



**REVISED**

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IN REPLY REFER TO:

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

March 28, 2017  
9:30 a.m.  
State Capitol, Room 211

**H.B. 1580, H.D. 2, S.D. 1**  
**RELATING TO ENERGY**

Senate Committee on Ways and Means

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The Department of Transportation (DOT) **supports** the intent to establish a clean ground transportation benchmark framework to maximize consumer fuel savings, including a near term 2025 target encouraging electric vehicle infrastructure buildout supporting Hawaii's goal for the reduction and ultimate elimination of the use of imported fuels for ground transportation.

The DOT will collaborate with the State Energy Office and its established Sustainable Transportation Forum whose stakeholders include private citizens, businesses, advocacy organizations, Federal, State and County governmental agencies in submitting a thoughtful report that reduces and eliminates Hawaii's dependence on imported fossil fuels for electrical generation and ground Transportation to develop recommendations to achieve these benchmarks and would recommend an amendment that includes land use and smart growth principles to be added into the bill.

The DOT also agrees that a fuel cell vehicle is an electric vehicle as defined in the bill.

Thank you for the opportunity to provide testimony.



**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM**

DAVID Y. IGE  
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Statement of  
**LUIS P. SALAVERIA**  
Director  
Department of Business, Economic Development and Tourism  
before the  
**SENATE COMMITTEE ON WAYS AND MEANS**  
Tuesday, March 28, 2017  
9:30 A.M.  
State Capitol, Conference Room 211

in consideration of  
**HB1580, HD2, SD1**  
**RELATING TO ENERGY.**

Chair Tokuda, Vice Chair Dela Cruz and Members of the Committee.

The Department of Business, Economic Development and Tourism (DBEDT) provides the following comments on HB1580, HD2, SD1, which establishes clean transportation goals for the reduction and ultimate elimination of the use of imported fuels for ground transportation. DBEDT opposes setting a statutory target of 100% fossil free ground transportation by 2045, supports setting the near term target of a 5% reduction in fossil fuel for ground transportation by 2025 with a framework to set incremental targets in the future, and has serious concerns regarding establishing a target of one electric charging station per every five electric vehicles or one charging station per thirty miles.

DBEDT opposes setting a target date for a 100% reduction in fossil fuel consumption for ground transportation at this time. DBEDT supports the ultimate elimination of fossil fuel in ground transportation and has dedicated resources to that objective. However, it is premature to set a target date of 2045 at this time.

Effectively achieving 100% will require direction to, and coordination with, a variety of state agencies. Setting a 100% target in statute will need to be appropriately designed and enacted such that the statute adequately aligns the actions of all relevant state agencies. There is no entity such as the Public Utilities Commission to enforce the acquisition of specific clean transportation technologies and programs as part of an integrated plan. In addition, minimal progress has made in reducing fossil fuel use in ground transportation to date. When the 100% Renewable Portfolio Standard (RPS) was set for the electric sector in 2015, renewable energy resources generated more than 20% of the state's electricity. To date significant progress in clean transportation has been difficult.

Hawaii can, and should, aggressively pursue actions now to reduce fossil fuel consumption in ground transportation. DBEDT supports targeting a reduction of 5% in fossil fuel for ground transportation by 2025 with a framework to set incremental targets leading to the ultimate elimination of fossil fuel in ground transportation. Similar to the RPS, near term goals can be set to spur action and support going after low hanging fruit in the transportation sector. Success can support setting increasingly aggressive and informed targets. DBEDT has engaged in numerous activities to support such a near term target.

The State of Hawaii is expected to participate as a Beneficiary of the Environmental Mitigation Trust established through the settlement of claims against Volkswagen alleging violations of the United States Clean Air Act. Hawaii has been initially allocated a total of \$8,125,000 from the Trust to fund eligible environmental mitigation projects in Hawaii. Up to 15% of Hawaii's allocation of the trust (\$1,218,750) is eligible to be spent on Light Duty Zero Emission Vehicle Supply Equipment (e.g. EV charging infrastructure) supporting the electrification of Hawaii's transportation sector, which is in accordance with statements made by Governor Ige during the State of the State 2017 address.

DBEDT's Hawaii Clean Energy Initiative Transportation Energy Analysis (HTEA) report, published in 2015, identified nearly 100 potential tactics that could contribute to reduced petroleum consumption in the transportation sector; analyzed 38 tactics; and recommended 22 tactics that could potentially provide a reduction of 72 million gallons per year in fossil fuel consumption by 2030. The tactics focused on incremental reductions to petroleum relative to baseline consumer adoption of electric vehicles (EVs).

DBEDT supports the Department of Transportation in their Sustainable Transportation Forum which addresses topics including transit oriented development (TOD) and vehicle miles traveled (VMT). TOD and VMT are fossil fuel reducing tactics that are recommended in the HTEA report. Additionally DBEDT is a signatory of the Drive Electric Hawaii MOU along with other state agencies including the Division of Consumer Advocacy and Department of Transportation. Drive Electric Hawaii pursues the ultimate elimination of fossil fuel in ground transportation by focusing on supporting the electrification of ground transportation.

While DBEDT supports the electrification of ground transportation as one of many tactics to reduce fossil fuel in ground transportation we have serious concerns regarding establishing a target of one electric charging station per every five electric vehicles or one charging station per 30 miles. The costs and benefits of such a strategy have not been fully vetted. As DBEDT and stakeholders found in the Hawaii Multi-Unit Dwelling EV Charging Working Group, strategically siting and deploying electric vehicle infrastructure is a complex issue that is not easily supported by one size fits all solutions.

Thank you for the opportunity to offer comments on HB1580, HD2, SD1.

**Bernard P. Carvalho, Jr.**  
Mayor



**George K. Costa**  
Director

**Wallace Rezentes, Jr.**  
Managing Director

**OFFICE OF ECONOMIC DEVELOPMENT**  
**County of Kaua'i, State of Hawai'i**

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**Before the Senate Committee on Ways and Means**  
**Monday, March 28, 2017**  
**Conference Room 211**  
**9:30 a.m.**

**IN SUPPORT OF HB 1580 SD-1 RELATING TO ENERGY**

Chair Tokuda, Vice Chair Dela Cruz, and members of the committee,

The County of Kauai supports HB 1580 SD-1, which establishes 2045 as the target date for transitioning the State to a clean energy economy including *eliminating the use of fossil fuel in Hawaii's ground transportation sector*. This bold but realistic target is a natural next step for the Hawaii Clean Energy Initiative, which has brought tremendous success in transforming Hawaii's electricity sector.

The pathway to decarbonization in Hawaii's ground transportation sector contains significant unknowns, both in terms of technology and cost. However, this uncertainty does not mean we should stand back and wait. We support your passage of this bill for two reasons: (1) it will help accelerate a transformation that will bring economic and health benefits to communities across the State, and (2) It will help us meet our shared responsibility to reduce our greenhouse gas emissions by at least 80% by 2050.

What combination of technologies and system changes can get us to 100%? How will we track our progress? How will we enforce the reduced use of fossil fuels? How will we accelerate mode shift away from single occupancy vehicles? How will we pay for it all? By setting clear, long term targets, you provide the necessary signal to stakeholders around the state to 'get to work' in earnest on addressing these difficult questions.

Sincerely,

Ben Sullivan  
Energy and Sustainability Coordinator  
Office of Economic Development  
County of Kauai

## HB1580 HD2 SD1

Testimony by John Bond, FTA HART Rail PA Consulting Party

Establishes a clean ground transportation benchmark framework to maximize consumer fuel savings, including a near term 2025 target encouraging electric vehicle infrastructure buildout supporting Hawaii's goal for the reduction and ultimate elimination of the use of imported fuels for ground transportation by 2045. Extends the end date of the implementation plan to transition to a clean energy economy from 2030 to 2045.

### COMMITTEE ON WAYS AND MEANS

Senator Jill N. Tokuda, Chair

Senator Donovan M. Dela Cruz, Vice Chair

Aloha Chair Tokuda and WAM committee members,

Thank you for the opportunity to provide some comments illustrated with slide points and photos. Some of the Powerpoint slides in this testimony were presentations done by Tony Seba, teacher, author, entrepreneur and widely regarded technology futurist. It is vitally important that his well-researched and proven projections are read and understood by State of Hawaii government and Legislature for any votes taken on Energy and Transportation issues.

*Every premise about HART Rail ridership, stations and Transit Oriented Development needs to be completely reanalyzed in light of this major revolution. And like it or not, this is THE major coming transit phenomenon of our lifetimes.*

**The State of Hawaii has the opportunity to be part of a major Energy and Transportation revolution that will save the State and Tax Payers Billions in wasted Boondoggle spending on rail while providing major opportunities with electric self-driving vehicles coming as soon as 2020 and fully by 2030.**

Published on YouTube April 4, 2016

## **Clean Disruption - Why Energy & Transportation will be Transformed by 2030**

<https://www.youtube.com/watch?v=Kxryv2XrnqM> – 53 minutes

*Tony Seba's Clean Disruption Keynote presentation at the Swedbank Nordic Energy Summit in Oslo, Norway, March 17th, 2016.*

This keynote is based on '*Clean Disruption of Energy and Transportation*' a book which asserts that four technology categories will disrupt energy and transportation by:

- 1- Batteries / Energy Storage
- 2- Electric Vehicles
- 3- Self-Driving Vehicles
- 4- Solar Energy

The outcome of the Clean Disruption is that by 2030

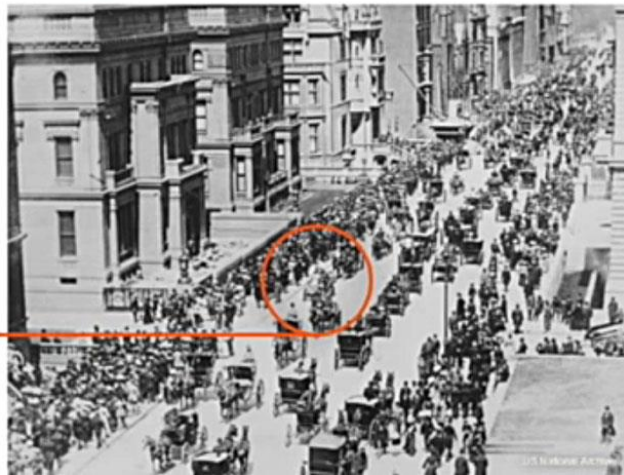
- All new vehicles will be electric.
- All new vehicles will be autonomous (self-driving).
  - Oil will be obsolete.
  - Coal, natural gas and nuclear will be obsolete.
  - 80+ per cent of parking spaces will be obsolete.
    - Individual car ownership will be obsolete.
- All new energy will be provided by solar (and wind)

*Clean Disruption is a technology disruption. Just like digital cameras disrupted film and the web disrupted publishing, Clean Disruption is inevitable and it will be swift. It is coming very soon to the streets and highways of Oahu challenging every assumption about transportation, rail ridership, fees, taxes and services.*



**Summary: On the Cusp of major Disruptions in Energy and Transportation**

2016  
We are  
here



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WE ARE HERE – Tony Seba makes the point that when this photo was taken in New York City there was only ONE CAR to be found among horse drawn carriages.

