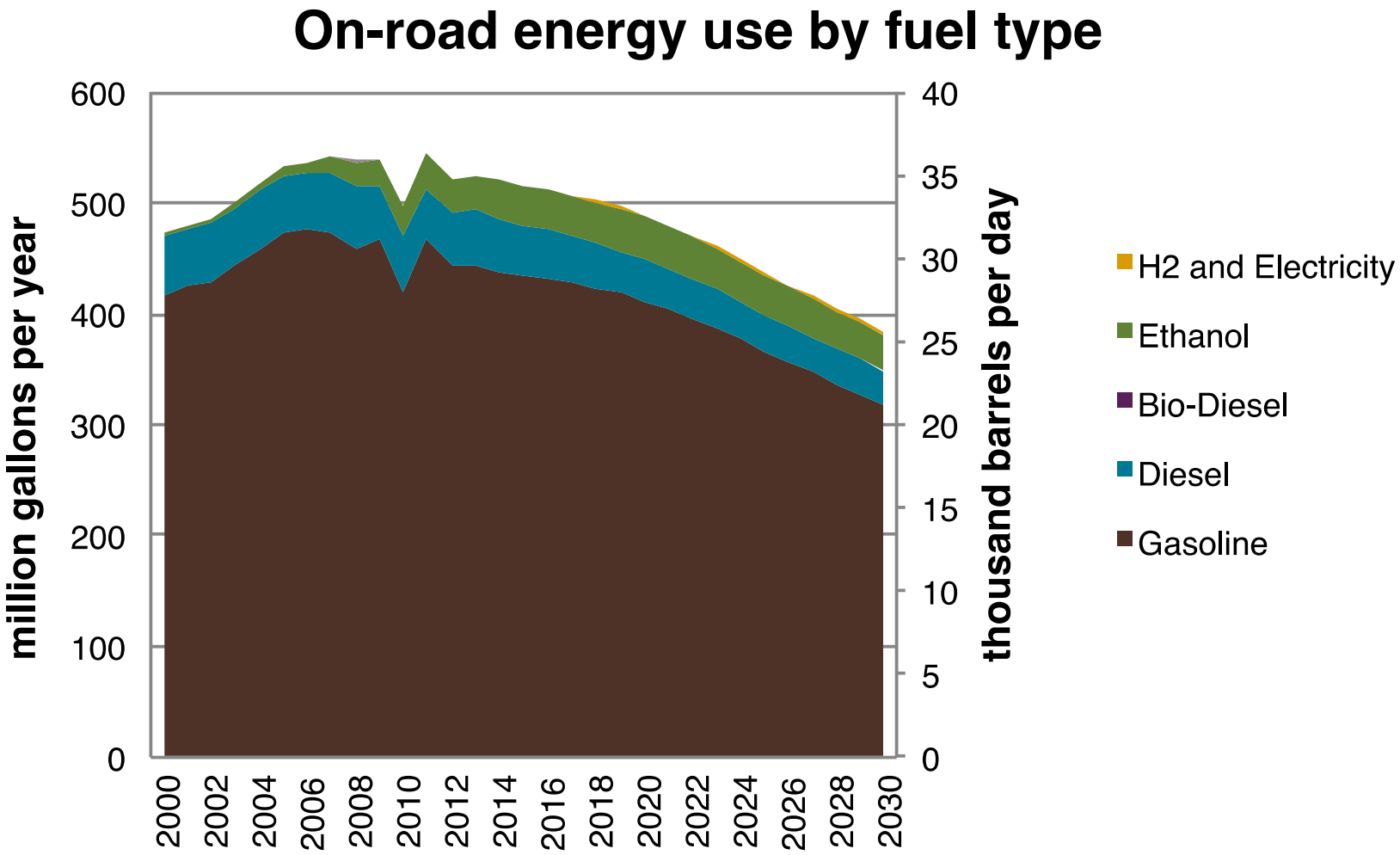
The Great Recession impacted vehicle sales and activity deeply.



