Energy and Transportation: The Challenges

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The Transportation, Energy and Land Use Nexus in Hawaii

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Hawaii Petroleum Consumption by Sector

- Transportation: 61%
- Electricity Production: 28%
- Other: 11%
- Ground: 28%
- Air: 27%
- Marine: 6%

Source: State of Hawaii, Department of Business, Economic Development, and Tourism
Ground Transportation
2008 HEPF Study

(1) Increase choices for modes of travel

(2) Increase fuel efficiency of vehicle population

(3) Diversify energy sources available to meet transportation energy needs

NEED IDENTIFIED: Data and baseline
## 2009 HEPF Survey

### Final Report Strategies for Energy Efficiencies in Transportation ("SEET")

<table>
<thead>
<tr>
<th>Topic</th>
<th>Response (summarized)</th>
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<tbody>
<tr>
<td>Gas Prices and Travel Behavior:</td>
<td>Nearly half of respondents changed driving habits in response to high gas prices in 2008.</td>
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<tr>
<td>Vehicle Purchase:</td>
<td>Two-thirds interested in hybrids, especially if gasoline over $5 or incentives provided.</td>
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<tr>
<td>Clean Fuels:</td>
<td>Over half familiar with alternative fuels. Price and reliability important.</td>
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<tr>
<td>Public Transit:</td>
<td>Increased accessibility. Higher parking costs could cause switch.</td>
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<tr>
<td>If gas prices rose and stayed high:</td>
<td>1. 4-day workweek; 2. Use public transportation; 3. Telecommute; 4. Find a job closer to home; 5. Move closer to work/school.</td>
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HIGHLIGHTS
Transportation / Energy / Land Use activities:

• Hawaii State Department of Business, Economic Development and Tourism: Hawaii Clean Energy Initiative
• Hawaii State Department of Transportation
• Hawaii State Office of Planning
• County Agencies
  • O‘ahu Metropolitan Planning Organization
  • Honolulu City & County - Dept. of Transportation Services
  • Kauai County
  • Hawaii County
  • Maui County
• Advocacy Organizations
  • Hawaii Bicycling League (O‘ahu)
  • PATH (Hawaii Island)
### 2010 Hawaii Clean Energy Initiative Roadmap

**Goal:** Reduce the use of petroleum in ground transportation by 70% or approximately 385 million gallons per year by 2030

<table>
<thead>
<tr>
<th>Measure</th>
<th>Transportation Interim Targets</th>
<th>Total Fuel Reduction (2030)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015</td>
<td>2020</td>
</tr>
<tr>
<td>Vehicle Efficiency (on-road mpg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle Efficiency (on-road mpg)</td>
<td>25 mpg, cars</td>
<td>30 mpg, cars</td>
</tr>
<tr>
<td>18 mpg, trucks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced Vehicle Miles Traveled (VMT)</td>
<td>2% VMT Reduction over 2010</td>
<td>4% VMT Reduction over 2010</td>
</tr>
<tr>
<td>EVs</td>
<td>4000 annual sales; EV infrastructure installed</td>
<td>10,000 annual sales</td>
</tr>
<tr>
<td>Renewable Fuels</td>
<td>40 MGY</td>
<td>50 MGY</td>
</tr>
</tbody>
</table>
## Registered Electric Vehicles (EVs) and Publicly Available Charging Stations in Hawaii, 2012

<table>
<thead>
<tr>
<th>County</th>
<th>Electric Vehicles</th>
<th>Level 2 Charging Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Ports</td>
</tr>
<tr>
<td>Oahu</td>
<td>845</td>
<td>182</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Hawaii</td>
<td>79</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Kauai</td>
<td>29</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Maui</td>
<td>145</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1136</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

### Notes

1. Level 2 charging is at 240 volts. All electric vehicles are equipped for this type of charging.
2. A "charger" can have one or more ports. The number of "ports" determines how many vehicles each charger can service at a time. One "port" can service one vehicle.
3. Level 3, also known as “fast charging,” can provide an 80% charge for some vehicles in under 30 minutes, depending on vehicle and charger specifications. Not all vehicles can use fast charging.
Electric Vehicles in Hawaii, 2006-2012
Vehicle Miles Traveled (VMT)

- **PRIORITY AREAS:**
  - Planning and construction of key bicycle lanes and a Honolulu Bike Share program (~5-15% VMT reduction)
  - Bus system efficiency and multi-modal rail station design (~2-5% VMT reduction)
  - Commuter benefits and parking (~5-10% VMT reduction)
Multi-Modal Transportation
Builds Healthy Communities, Saves Energy, and Reduces our Dependence on Imported Oil
Goal VI: Energy

Support the State’s energy goal of 70% clean energy, which includes 40% produced by renewable energy and 30% from increased energy efficiency, and enhancing the reliability and security of energy sources.

This energy emphasis is a new goal compared to prior iterations of the HSTP and applies to all HDOT modes (AIR, HAR, HWY). It is meant to directly link to the Hawaii Clean Energy Initiative and the desire to reduce dependency on oil imports and encourage conservation.