17 Years later only a single horse could be found in a similar photo of the same street full of “horseless” carriages. This was a massive Transportation Disruption.

**HAWAII and the WORLD is on the verge of another Transportation Disruption.**

*Self-driving electric vehicles will be the "private industry capital" needed for Hawaii public transit innovation that is favored by the Trump DOT administration and the previous Obama DOT administration. A lot of the smart capital investment money is going into it. This is a transportation and energy “disruption” supported by major investors, software and automotive companies.*

**HAWAII will be TOTALLY STUPID to remain out of this TRANSIT REVOLUTION!**

## 2016 - Clean Disruption of Energy & Transportation

- ▶ The technologies, skills, and organizations of the industrial revolution have run out of steam
- ▶ They are being replaced by the technologies, skills, and organizations of the **information technology revolution**
  1. Energy Storage
  2. Electric Vehicles
  3. Self-Driving Cars
  4. Solar PV
- ▶ We will see **more changes** in energy & transportation over the **next 5-10 years** than we have seen in a century - since the invention of the **gasoline/diesel ICE vehicle** and the **central generation electric utility**



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## CLEAN DISRUPTION OF ENERGY & TRANSPORTATION

- 1 Energy Storage
- 2 Electric Vehicles
- 3 Self-driving Cars
- 4 Solar

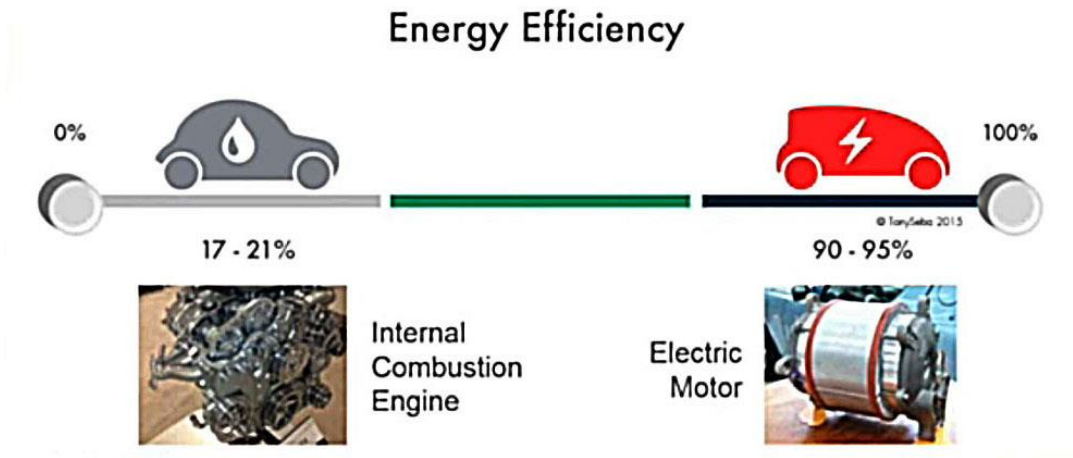


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Driverless Electric Vehicles (EV) will revolutionize all concepts of Public Transit and Transit Oriented Development in Hawaii. This is a trend that by 2020 – less than 3 years away, will change everything about how people will go to places in Hawaii. In 5 years this will be as ubiquitous as cell phones today. Mass media, social media, TV, movies will all help drive its popularity and acceptance.



# 1. Electric Motor - 5X more Energy Efficient



# 3. EVs: 100X fewer Moving Parts

ICE (Gas) Vehicle  
**2,000+** moving parts (1)

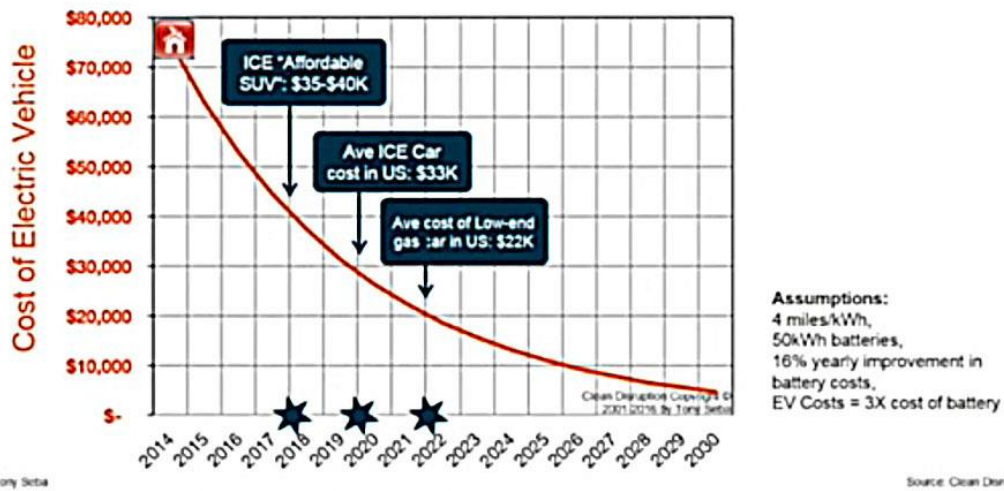
Electric Vehicle (EV)  
**18** moving parts (1)

Transmission, driveshaft, clutch, valves, differentials, pistons, gears, carburetors, crankshafts...



- EVs **10X-100X** cheaper to maintain!
- Tesla: **Infinite Mile Warranty!** (2)

## Disruption from Above: Cost of EV with 200-mile (320 Km) range



## OAHU Is Pouring Money Into Concrete Rail Pylons Instead Of Good Future Job Opportunities And Low Cost Transportation!

The rapidly growing self-driving vehicle industry covers everything from road testing to software development, electronics, styling design, automotive servicing, mechanics, and offers major entrepreneurial business and job creation opportunities. *And like it or not, this is THE major coming transit phenomenon.*

### 2. EVs are 10X cheaper to charge/fuel

- It costs **\$15,000** to fill up a (gas) Jeep Liberty over **five years** (Consumer Reports)
- An **Electric** Jeep Liberty would cost **\$1,565** in electricity
- Improvements in power electronics will **increase 10X**

**Assumptions:**  
12,000 miles/year  
Tesla Roadster: 4.6 miles per kWh.  
Ave retail electricity in the U.S.: 12 ¢/kWh  
5 year-cost = (60,000 miles \* 0.12 ¢/kWh) / 4.6 miles/kWh = \$1,565.

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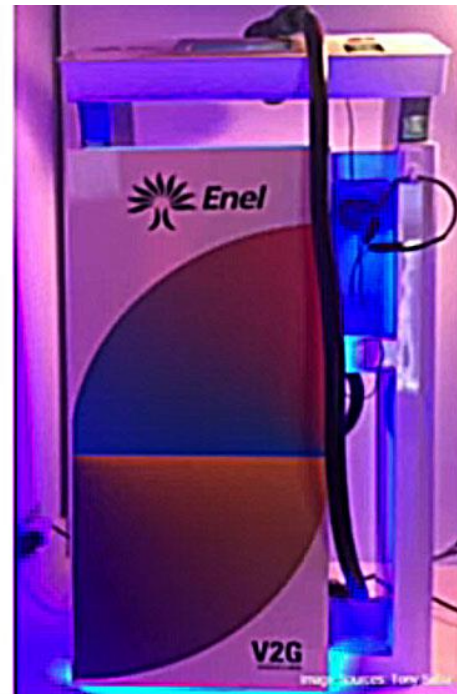


Sources: Consumer Reports, DOE, Clean

## EVs Generating \$ Providing Services to Grid

- ▶ With Vehicle-to-grid (V2G) technology, an **Electric Vehicle** (Nissan Leaf) can power a house or a small apartment building for a day or two.
- ▶ EVs can also provide the grid with ancillary services that can **generate revenue for the EV owner**.
- ▶ At COP21 Paris, Nissan showed V3G product that ENEL will roll out in 1Q 2016
- ▶ **EVs = Power Plants on Wheels**

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**Electric Vehicles will be Computers and Power Plants on wheels. EV's can be charged with home PV systems and in Hawaii disaster emergencies the EV's will power homes.**

It's usually the 'experts' and 'insiders' who dismiss Disruptive Opportunities

"The Internet will catastrophically collapse in 1996."

*Robert Metcalfe, 1995*

"There is no reason anyone would want a computer in their home."

*Ken Olson, 1977*

"I do not believe the introduction of motor-cars will ever affect the riding of horses."