HCEI on-road transportation energy demand projection based on current trends



2025 fuel economy standards are met
2014-2018 HDV GHG standards
5% BEV + 5% PHEV of new vehicle sales by 2030 (10% total EV)
Vehicle stock and total VMT grow 15% (at a 1:1 ratio with population) from 2013-2030.

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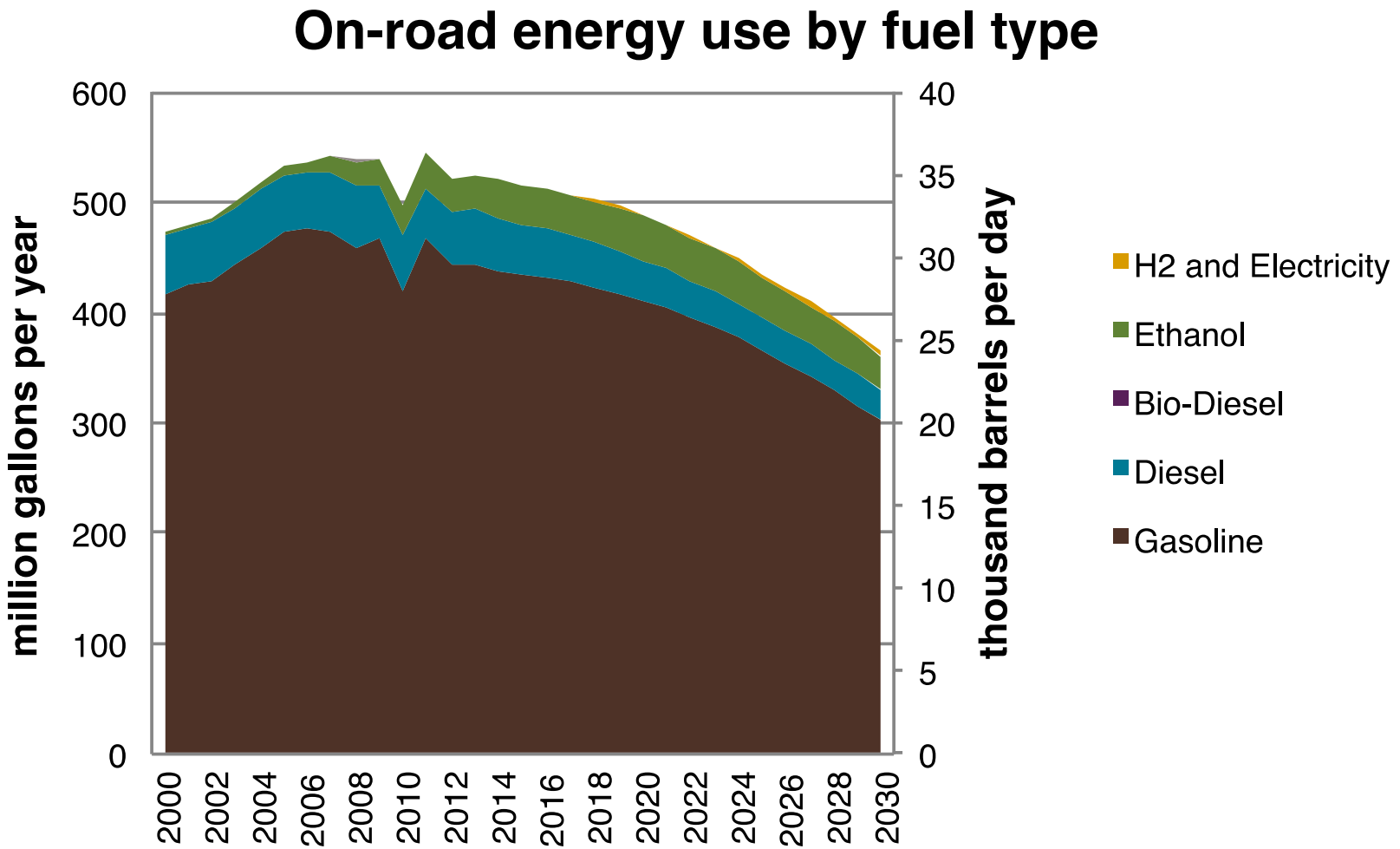
HCEI on-road transportation energy demand projection based on potential policies



2030 fuel economy standards for LDV and HDV
6% BEV, 6% PHEV, 3% FCEV of new vehicle sales by 2030 (15% total electric drive)
Vehicle stock and total VMT grow 15% (at a 1:1 ratio with population) from 2013-2030.