Within the HSTP, energy conservation is discussed within the overall context of the environment and quality of life. Energy, like the other goals expressed within the HSTP, is interdependent with varied other factors that impact Hawaii and its residents. HSTP Issue Paper #4 is devoted to fuel and energy. The development of a HDOT Energy Action Plan has been identified as a next step to implement this goal.
“Complete Streets” is an initiative that aims to have streets constructed in order to accommodate various users and not just vehicular traffic, which has often been the emphasis in recent years. Community benefits gained through Complete Streets include improved safety, lower transportation costs, transportation alternatives beyond private vehicles, encouraging health through walking and biking, creating a sense of place, improved social interaction, and generally improved adjacent property values.

In 2012, the HDOT HWY Division adopted new policies/procedures to plan, design, construct and maintain transportation facilities according to Complete Streets principles. These principles aim to reasonably accommodate as funding reasonably allows for convenient access and mobility for all users including pedestrians, bicyclists, transit users, motorists, and persons of all ages and abilities.
Hawaii State Office of Planning

*Leveraging State Agency Involvement in Transit-Oriented Development to Strengthen Hawaii’s Economy*

- A December 2012 report to the Governor recommending ways that Hawaii’s state agencies can leverage Transit-Oriented Development (TOD) to maximize benefits to the State of Hawaii.
- TOD “*can play an important role in meeting the Governor’s goal of reducing dependence on fossil fuel…*”
- Recommends support of TOD and walkable, smart growth communities.
• Building a balanced, “complete”, multi-modal transportation system
  – Encourage more energy efficient trips
• Tie land-use development to transportation planning
  – Appropriate densities and mixed-uses
    • Reduce the need to make long automobile trips
• Securing transportation funding that is not (only) tied to the sale of gasoline
Climate Change Transportation Vulnerability Assessment

• To determine the likelihood and magnitude of climate variables, especially sea level rise, impacting existing transportation assets

• To help make informed decisions about transportation investment and future infrastructure development

• Final report is available online at:
  http://www.oahumpo.org/reports/transportation_vulnerability_due_to_climate_change.html

  – Hint: The airport and the harbor are both at risk
Goals

1. To increase the mode share of bicycle trips.
2. To enhance cooperation between roadway users.
3. To encourage and promote bicycling as a safe, convenient, and pleasurable means of travel.
4. To be recognized by LAB as a Bicycle-Friendly Community.
Recently Completed Projects

• The Keolu Drive bike lanes project in Kailua is an example of a “road diet”.
• Four travel lanes were reduced to two lanes, a two-way left turn lane and bike lanes.
• This type of treatment also has a traffic-calming effect.
Kalakaua Avenue Bike Lane

• Adds a bike lane from Ala Moana Blvd. to Kapahulu Ave.
• Project was completed on November 16, 2012.
• Sharrows (shared lane markings) were added from Ena Rd. to Ala Moana Blvd.
Kaua`i

- First County to pass **Complete Streets** resolution in 2010
- 8 workshops and training funded through Get Fit Kaua`i
- Internal action plan created and being reported upon
- Performance measures developed
- New roadway design manual in development
- Zoning and Subdivision Code changes in progress
- On-going implementation of **Safe Routes to School** and complete streets design and construction.

Built Environment Task Force Members
Kauai’s Multimodal Transportation Plan

• Goal is a balanced multimodal transportation system
• Preferred 2035 scenario seeks no growth in vehicle miles traveled
• Draft plan calls for increased investment in transit, bicycle and pedestrian facilities.
• Plan to be reviewed by Council.
Hawaii County’s
FIVE YEAR ROADMAP

• A report detailing a set of County energy “Priority Actions” focused on developing innovative policies to more effectively lead the island-wide energy sustainability transition while modernizing County operations and facilities.

• Transportation is a core component of the program, recognizing that 40% of energy use in Hawaii county is for ground transportation.

• Recommendations include focusing on the mass transit system, implementing County-wide transportation laws and regulations, and County vehicles and operations.
Maui County

Transportation Goals

• Mitigate the escalating traffic problem within Maui County

• Provide transportation options for goods and for the residents of and visitors to Maui County

• Improve public awareness of traffic abatement measures and of transit opportunities
Hawaii Bicycling League

• VULNERABLE USERS LAW (Act 316, 2012) – Increased penalties for drivers who seriously injure pedestrians and bicyclists while violating the law. The purpose is to protect vulnerable users and encourage walking and cycling.

• City and County of Honolulu Complete Streets Ordinance – Requires pedestrian and bicycling facilities to be seriously considered whenever road repaving or new construction occurs, unless there is good reason not to.

• EDUCATION PROGRAMS – WALK, BIKE, DRIVE Talks with community groups, bus and truck companies; Keiki Cyclists education in elementary schools; Commuter Cycling 101 courses at UH and community colleges.

• 2013 GOALS – AUTOMATED ENFORCEMENT through RED LIGHT and SPEED CAMERAS
Peoples Advocacy for Trails Hawaii (PATH)

• POLICY - Co-wrote the Hawaii Complete Streets Law, HRS 264 20.5

• ENCOURAGEMENT – Bike Month in May, *Walk to School Day in Hawaii Nei* Celebration

• EDUCATION – TRAFFIC SKILLS 101 for Adults, BIKE ED & PED ED youth Bicycle and Pedestrian Education classes
Hawaii Energy Policy Forum

TRANSPORTATION

LAND USE

ENERGY