*Scott-Montague, 1903*

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- At best, **95% of highway surface is not being used at a given time.**<sup>(1)</sup>
- Cars equipped with Adaptive Cruise Control (ACC) can **improve highway capacity by ~40%.**
- Using ACC and inter-vehicle communications can **boost highway capacity by 273%.**<sup>(2)</sup>



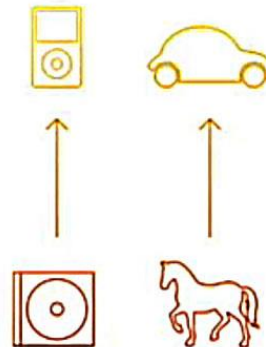
Image: Tony Seba

✓ **Autonomous vehicles could increase highway capacity by > 3.7 times.**

## What is a Disruption?

WHEN A NEW PRODUCT OR SERVICE HELPS  
create a new market

AND  
significantly weaken,  
transform, or  
destroy an existing product,  
market category / industry



Driverless electric vehicles will be the best answer for revenue generation for State highway improvements. They can create virtual hot lanes, capacity increasing vehicle convoys, make automatic electronic toll payments, move far more people in total comfort with much better traffic flow and with much fewer highway accidents. Their insurance rates will be lower, more free lane space will be created on H-1, need for huge parking lots will be eliminated – every premise of rail ridership estimates and Transit Oriented Development schemes will need to be revised.

## 'Expert' Disruption Forecasts

In the mid-1980s AT&T hired McKinsey & Co to forecast cell phone adoption by the year 2000

THEIR (15-YEAR) PREDICTION

**900,000**

SUBSCRIBERS

THE ACTUAL NUMBER WAS

**109 million**

They were off  
by a factor of:

**120**  
**X**



Most major self-driving vehicle developers see 2020 as the new decade year when the combination of many technologies become mainstream with widespread deployment and public acceptance. Smart phone applications, social media and popular movie, TV and internet media fueled by major advertising budgets will all help drive it forward very quickly as the technology is rolled out everywhere. *Hawaii doesn't have to be the last place this happens.*

## PC / Internet / Mobile Phone industries: Convergence of Exponential Technologies

- ▶ **Technologies improving at exponential rates**
- ▶ **Data Storage** – Kryder's Law
  - ▶ Hard Disk \$ cost per bit down **50% every 18 months**
- ▶ **Digital Imaging** – Hendy's Law
  - ▶ Pixels per \$ - **59% / year**
- ▶ **Network Capacity** – Butter's Law of Photonics
  - ▶ The \$ cost of transmitting a bit decreases by **50% every 9 months**

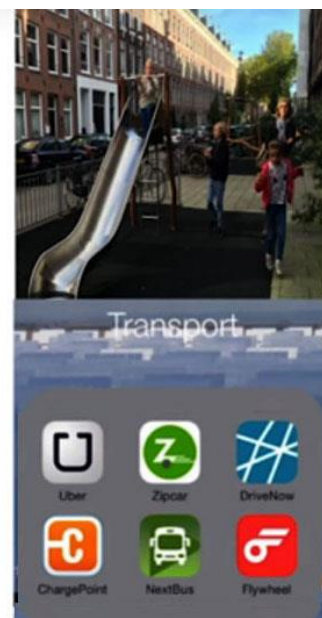


### 3 The Autonomous Vehicle Disruption



Most major self-driving vehicle developers see 2020 as the new decade year when the combination of many technologies become mainstream with widespread deployment and public acceptance. Smart phone applications, social media and popular movie, TV and internet media fueled by major advertising budgets will all help drive it forward very quickly as the technology is rolled out everywhere. Currently HART uses extremely old outdated data to push along their extremely old outdated 19<sup>th</sup> Century train scheme requiring huge maintenance.

- **Mobility on Demand / Car-as-a-service:**
  - Cars, Buses, Vans available **on-demand anytime anywhere** to take you anywhere.
  - Cars go from **parking ~90+%** of time to **driving ~90+%** of time.
  - Cost / mile **~10X cheaper** than car ownership
- We'll need **~80% fewer cars**
  - **80+% fewer parking spots**



# Autonomous Vehicles = Computer on Wheels

WHAT IS THE  
**Cost Curve  
of Computing  
Power**  
TO PROCESS SENSOR  
INPUT?



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**EV- Electric “Computer On Wheels” vehicles are projected to rapidly drop in price – as the entire business model of Silicon Valley has shown. Computing power that once filled an office floor costing \$50 Million can now be purchased for \$50! This is a MAJOR DISRUPTION!**

## Exponential Technologies: GPU: NVIDIA Drive™ PX

Dual Tegra® X1 GPU Processor  
2.3 TeraFlops

Power Consumption = 15 W

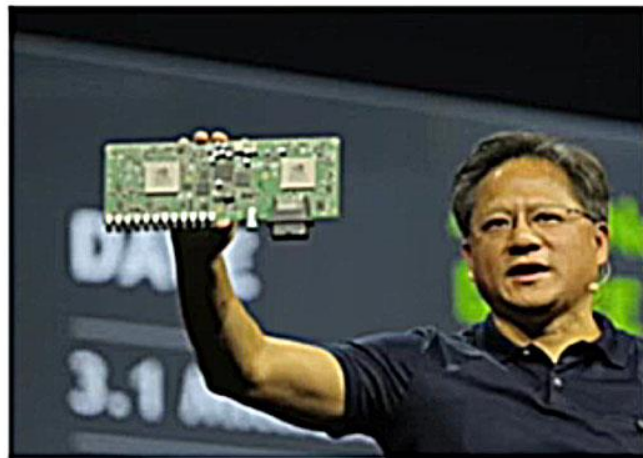
56,666X improvement

Cost = \$59

~1 million improvement

### Built for Self-Driving Cars

- Surround Computer Vision (CV) with Advanced Rendering
- Deep Learning S/W
- Over-the-air updates



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Image and Data Sources: NVIDIA

# Are consumers ready for autonomous cars?

## Consumers Desire More Automated Automobiles

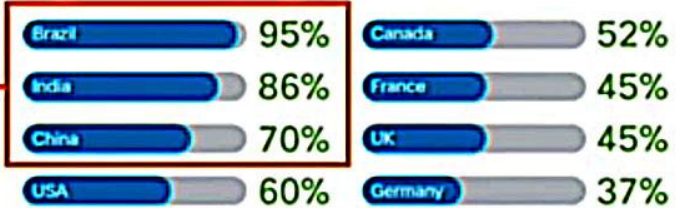
Consumers Trust Driverless Cars



# 57%

of consumers, globally, trust driverless cars—even more so in emerging markets

2.8 b people



While other states have permitted testing, California has just taken a major step forward for the self-driving vehicle industry. Given California's size as the most populous state, its clout as the nation's biggest car market and longtime role as a cultural trendsetter this will most certainly will affect Hawaii in the near future. The State Legislature should examine the process California underwent to move self-driving vehicles forward. The Governor should act immediately along with the State Legislature to bring the major self-driving vehicle developers like Google and Apple over to Hawaii to brief the University and State legislature on the many possible job opportunities and benefits. Smart vehicle testing and product development in Hawaii would be a real high tech boom, with grants and jobs for college students and researchers.



## FORD TO INVEST \$4.5B IN ELECTRIC CARS

*"CEO Fields said Ford will invest \$4.5 billion to develop 13 EVs by 2020."*

The company will enter the **carsharing** market and become a 'mobility service provider', a market worth **\$5+ trillion**.

"We [now] get zero of that market." <sup>(1)</sup>



## FOXCONN TO MAKE EV FOR \$15,000

*"Foxconn, the maker of the Apple iPhone to invest \$811m to develop Electric Cars."*

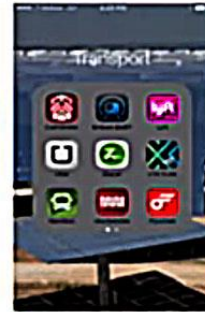
*"Foxconn CEO Terry Gou said they are targeting EVs priced at less than **\$15,000.**"* <sup>(1)</sup>



## My Smartphone: On-demand Car-as-a-Service

Plan & schedule All transportation needs with Apps

1. Buses: Muni, NextBus
2. **Car-Sharing: Zipcar**
3. **Ride-Sharing: Uber, Lyft**
4. On-Demand Bus: VTAFlex
5. Taxis: FlyWheel



Asset Utilization



1. **By 2030 Car-as-a-service** will make Individual Car Ownership Obsolete
2. **All New Cars will be Electric and Self-Driving**
3. **New Car Market** to shrink by **~80%**.
  - Disruption of Auto industry
4. **~80%-90% parking space** obsolete
  - Citiscape to be **re-designed**



SELF-DRIVING + CAR SHARING:

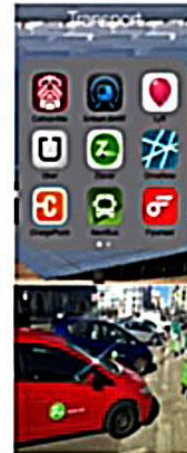
**Convergence of  
Technology &  
Business Model  
Innovation**





## Car-as-a-Service: The End of Car Ownership

- Mobility on Demand / Car-as-a-service:
  - **Self-Driving Cars** tech with
  - **Car/Ride Sharing** biz model
- Cars go from **parking ~90+% of time to driving ~90+% of time.**
- **Cost / mile ~10X cheaper** than car ownership
- We'll need **~80% fewer cars**
  - 80+% fewer parking spots <sup>(1)</sup>



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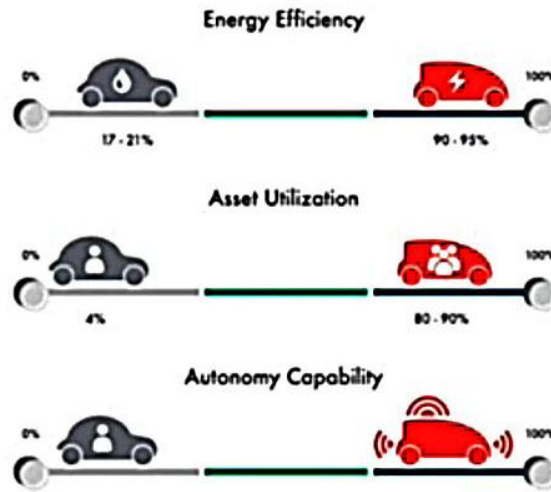
Source: (1) Clean Disruption

Driverless electric vehicles are tapping into the already built and growing phenomena of many cheaper technologies, including fashion trends, in ways that most people have not yet imagined what the revolutionary implications are!