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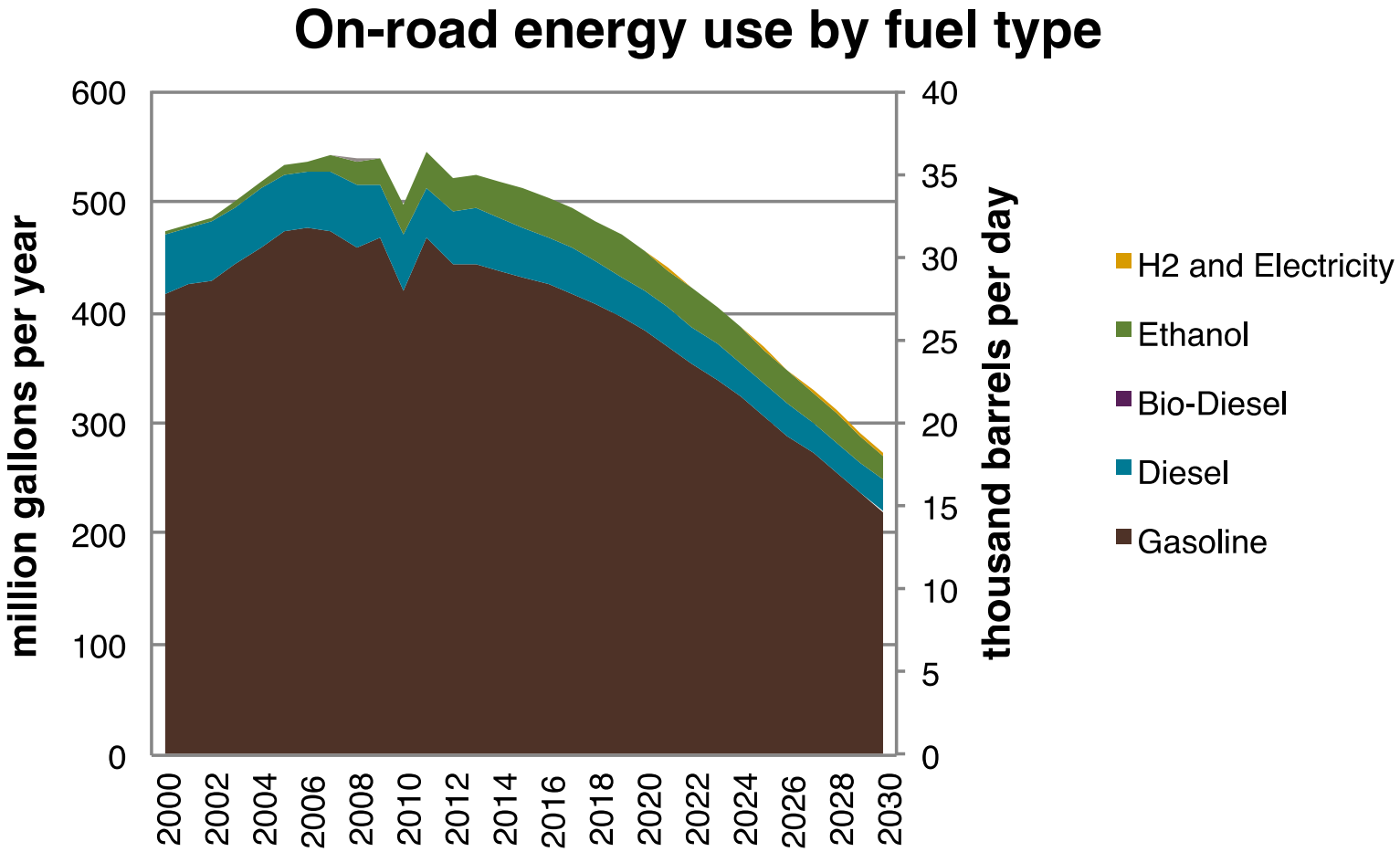
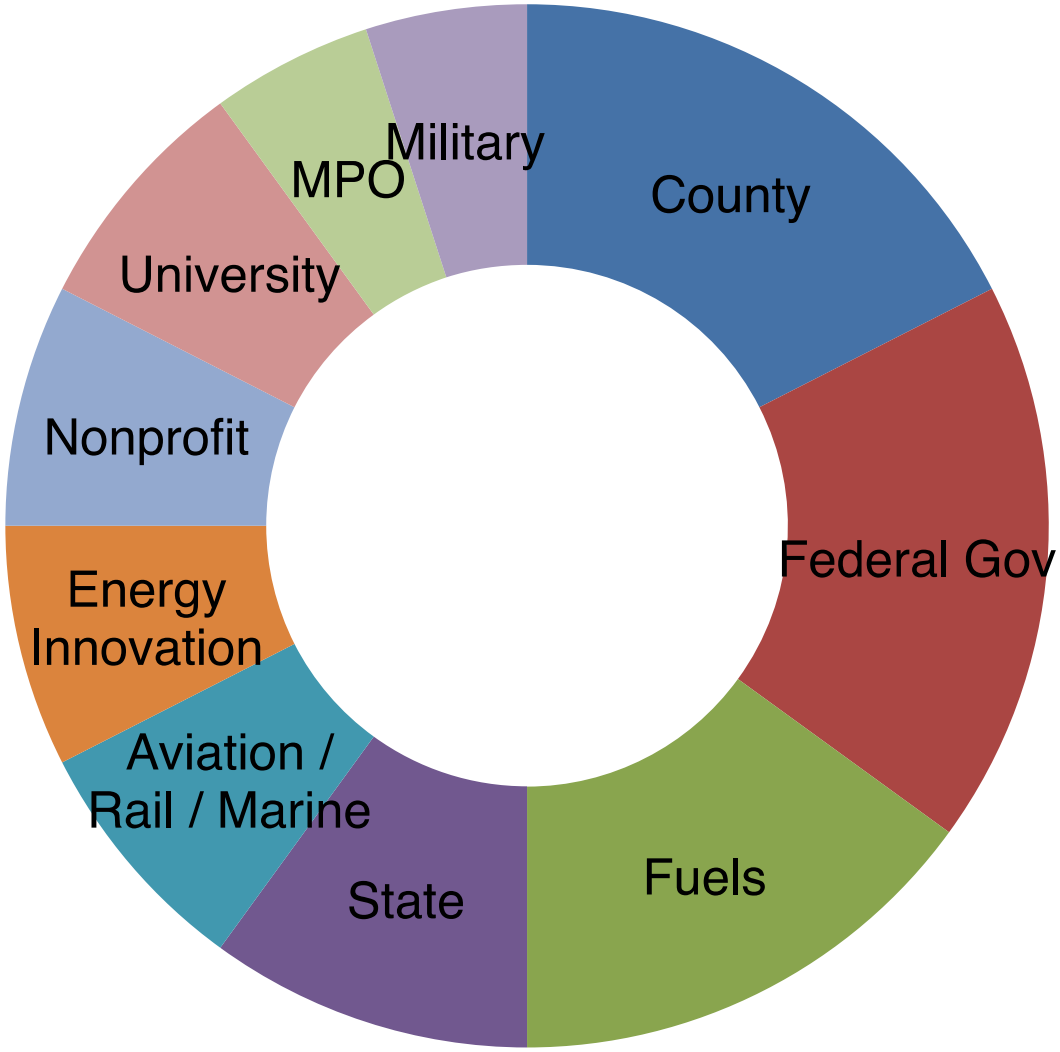
HCEI on-road transportation energy demand projection based on potential policies & VMT target



2030 fuel economy standards for LDV and HDV
6% BEV, 6% PHEV, 3% FCEV of new vehicle sales by 2030 (15% total electric drive)
8% VMT reduction target met by 2030

Initial Feedback from Stakeholders

Phone interviews with 40 Stakeholders so far



Many felt that stakeholder engagement was limited during HCEI 2011, and want to engage in the next phase.

What we heard from stakeholders…

Electric-drive vehicles:

"It is clear factors such as customer incentives, tax credits, technology awareness, first responder training, government support for infrastructure, etc. made EV's successful in Hawaii."

" Key near-term barriers for hydrogen are lack of investment in H2 production infrastructure, lack of private sector partnership, and lack of utility operations to allow for rapid scaling up of renewable hydrogen production capability"

What we heard from stakeholders…

On Managing travel demand:

"HDOT and OMPO should participate in Transportation Alternatives Program (TAP)"

"Statewide pedestrian master plan sounds great, not sure about implementation"

"Hawaii not doing much in assertive way to encourage VMT reduction"

"Could use roundabouts more effectively than problematic lights"

"Embrace multimodal rather than car-centric transportation"

What we heard from stakeholders…

Marine:

"80% of everything is imported and 98% of that 80% initially goes through the Port of Honolulu"

"Shore power for cargo ships is viable, but likely not for passenger ships"

Biofuels:

"Main challenges for producing biofuel in Hawaii are lack of access to cheap feedstocks like woodchips and low land availability."

"It is important that the State fleets use renewable energy. Private industry is leading the way, the State should try to catch up."

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What we heard from stakeholders…

Misc:

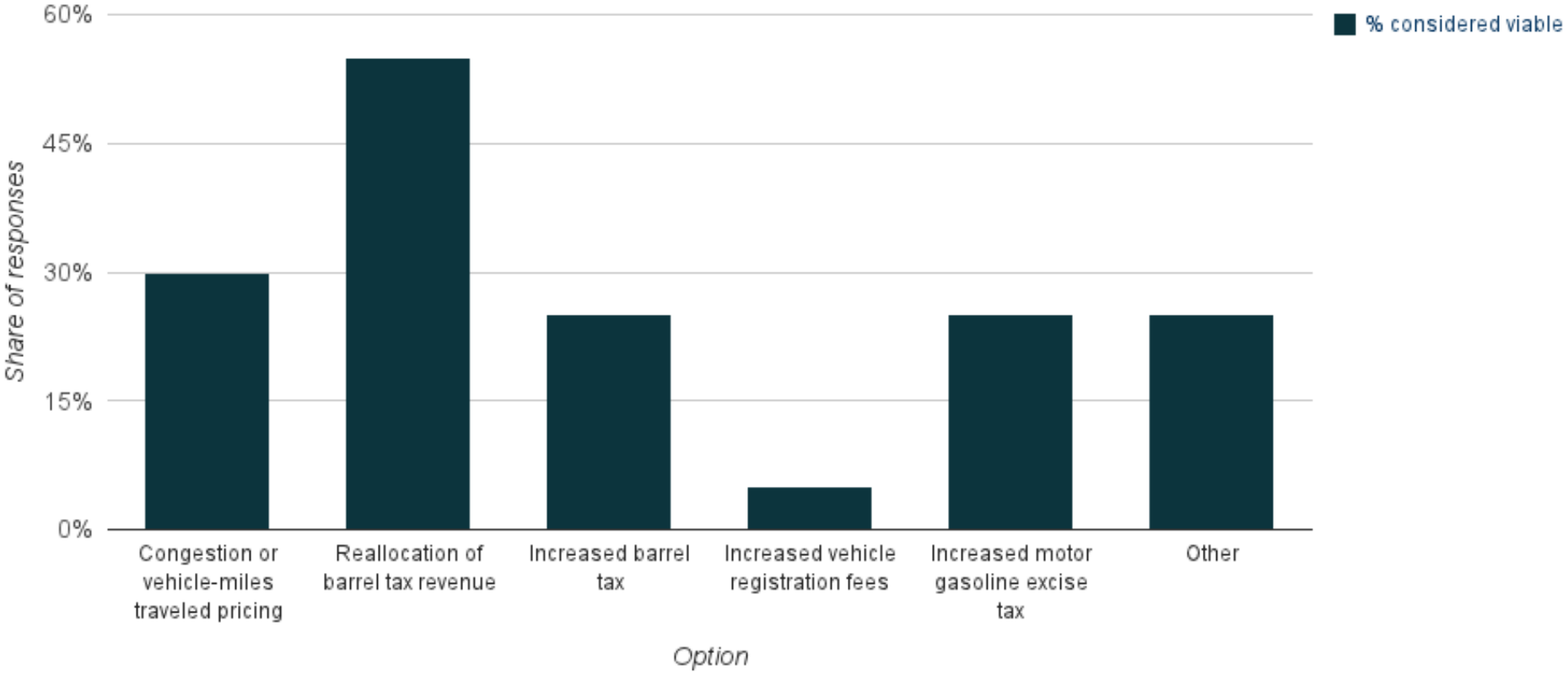
“Take the testbed concept that we're promoting in the electricity space and implement it in transportation too!”