## THE FUTURE IS NOT 19<sup>th</sup> CENTURY RAIL

This Major Transportation Disruption will be POPULAR and driven by SOCIAL MEDIA! It cannot be stopped – Oahu Rail will be nothing but a heavy concrete Boat Anchor regressively sucking money away from lower income, elderly, handicapped, students – it could be projected that the people forcing rail down everyone's throat will be widely despised when everyone realizes how badly they have been cheated out of a better, lower cost transit future.

# 3D – CLEAN DISRUPTION OF TRANSFORMATION



**Will the Next Generation want to ride in slow, smelly rail cattle cars or ride with these guys?**



John Bond  
Ewa, Oahu [ewabond@gmail.com](mailto:ewabond@gmail.com)

<http://tonyseba.com/biography/>

**On Driverless Car Disruption – 17 minutes**

<https://www.youtube.com/watch?v=xg03UUYKG1s>

**The Electric Vehicle Disruption - End Of Oil by 2030 - 11 Min version**

[https://www.youtube.com/watch?v=E7Jg1IJ68\\_g](https://www.youtube.com/watch?v=E7Jg1IJ68_g)



<https://waymo.com/>

<http://www.mobileye.com/en-us/>

<http://www.nme.com/news/knight-rider-reboot-1780812>

Driverless vehicles can form virtual On Demand Hot Lane Toll Lanes and transmit fees electronically. No toll booths needed.

Operating cost of 6-10 passenger self-driving VanPool vehicles will be very competitive and can safely tailgate at 60 MPH like virtual railway train cars but with much greater capacity and comfort.

Driverless Vehicles will provide transportation services all day and all night, without needing to park on the street or in a garage. Insurance rates will be the lowest for driverless vehicles because they will have the lowest accident rates.

**VOLCANIC ASH**



**DAVID SHAPIRO**

**Mayor's plan brings rail to new level of insanity**

**M**ayor Kirk Caldwell and City Council Chairman Ron Menor think Oahu taxpayers are so rich we can pay not only for a \$10 billion rail system that's \$5 billion over budget and climbing, but also for road projects on the neighbor islands.

The two offered leery law-

makers a ludicrous bribe if they bail out the city from its rail deficit by extending the Oahu's half-percent rail excise tax surcharge.

They invited the state to increase its controversial 10 percent skim of the tax to 20 percent or 25 percent, which could boost the state's annual rake from nearly \$25 million to more than \$60 million.

Most preposterously, Caldwell suggested these funds raised solely from Oahu taxpayers be used for projects such as a highway widening on the Big Island and a bypass road on Kauai.

Adding a 25 percent political premium to a grossly expensive project that's already wildly over budget would move Oahu rail past train-wreck status to bats-in-the-belfry crazy.

The scheme comes the same week a University of Hawaii study called the state's skim exorbitant and said it should be cut to 1 percent or less.

Caldwell has been mired in rail's dysfunction since 2008, when he was former Mayor Mufi Hannemann's self-described "primary point person" on the project.

He's lost any conscience about the burden he'll put on his constituents to avoid needed cost-cutting adjustments as he and his cohorts continue to bungle rail.

It's easy to give away taxpayers' money when you've got it made with a \$165,000 mayoral salary and a \$200,000-to-\$300,000 side job at the bank.

But the excise tax he's so eager to spread around must also be paid by a homeless mother buying milk for her kids or a hardworking laborer who will never be able to afford one of the luxury condos along the rail route.

Caldwell himself complained in 2011 that the state's skim, intended only to cover the cost of collecting the rail tax for the city, yielded enough to pay for the entire operation of the

state tax department.

Gov. David Ige says he's depending on the state's rail-tax share to cover an \$80 million upgrade to the tax department's computer system.

Why should Oahu taxpayers alone bear the cost of the tax department or a computer system that serves the whole state?

Charging one county's residents a higher tax to fund projects in other counties is unprecedented and possibly unconstitutional.

If rail-tax revenues are to be spent statewide, the tax should be levied statewide. (Hear neighbor islanders scream about having to help pay for Oahu rail.)

Let's hope Oahu legislators, a sizable majority, have more scruples than our mayor and Council in protecting their constituents and will scuttle this shabby ploy.

*Reach David Shapiro at [volcanicash@gmail.com](mailto:volcanicash@gmail.com).*

Quieter electric self-driving vehicles can be charged using solar voltaic panels and will not require the enormous electric bill, traction power and power plant stations required by the current HART rail. This new public transit industry will be self-funded by private enterprise.

Hawaii's government Social Services would likely make it affordable for low income by providing electronic ride share cards subsidizing trips for students, elderly, handicapped, medical appointments and as an unemployed benefit.

Driverless Vehicles will report in for periodic servicing automatically at the most optimal coordinated times, significantly lowering operations cost. Their safety checks and registrations will always be current. Tolls and fees paid automatically.



Goldman Sachs has projected the market for advanced driver assistance systems and autonomous vehicles will grow from about \$3 billion in 2015 to \$96 billion in 2025 and \$290 billion in 2035. Intel just recently paid \$15 billion to purchase Mobileye, a world leader in vehicle collision avoidance technology.

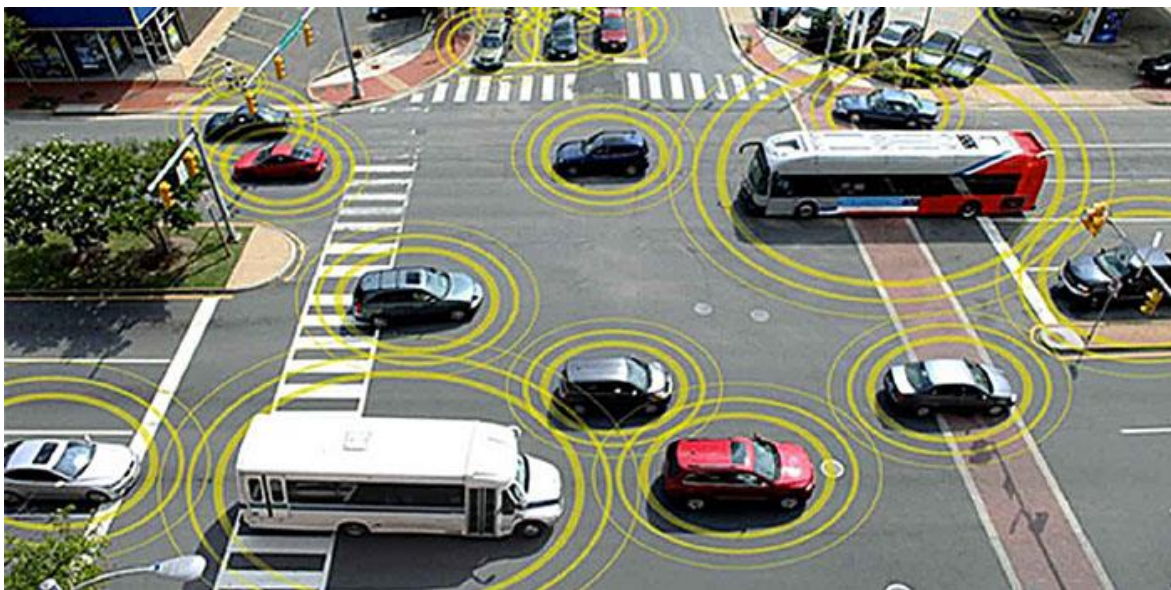


<http://reneweconomy.com.au/fossil-fuels-utilities-petrol-cars-to-be-obsolete-by-2030-2030/> Tony Seba says energy and transportation disruption is quickly moving towards a participatory energy model, that will also use a distributed architecture of energy production and usage made possible by software, sensors, artificial intelligence, robotics, smartphones, mobile Internet, big data, analytics, satellites, nanotechnology, electricity storage, materials science, and other exponentially improving technologies.

<http://www.nationmultimedia.com/news/business/corporate/30286009> EVs will hit the low-end automobile segments by 2020 when their prices drop to \$20,000 (Bt700,000) and will put an end to internal combustion engine cars when EV prices fall to \$5,000 in 2030, he predicted. Tesla recently introduced its Model 3 at an unsubsidised retail price tag of \$35,000. Within 24 hours, it received 180,000 bookings – a record for the car industry.

Google Waymo Lidar [https://storage.googleapis.com/sdc-prod/v1/press/Waymo\\_Lidar\\_Fact\\_Sheet.pdf](https://storage.googleapis.com/sdc-prod/v1/press/Waymo_Lidar_Fact_Sheet.pdf)

Intel's \$15 billion purchase of Mobileye shakes up driverless car sector  
<http://www.cnbc.com/2017/03/14/intels-15-billion-purchase-of-mobileye-shakes-up-driverless-car-sector.html>



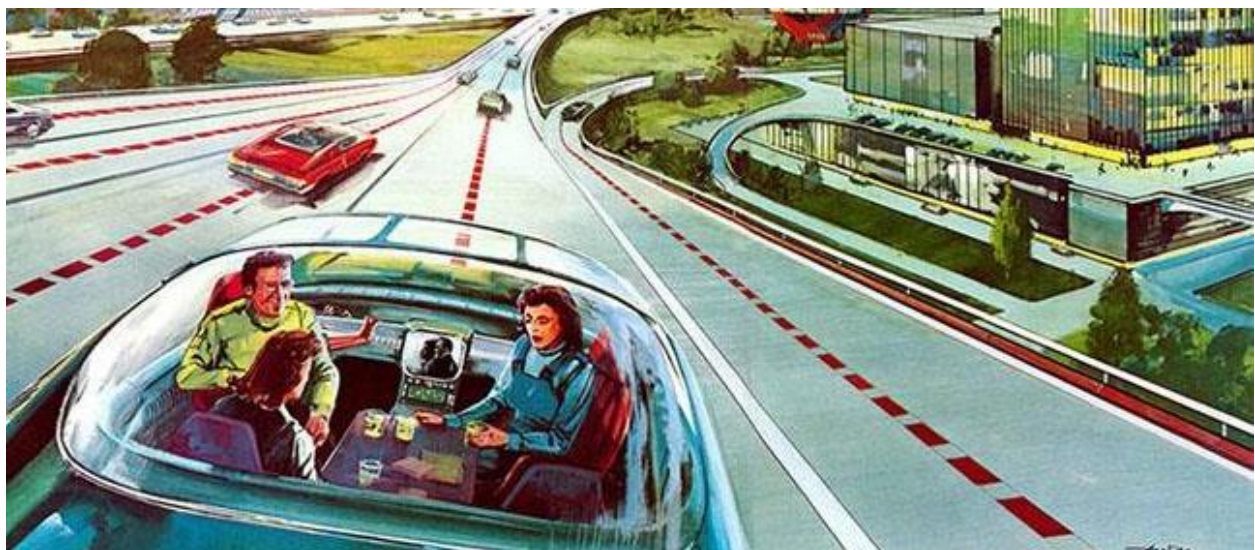


Driverless Vehicles will help eliminate the need to own a second or multiple family cars. Traditional family cars will likely remain for a decade in garages as the public accepts the reliability and lower cost features of driverless on demand transit services for daily job commuting.

There will be a wide range of specialized driverless vehicle services created or enhanced including overnight package delivery, emergency medical response, food market deliveries, etc. People not requiring driver licenses or car insurance can accompany driverless vehicles for personalized service at the destination.

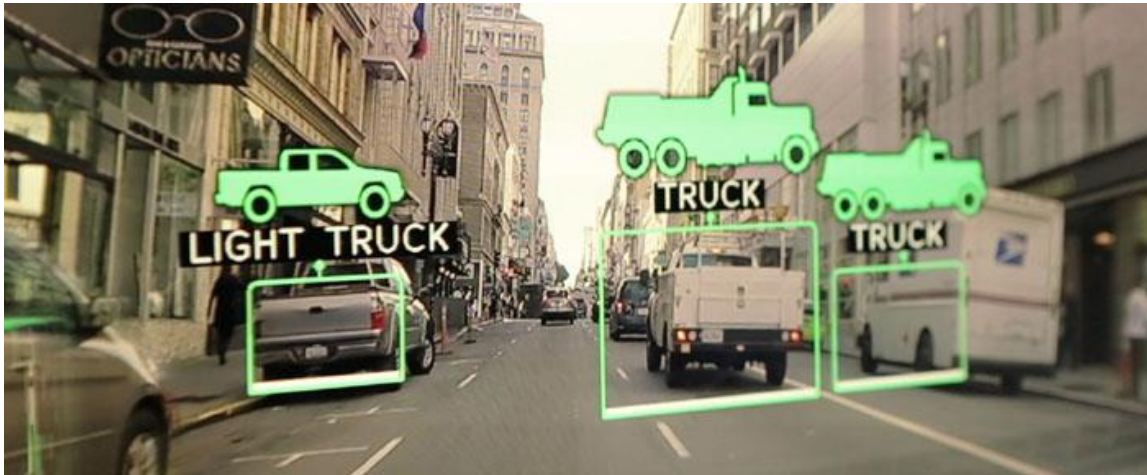
The introduction of self-driving cars will lessen consumer opposition to paying more to use roads during peak periods. Ride-hailing apps have taught consumers to accept surge pricing, and people are generally less resistant to paying for something new if it is comfortable and convenient. It's like ordering a pizza. H-1 congestion pricing, toll fees, virtual hot lanes will be built in to self-driving transit.

Commuters will get to work and get home much earlier than the bus, rail, station, bus re-boarding mess created by HART rail. Much greater inconvenience, much longer daily commute times, mostly standing up in HART rail subway style "cattle cars" sometimes with very undesirable, strange, smelly people, professional thief opportunities, railway and station accidents delaying trains will make HART rail very unpopular. TV, movies and social media will promote the great comfort of self-driving options over the hugely more expensive rail fiasco.



Larger Hawaii corporations will likely offer self-driving vehicle services to their employees as a very popular employment benefit. Daily home to office commutes will be extremely popular and a time to sleep, read or talk with coworkers.

Hawaii military DoD will likely contract self-driving vehicle services for active duty military and base workers. This will become a booming private industry with or without a DoD subsidy.



Those private industry Smart Car/Van operators will find the right mix of customers just as clothing stores and restaurants determine exactly the style and tastes their customers want and are willing to pay for. This is why the private industry "On Demand Transit" model will be superior in every way - including safety checked vehicles with low insurance rates automatically paying highway toll fees and taxes to the State.

TV's Knight Rider's concepts of AI and autonomous vehicles were science-fiction in the 1980s and are now a science fact. Popular internet, social media, movies, TV will drive the self-driving vehicle phenomena forward backed by ad budgets.

<http://www.businessinsider.com/companies-making-driverless-cars-by-2020-2016-10>

Google has never given a formal deadline, but has suggested it's working on having the technology ready by 2020.

Toyota is looking to have a driverless car ready to go by 2020.

Volvo is aiming to make its cars "deathproof" by 2020

Nissan and Honda are committed to have a commercially viable autonomous car on the roads by 2020.

Daimler, the maker of the Mercedes-Benz, is aiming to have its driverless trucks ready by 2020.

PSA Groupe, the second largest car manufacturer in Europe, is aiming to have fully driverless cars ready by 2020.

#### VOLCANIC ASH



DAVID SHAPIRO

## City needs to prove rail's worth before funding flows

**M**ayor Kirk Caldwell is begging the Legislature for another excise tax bailout for Oahu's runaway rail project, claiming, "This project is just too important to let it die (or) let it stop at Middle Street."

Lawmakers should make him prove it before dumping more money into this end-

less fiasco.

The last cost-benefit analysis on rail was back when the projected cost was \$4.5 billion — \$3 billion from a local excise tax surcharge and \$1.5 billion from federal funds.

Expected benefits in terms of ridership and traffic relief are unchanged; if anything, critics contend those numbers are as over-optimistic as original financial projections.

Costs have changed massively. The \$4.5 billion is now \$10 billion and climbing. The local share is up from \$3 billion to \$8.5 billion.

Caldwell won't say what he thinks rail will ultimately cost. Rather than nail it down, he wants legislators to write a blank check for future overruns by permanently extending the half-cent excise tax that was supposed to last only 15 years.

The near-tripling of local costs with no increase in benefits cries for a fresh

cost-benefit study to assess if it's still worth pushing rail to Ala Moana, or if it makes sense to trim back and pursue cheaper traffic-relief measures.

Caldwell is pressuring the Legislature with a federal threat to withhold its funding unless local money covers the deficit by April.

But with the new regime in Washington, who knows if our funding will be released no matter what we do? And it makes no sense to let the feds, whose share is now 15 percent and shrinking, call 100 percent of the shots.

Out-of-control rail is devouring funds sorely needed for other state and city priorities.

In addition to the forever excise tax surcharge, the city is plotting a \$65 million increase in gas taxes and parking fees, which usually fund road maintenance, to pay for rail. Higher property taxes and garbage fees for rail are also on the table.

The Legislature, which already scoops 10 percent of

the rail excise tax, is threatening to take even more, meaning strapped Oahu taxpayers must not only pay for rail overruns, but also pay more for state services than neighbor islanders.

Our tax base is only so deep, and if every available penny is sucked out for rail, where do we get money for roads, schools, hospitals, decaying infrastructure, affordable housing, and pension debt?

The Legislature should pause further rail bailouts until the city produces a credible bottom-line cost for finishing to Ala Moana and an honest new cost-benefit analysis to prove it's worth it.

Meantime, the city can use existing funds to get rail to Middle Street, feed it into the bus system and provide commuters a measure of relief.

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Reach David Shapiro at [volcanicash@gmail.com](mailto:volcanicash@gmail.com).



Email: [communications@ulupono.com](mailto:communications@ulupono.com)

SENATE COMMITTEE ON WAYS & MEANS  
Tuesday, March 28, 2017 — 9:30 a.m. — Room 211