“fuel is the third leading cost factor for us – reducing fuel consumption will allow us to improve service”

“Everyone wants a piece of the barrel tax”

“The elephant in the room that nobody talks about is the rail”

If the State were to pursue additional funding to reduce petroleum use in the transportation sector, which of the following options, if any, do you think are viable given Hawaii's political and administrative environment?



What we didn’t hear about much…

- Aviation fuel supply concerns
- High efficiency vehicles
- Heavy commercial vehicles
- Passenger transport via marine routes

Strategies and Tactics under consideration

Core strategies under consideration for transportation energy roadmap

- Light as well as heavy duty vehicle efficiency improvements
- Transition to electric drive vehicles
- Alternative fuels
- Vehicle demand management/ promotion of transit, and non-motorized transport
- Improving aviation efficiency
- Improving marine efficiency

Vehicle Fuel Efficiency Improvement Strategies

- Vehicle Fuel Economy Standards
- Fleet procurement
- Green Freight activities
- Replacement tires
- Vehicle retirement incentives specially for low-income groups
- Feebates for vehicle fuel efficiency
- High efficiency vehicles as taxis

Possible electric-drive policy actions

- Promote the availability and effective marketing of all plug-in electric vehicle models in our states and support these efforts
- **Provide consumer incentives** to enhance the ZEV ownership experience
- Lead by example through **increasing ZEVs in state, municipal, and other public fleets**
- Encourage private fleets to purchase, lease, or rent ZEVs
- Promote **workplace charging.**
- Promote ZEV infrastructure planning and investment by public and private entities
- Provide clear and accurate signage to direct ZEV users to charging and fueling stations and parking
- Remove barriers to ZEV charging and fueling station installations
- Promote access, compatibility, and interoperability of the plug-in electric vehicle charging network
- **Remove barriers to retail sale of electricity and hydrogen as transportation fuels** and promote competitive plug-in electric vehicle charging rates
- **Track and report progress** toward meeting goals.

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➢ 2014 Multi-state ZEV Action Plan

Comparison of Hawaii's EV incentives with other states

State	2013 EV sales share	Fiscal incentives				Non-fiscal benefits			EV penalty
		EV sales rebate or tax credit	Vehicle sales tax exemption	Exemption from annual registration fee	Subsidized installation of residential charging equipment	Carpool lane access	Public EV charger availability	Free parking availability	Annual fee for EVs
Hawaii	1.44%					Access all HOV lanes		Park free at metered spots	
California	2.14%	Rebate up to $2,500			Grant programs to fund installation	Access all HOV lanes	Grant programs to fund installation		
Georgia	1.01%	Tax credit up to $5,000				Access all HOV lanes	Subsidized chargers at businesses		
Washington	1.69%		Exempt		Sales tax exemption		Grant programs to fund installation		$100 annual fee

Promote use of alternatives to petroleum

- Biofuels
  - Domestic production of cellulosic biofuel
  - Domestic production of sugarcane ethanol
  - Domestic biodiesel from used cooking oil and other waste fats
    - Domestic biofuels require loan guarantees, tax credits, long-term off take contracts
  - Continued imports of bioethanol
- Encourage use of CNG/LNG in commercial vehicle/bus as well as marine operations
  - Support LNG terminal facility to receive bulk shipments from LNG tankers or barges

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Land use and transportation demand policy actions

- Land Use
  - Modify distribution of households, population, jobs or other variables
  - Rebalance the mix of land uses
  - Increase the level of density
  - Improve the pedestrian environment
- Pricing:
  - Develop tolls and toll roads
  - Implement HOT lanes
  - Increase the cost of parking
  - Change in transit fares
  - Change in auto operation cost
- Transportation Demand Management:
  - Promote carpooling, vanpooling, telecommuting and teleconferencing
  - Promote walking and biking
  - Implement employer-based trip reduction strategies
- Road Projects:
  - Add HOV lanes
  - Implement Intelligent Transportation Systems (ITS)/Traffic management (e.g., change auto travel times, change highway free-flow speed)
  - Add general purpose roadway lanes (e.g., change highway capacities)
- Transit:
  - Construct new transit lines
  - Increase service (e.g., change transit headways, increase network connectivity)
  - Upgrade transit service (e.g., change from bus to light rail)
  - Improve accessibility (e.g., change bike/walk access distance to transit stations, change auto access distance to transit stations)

➢ California SB 375 Strategies

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Managing demand will be key.

- Appropriate goal setting will be necessary:
  - Legislate a target to reduce statewide VMT
  - Establish performance metrics for planning agencies to measure and report progress.
  - Island-specific goals for bicycling, walking, and transit mode share.
- Key tactics include:
  - Transit oriented development
  - Secure transportation financing to fully implement existing plans
  - Improve traffic operations and management

Policies to support aviation efficiency

- Fiscal incentives for efficiency
  - Financial support for retrofits/fleet renewal
  - Increased barrel tax for jet fuel imports
  - Fuel efficiency-based landing charges
- Airport infrastructure support (e.g. ground power)
- Consumer information
  - Airline or route-based efficiency information

Policies to support shipping efficiency/marine transportation

- Fiscal incentives
  - Financial support for retrofits, port electrification, alternative fuels
  - State/local marine fuel tax (bunkering concerns, though)
  - Environmentally based port fees
- Port infrastructure support/mandates (e.g. shorepower)
- Port fuel use inventory/planning process
- Regional speed limits for OGVs
- Explore options for promotion of inter island marine travel

For more information…

- Two question HCEI survey: http://tinyurl.com/HCEI-trans
- ICCT website: http://www.theicct.org/
- Contact Information:
  - Anup Bandivadekar: anup “at” theicct.org
  - Josh Miller: josh “at” theicct.org
  - Alan Lloyd: alloyd “at” theicct.org
- @TheICCT

Feedback?
Questions?
Comments?

ICCT's charge under HCEI Transportation Charrette

1. Analyze and report on the progress to date on the transportation section of the HCEI Roadmap 2011 Edition, including an assessment of what can realistically be achieved in terms of gasoline and diesel reductions by 2030 under the current plan;
2. Engage energy and transportation stakeholders in an HCEI transportation plan progress update process;
3. Offer for consideration a new set of transportation options;
4. Coordinate and facilitate a dialogue to establish a renewed commitment on a new set of goals and timeline to reduce petroleum-based fuels in the transportation sector including aviation, ground and marine transportation; and
5. Report on the final consensual set of transportation options and next steps to be undertaken by energy and transportation stakeholders beyond the Charrette phase to fully plan, invest and achieve those goals and objectives.