**Ulupono Initiative Strongly Supports HB 1580 HD 2 SD 1, Relating to Energy**

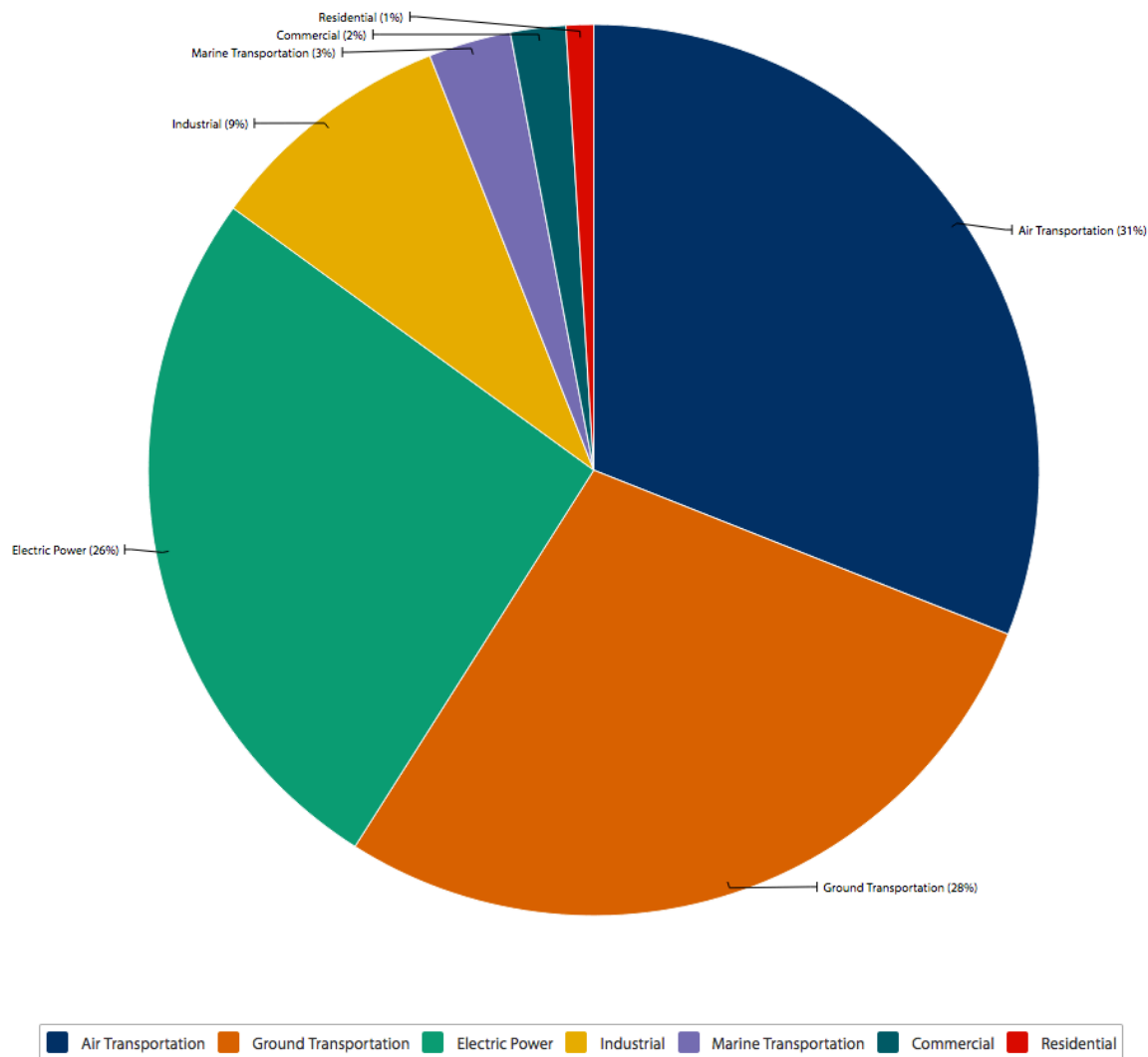
Dear Chair Tokuda, Vice Chair Dela Cruz, and Members of the Committee:

My name is Murray Clay and I am Managing Partner of the Ulupono Initiative, a Hawai'i-based impact investment firm that strives to improve the quality of life for the people of Hawai'i by working toward solutions that create more locally produced food; increase affordable, clean, renewable energy; and reduce waste. Ulupono believes that self-sufficiency is essential to our future prosperity and will help shape a future where economic progress and mission-focused impact can work hand in hand.

**Ulupono strongly supports HB 1580 HD 2 SD 1**, which establishes a clean transportation benchmark framework, because it aligns with our goal of increasing the production of clean, renewable energy in Hawai'i.

In Hawai'i, while ~20 percent of electricity generation is renewable energy, less than 1 percent of energy use in transportation is renewable. Meanwhile, the transportation sector requires more energy than the electricity sector. Furthermore, about 28 percent of the state's primary energy usage is due to ground transportation, such as cars and trucks, which rely almost exclusively on imported fossil fuels for its energy. Electrifying ground transportation is presently the most efficient and impactful ways to move transportation toward more renewable energy.

*Investing in a Sustainable Hawai'i*



Yet, to fundamentally change the transportation sector from an imported fossil fuel based system to a renewable fueled sector is a monumental task. It will require leadership, collaboration, public support, financing, and patience with diligence. From prior experience working to make the electricity sector more renewable, it was extremely helpful that the State set goals and targets so that the public and private sector could work together to set goals and strategies to achieve them.

Aspirational goals are important to change mindsets and actions. For example, Hawaiian Electric’s goal of 70 percent renewable electricity generation by 2030 was considered impossible at the time it was proposed, but now it is on the path to meet that ambitiously aspirational goal.

Since the transportation sector currently does not have goals, it has been difficult to bring all of the necessary stakeholders together and work on a common blueprint. The State is also the only authority with enough power to set the necessary statewide transportation



targets and motivate key stakeholders to work toward a common goal.

This bill is an important first step for Hawai'i to continue to reduce to dependence on imported fossil fuels.

As Hawai'i's energy issues become more complex and challenging, we appreciate this committee's efforts to look at policies that support renewable energy production.

Thank you for this opportunity to testify.

Respectfully,

Murray Clay  
Managing Partner



TO: SENATE COMMITTEE ON WAYS AND MEANS  
Senator Jill N. Tokuda, Chair  
Senator Donovan M. Dela Cruz, Vice Chair

FROM: Richard Parry  
President of Hawaii Petroleum Marketers Association

HEARING

DATE: Tuesday, March 28, 2017  
TIME: 9:30 a.m.  
PLACE: State Capitol, Conference Room 211  
RE: Testimony on H.B. No. 1580, HD2, SD1 Relating to Energy

Chair Tokuda, Vice Chair Dela Cruz, and Members of the Committee on Ways and Means, I am Richard Parry, President of the Hawaii Petroleum Marketers Association (“HPMA”). HPMA is a non-profit trade association comprised of members who directly market liquid motor fuel products across the Hawaiian Islands. Our membership includes individuals and companies who operate as independent marketers, jobbers or distributors of petroleum products and who buy liquid motor fuel products at the wholesale level and sell or distribute products to retail customers, other wholesalers, and other bulk consumers. HPMA’s primary purpose is to protect and advance its members’ legislative and regulatory interests in the Hawaiian Islands and Washington, D.C.

HPMA would like to comment on H.B. No. 1580, HD2, SD1 which seeks to prepare the State for the transition to renewable ground transportation in Hawaii and establish a clean ground transportation benchmark framework, including a near term 2025 target for the reduction and ultimate elimination of the use of imported fuels for ground transportation. H.B. No. 1580, HD2, SD1 also directs the state department of transportation to collaborate with the state energy office to identify a plan and develop recommendations to support the achievement of benchmarks leading to the ultimate elimination of imported fuels for ground transportation.

In order to make any plan to transition to renewable ground transportation in Hawaii work, the petroleum industry is clearly a stakeholder, and therefore, must have input into the plan. Accordingly, we recommend that the bill be changed to amend Chapter 264 of the Hawaii Revised Statutes, as follows:

Testimony of  
Hawaii Petroleum Marketers Association

H.B. No. 1580, HD2, SD1

Hearing Date:

Monday, March 28, 2017 at 9:30 a.m.

- (a) (3): "Convene stakeholders, including existing ground transportation fuel providers, in a clean ground transportation forum to solicit and incorporate input on the department of transportation's clean ground transportation activities to help achieve the goals of this section."

HPMA stands ready and willing to assist and offer our input on developing the clean ground transportation benchmark framework for the State of Hawaii.

The purpose of the clean ground transportation forum is to create baseline metrics, identify a plan, and develop recommendations to achieve one hundred per cent renewable ground transportation. H.B. 1580 HD2, SD1, however, fails to require any consideration of the economics of the plan. Accordingly, we recommend that the bill be changed to amend Section 196-10.5, Hawaii Revised Statutes, as follows:

- (a) (8): "A plan, to be implemented between 2017 and 2025 to achieve a reduction of five per cent in fossil fuel consumption for ground transportation relative to 2016 levels and shall include economic evaluation of the costs of implementing the plan, as well as metrics to measure and evaluate progress towards the target fossil fuel reductions in ground transportation, to be established by the state energy office; provided that two years prior to the completion of the plan and every five years thereafter, a report shall be submitted to the legislature that includes:"

Thank you for the opportunity to testify and provide our concerns regarding H.B. No. 1580, HD2, SD1.





March 28, 2017

**TESTIMONY BEFORE THE SENATE COMMITTEE ON WAYS & MEANS  
ON HB 1580 HD2 SD1 RELATING TO ENERGY**

Thank you Chair Tokuda, and committee members. I am Gareth Sakakida, Managing Director of the Hawaii Transportation Association (HTA) with over 375 transportation related members throughout the state of Hawaii.

HTA's concern with this measure is with the IMPLEMENTATION of a plan from 2017 - 2025 as stated in Section 3. Section 196-10.5(a)(8).

A plan cannot be implemented beginning this year when there is no study that details the impacts of a 5% reduction of fossil fuel importation and / or consumption. We can estimate the number of gallons that 5% represents, but have not measured the effects on families and businesses.

We do not know whether such a reduction is possible in the near term given the cost of alternate fueled vehicles and access to alternate fuels. The ultimate 2045 deadline rests on hopes of technological developments to address these concerns, but to begin implementation this year is premature.

In addition to impacts on families and businesses, they must be given advance information to provide feedback and to plan themselves how to handle the reduction.

There are hints of impact concerns in this bill with statements like reports on "progress towards the established target benchmarks," "legislative actions to support the achievement," and "new target benchmark." They all sound promising IF their basis is the impact on people and business, and not just forcing the import reductions.

As pointed out in earlier testimonies on this subject:

*Over the next 28 years no one can predict where we, and the world, may be. This bill assumes advances in alternative fuel technology will provide sufficient energy supplies and make vehicle costs manageable. Today's level of advancement*

*Unlike multi-million and multi-billion dollar trucking companies on the mainland, Hawaii's trucking companies cannot turn over their fleet quickly once the technologies become proven enough for manufacturers to begin mass producing newly powered vehicles.*

*What if the technology does not match up to expectations? What would the projected cost of energy be at that time? How would the cost of fleet replacement be made by our small businesses? Why not give businesses tax incentives or credits to create the means to fund gigantic changes?*

*Biofuel production needs certain crops to produce fuel. How would we manage inadequate supplies in the case of crop failures? When the world faces the need to produce crops only for human consumption how would we manage the elimination or reduction of crops needed to produce biofuels?*

For the motor carrier industry, we would like to point out that we are on the roads when we have to be to serve the community and our visitors. Alternate fuel vehicles can carry a price tag up to 4-5 times that of a normal tractor and 50% additional costs for motor coaches which already run over \$500,000.

Thank you.

**Testimony before the Senate Committee on Ways and Means**

**Tuesday, March 28, 2017**

**9:30 am**

**By Michael Colón  
Director, New Customer Initiatives  
Hawaiian Electric Company, Inc.**

**House Bill 1580 HD 2 SD 1 – Relating to Energy**

Chair Tokuda, Vice Chair Dela Cruz and Members of the Committee:

My name is Michael Colón and I am testifying on behalf of Hawaiian Electric Company and its subsidiary utilities, Maui Electric Company and Hawai'i Electric Light Company (collectively, the "Hawaiian Electric Companies").

House Bill 1580 HD2 SD 1 requires the Department of Transportation to identify a plan for the reduction and ultimate elimination of the State's dependence on imported fossil fuels for ground transportation by 2045, including developing a near-term benchmark framework and directs the Department of Transportation to collaborate with the state energy office to develop recommendations to achieve those benchmarks.

The Hawaiian Electric Companies strongly support the intent of this bill with the stated goal to eliminate the importation of fossil fuels and support a local clean energy economy as it transitions towards clean transportation. The Hawaiian Electric Companies offer the following comments regarding some of the recent amendments to the bill:

- The Companies agree that significant investments need to be made to support a complete transition towards clean transportation. However, the Companies suggest the plan to be developed by the Department of Transportation and the clean energy office would be better suited to proscribe future charging infrastructure needs as opposed to the proposed ratio of one electric vehicle charging station for every five electric vehicles deployed or the installation of one electric vehicle charging station for every thirty miles. The Companies assert that the proposed ratio does not adequately contextualize the unique geography and transportation needs of Hawaii and needs to be better tailored through the proposed planning process.

- While not opposed to including different vehicle technologies in the transition towards clean transportation, updating the definition of “electric vehicles” to include fuel cell electric vehicles and defining “fuel cell electric vehicles” may create an unintended consequence of adding additional burden on the development of supporting infrastructure to support this new technology. This may be particularly so, when paired with the aggressive infrastructure quota discussed above.

The Companies support establishing a coordinated effort to develop recommendations to the legislature to achieve 100% clean ground transportation. These recommendations may ultimately have tremendous impact on the Companies’ future energy planning from both a generation and grid investment perspective. Therefore the Companies respectfully request that they be included in any opportunities to collaborate in the anticipated planning process.

The Companies welcome the legislature’s intent to build upon the momentum and progress already achieved in transforming Hawaii’s transportation paradigm.

Thank you for the opportunity to testify.



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Honolulu HI 96813

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SENATE COMMITTEE ON WAYS AND MEANS  
March 28, 2017, 9:30 A.M.  
Room 211

#### TESTIMONY IN STRONG SUPPORT OF HB 1580 SD1

Dear Chair Tokuda, Vice Chair Dela Cruz, and Committee members:

I'm writing to express my strong support of HB 1580, SD1, setting a long-term planning target for 100% renewable ground transportation in Hawaii. Setting such a target will help to promote alignment and collaboration in ongoing and future planning efforts for multiple aspects of the state's transportation energy sector.

In 2015, Hawai'i became the first state in the nation to target 100% renewable energy for our electricity sector. State leaders selected 2045 as the target date--over the objections of both those who thought this target was ridiculously aspirational and those who thought three decades was too long.

But the important thing is that we had the vision to act. It has been inspiring to see leadership across the islands rally around that goal. Kauai Island Utility Cooperative just switched on the world's largest solar plus battery system, powering the island long after the sun has set. Hawaiian Electric's latest plan shows that the 100% renewable target will be met well ahead of schedule. Even more exciting, it is estimated that the transition to 100% renewable energy will save consumers around \$6 billion compared to more recent business as usual case.

But electricity is only one piece of our energy puzzle. Ground transportation--our cars, buses, and trucks--accounts for one-third of our fossil fuel use. We burned over half a billion gallons of gasoline and diesel in our vehicles last year, and that consumption continues to grow. This shouldn't be a surprise: Hawai'i currently has no target date for the transition to clean transportation.

House Bill 1580 can fix this. The bill sets a planning target of 2045 for the state to transition to 100% renewable transportation. A planning target doesn't mean that anyone will be forced to give up their gas cars before they are ready. It just means that when we plan and invest in transportation infrastructure, we focus on renewable transportation rather than fossil fuels. Planning to achieve the same target for electricity and transportation makes good sense--more renewable transportation can enable more renewable electricity, and vice-versa.

What will our 100% renewable transportation system look like? Nobody's crystal ball can tell us for sure. But we see a glimpse of the future in the clean transportation options that are available today.

Our cars and buses can be electric, like more than 5000 clean and quiet electric vehicles on Hawaii's roads today. Auto manufacturers call electric vehicles the top trend in cars for the next ten years, and battery costs are falling fast. Cities around the world have already started the transition to electric buses, as a cheaper option than diesel buses.

Our trucks can be fueled with biodiesel. This renewable fuel is already being used in some of Hawai'i's fire trucks, ambulances, and garbage trucks. Whether recycled from local cooking grease, or derived from local crops, biofuels can be a "drop-in" replacement for fossil fuels.

Our cities and streets can be designed to make it easier to get where we need to be by walking, biking, or using public transit. Pairing that with technology, we may find that ride-sharing, car-sharing, and bike-sharing apps can make it easier to borrow a ride than to buy one.

And undoubtedly, we will see radical technology leaps. By 2045, our cars may be autonomous, driving themselves as efficiently as possible to reduce traffic and energy consumption. Today, UPS trucks save millions of gallons of fuel per year by using computers to plot out the most efficient routes and eliminating the time spent waiting to turn left at traffic lights. Our entire energy system might be powered by hydrogen—a fuel that can be made from water and which turns back to water when it is used. Toyota's Mirai hydrogen vehicle is on sale in Hawai'i today.

Together, shifts like these can unlock cleaner, cheaper, and more convenient transportation options for everyone. But this change cannot happen on its own.

Our leaders set the course. With HB 1580, you have the opportunity to provide a North Star to help Hawaii navigate toward our clean energy future.

Mahalo for the opportunity to provide this testimony.

Christine Camp



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Headquarters  
and Refining

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91-480 Malakole St.  
Kapolei, HI 96707

DATE: Tuesday, March 28, 2017  
TIME: 9:30 am  
PLACE: Conference Room 211  
State Capitol  
415 South Beretania Street

House Bill 1580 HD 2, SD1, Relating to Energy

Good afternoon Chair Tokuda, Vice Chair Dela Cruz and Members of the Senate Committee on Ways & Means,

Island Energy Services, LLC (IES) purchased the assets formerly owned and operated by Chevron on November 1, 2016 and continues to operate as a key supplier of petroleum products to the Hawaii market and economy. IES would like to offer comments regarding HB 1580, HD 2, SD 1.

HB 1580, HD 2, SD 1 is the vehicle to prepare the State for the transition to renewable ground transportation in Hawaii and establish a clean ground transportation benchmark framework, including a near term 2025 target encouraging electric vehicle infrastructure build out supporting Hawaii's goal for the reduction and ultimate elimination of the use of imported fuels for ground transportation. Specifically, HB 1580, HD 2, SD 1 requires the Department of Transportation (DOT), in collaboration with the Hawaii State Energy Office of the Department of Business, Economic Development, & Tourism (DBEDT), to identify a plan to make progress toward 100 per cent clean ground transportation and convene stakeholders to gather and use input for the plan. It is on this item of convening stakeholders that IES would like to comment.

It is understood by all stakeholders, including the ground transportation industry, the driving public, state agencies and the Legislature, that the goals and mission set out in HB 1580, HD 2, SD 1 is ambitious and involves many complex issues. With this undertaking, it is IES's belief that DOT and DBEDT would want to have as much in depth discussions with many stakeholders, especially those with expert knowledge of ground transportation issues and the petroleum fuels market in Hawaii, and be able to discuss various issues in a structured environment. Ground transportation in Hawaii has a direct impact on the State's economy. The contemplated benchmark framework, if done hastily and without sufficient discussion and sharing of ideas, could lead to negative unintended consequences on that economy. To avoid such consequences, IES proposes that HB 1580, HD 2, SD 1 be amended and that the Renewable Ground Transportation Working Group (Working Group), which was contained in the original version of the bill (HB 1580), be reinserted in place of the task of DOT and DBEDT just gathering input from stakeholders. The purpose of the Working Group is to create baseline metrics, identify a plan, and develop recommendations to achieve one hundred per cent renewable ground transportation. IES believes that the establishment of a Working Group is the prudent step in assisting to meet the goal of HB 1580, HD 2,



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Headquarters  
and Refining

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91-480 Malakole St.  
Kapolei, HI 96707

SD 1 and to alleviate the possibility of unintended consequences, as all items surrounding the benchmark framework would be properly vetted. The text from HB 1580 establishing the Working Group is below. Mahalo for this opportunity to testify.

Renewable ground transportation working group. (a) The department of transportation, in collaboration with the state energy office of the department of business, economic development, and tourism, shall establish a renewable ground transportation working group that shall: (1) Create baseline metrics for defining and meaningfully tracking basic modes of renewable ground transportation as a percentage of all ground transportation; (2) Identify a plan to make progress toward the goal of achieving one hundred per cent renewable ground transportation statewide by 2045; (3) Include future mode share targets in the plan described in paragraph (2); and (4) Develop recommendations regarding the additional steps necessary to help achieve the goal described in paragraph (2). (b) The number of members of the working group shall be determined by the director of transportation, or the director's designee, who shall serve as the chair of the working group; provided that the working group shall include: (1) One member representing the state energy office of the department of business, economic development, and tourism; and (2) As appointed by the chair, other state employees, county employees, or members of the public who have expertise in the use of renewable energy for transportation.

Mahalo,

Al Chee  
Vice President  
Island Energy  
Retail Marketing & Community Relations





**SENATE COMMITTEE ON WAYS & MEANS**

Mar. 28, 2017, 9:30 A.M.

Room 211

(Testimony is 5 pages long, including attachment)

**TESTIMONY IN STRONG SUPPORT OF HB 1580 HD2 SD1**

Aloha Chair Tokuda, Vice Chair Dela Cruz, and Committee Members:

Blue Planet Foundation **strongly supports** HB 1580 HD2 SD1, which will set a state planning target (but not a mandate) for 100% clean energy in ground transportation by 2045.

Hawai'i has no indigenous fossil fuels. Importing and burning fossil fuels is detrimental to our economy and our climate, as the legislature has repeatedly acknowledged. Yet the State Planning Act currently lacks a target date for energy independence in ground transportation. By aligning the existing 100% renewable electricity target, with a 100% renewable transportation target, HB 1580 will help **coordinate energy planning across sectors, set market expectations, and foster innovation—all in the interest of less expensive and less polluting energy**. It is estimated that a 100% clean transportation system can save consumers approximately \$150 million per year in combined electricity and transportation energy and infrastructure costs.

In the current national political climate, the importance of a vision for our state energy plan cannot be overstated. News reports from recent days indicate that President Trump is attempting to dismantle progress on clean energy. He intends to weaken vehicle fuel efficiency, end a moratorium on new coal mines, stop the Clean Power Plan, and eliminate a review of climate impacts in environmental impact statements. Without state action, these steps will hurt local consumers and our environment, simply to line the pocket of the fossil fuel industry. Other news reports indicate that a fossil fuel lobby, including the infamous Koch brothers, are launching an anti-clean transportation initiative targeted at “changing the energy narrative.”

**At this juncture in history, Hawai'i's leaders must set the state's own vision and narrative for local, clean energy.**

Answers to several *Frequently Asked Questions* are attached to this testimony. Topics include:

- The **urgent need** for a planning target date for 100% clean transportation;
- The **economic benefits** of clean transportation;
- The **achievability** of a 2045 planning target, with trends such as electrified vehicles, biofuels, and multi-modal transportation options.

**Thank you** for this opportunity to submit testimony.

## 100% Clean Ground Transportation Frequently Asked Questions

### Why is a 100% Clean Transportation Target Necessary?

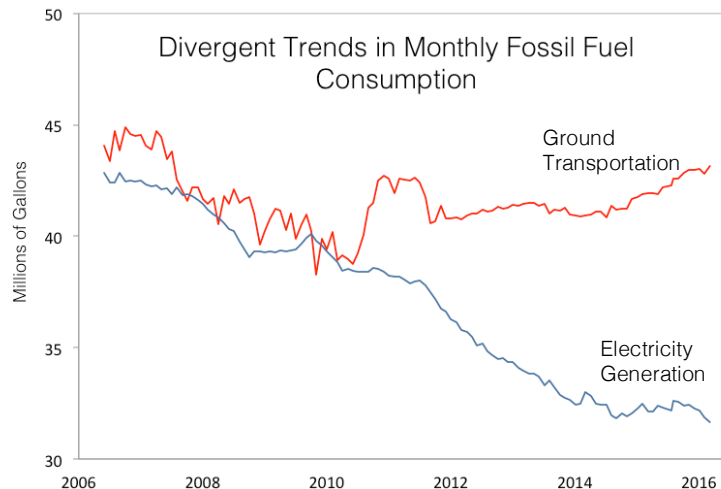
Hawai'i's policy leaders have long stressed the importance transitioning the state's energy system to clean energy. This transition has been driven by economics, and also by concern for our shared environment. As described by Governor George Ariyoshi:

**“Stewardship . . . mean living with the constant reminder that our actions occur in context of other people over generations.”**

Ground transportation accounts for around one-third of the state's fossil fuel consumption and greenhouse gas emissions. **A resilient economy and a healthy environment require that we consider these impacts.**

This is especially important in an age where 194 countries—essentially every country on earth—have agreed that it is imperative that we rapidly reduce greenhouse gas emissions.<sup>1</sup>

The state has long utilized planning targets as a way to set a course for reducing fossil fuel consumption in the electricity sector.<sup>2</sup> This transformation is on track to reach the goal of 100% renewable energy by 2045. In contrast, fossil fuel consumption for ground transportation is essentially unchanged from a decade ago.<sup>3</sup>



Closing this gap will require many efforts by many entities, both today and in the future. The importance of HB 1580 is that it can align those efforts around a common vision, set by the state's leaders.

<sup>1</sup> See Paris Agreement, U.N. Framework Convention on Climate Change (2016).

<sup>2</sup> See H.R.S. § 269-91.

<sup>3</sup> Chart data is from Monthly Energy Trends reported by DBEDT. Note that the electricity oil consumption is for utility generation only. Information from third-party generating facilities is not reported. However, the divergent trend would be apparent even if recent third-party oil-fired generation were included in the chart.

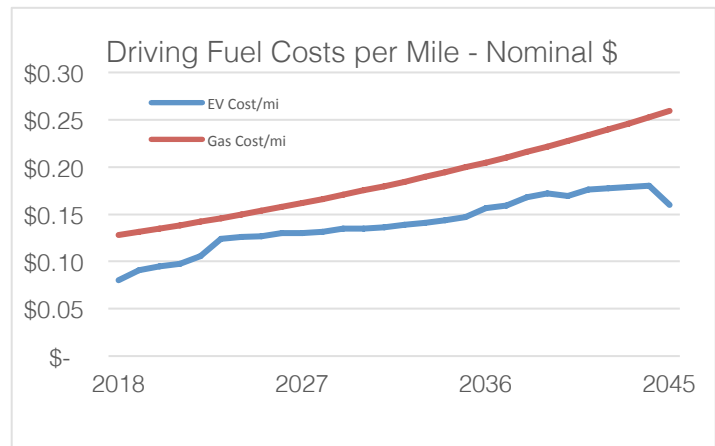
## What are the Economic Benefits?

The transition to clean transportation creates many opportunities for cost savings. Some of these opportunities come in the form of more efficient multi-modal transportation (e.g. saving money with more walking, biking, and public transit). Other opportunities arise from fuel-cost savings.

For example, the transition to clean energy is sure to include more electric passenger vehicles, buses, and fleet vehicles (“EVs”). This electrification trend provides a double benefit. First, **electricity is already a less expensive fuel alternative to gasoline**. But a growing fleet of EVs can provide a double benefit by helping to balance renewable energy on the grid and **lower the cost of electricity**. This is a win-win. It also underscores the need to align the state’s electricity targets with its transportation targets.

University of Hawai’i Engineering Professor, Matthias Fripp, has created a quantitative model of the state’s transition to renewable energy. He has estimated that a 100% renewable transportation system, with smart EV charging to match renewable electricity generation, can **save utility consumers approximately \$150 million per year in fuel and electricity costs**.<sup>4</sup>

Blue Planet Foundation has evaluated recent projections for electricity rates in Hawai’i, comparing them to a World Bank estimate of the long-term trend for increasing oil prices, under a variety of transportation scenarios. This comparison indicates that we can expect electricity to remain the cheaper fuel option through 2045, and that the potential aggregate benefit in fuel savings is on the order of several billion dollars.



<sup>4</sup> See M. Fripp, *Effect of Electric Vehicles on Design, Operation and Cost of a 100% Renewable Power System* (Apr. 2016).

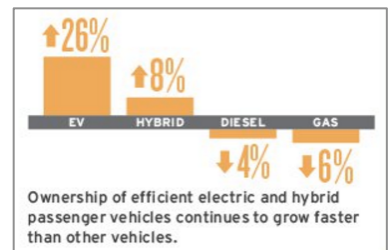
## Is 100% Clean Transportation Infrastructure Possible by 2045?

Yes. **A variety of states, countries, and cities have targeted similar goals between 2025 and 2050.** For Hawai'i, much like in the electricity sector, many factors will influence the pace of the state's transition to clean energy. While some of those factors remain unknown (as is expected for a 30-year planning horizon), several important factors are apparent today;

### 1. The Rise of Battery Electric and Fuel Cell Vehicles, Coupled with 100% Renewable Electricity.

While familiar clean transportation options (like biofuels, walking, biking, public transit, etc.), and emerging technologies (like hydrogen) will undoubtedly play an important role, we expect the emergence of electric vehicles (EVs) to quickly and radically shift the state's transportation energy landscape. This is especially true given recent utility planning efforts concluding that 100% renewable electricity is achievable and affordable.

In Hawai'i, the growth rate of EV sales has far outpaced other fuel options. On a more global scale, important factors such as the cost of producing batteries for electric cars has fallen dramatically, from around \$1,000 per kWh to less than \$200. As we enter the second generation of modern EVs, a steadily increasing variety of models are coming onto the market with lower prices, larger batteries, and longer driving ranges. Nearly every major auto manufacturer is investing heavily in battery electric and/or hydrogen fuel cell electric vehicles, and views zero emission vehicles as the long-term solutions for transportation fuels. **A recent poll of auto executives by KPMG identified EVs as the top trend for automobile manufacturers between now and 2025.**



Hawai'i is particularly well-suited for the this acceleration of EV adoption because electric batteries perform well in our year-round warm climate. Our island geography often restricts the distances we need to drive, making range anxiety less of an issue compared to other locations. Hawai'i is already in the top three states by proportion of registered vehicles that are electric, and we have the second highest ratio of electric charging stations to population of any state.

### 2. Transportation will Become More Multi-modal, Networked, Autonomous

The future of transportation in Hawai'i is likely to include more efficient land use that reduces travel demand and travel distances, significant improvements in mass transit, bicycling and pedestrian infrastructure, and new mobility alternatives such as autonomous taxis and other networked 'mobility as service' options. These changes are likely to shift a sizable percentage of Hawai'i's trips from personal automobiles to alternative modes and to significantly reduce transportation energy use.

With sufficiently transformative policies, the small sector of gasoline vehicles can be a small fraction of the total ground transportation sector.

### 3. Biofuels are a Near-Term and Long-Term Option

Hawai'i is home to one of the leading pioneers of biofuel production, Pacific Biodiesel. Today, the state is producing commercial quantities of biofuels using local feedstocks.

In a report commissioned by DBEDT in 2010, the consultant firm Black & Veatch Corporation performed an analysis of the potential for biofuel production in the state of Hawai'i. The report found that the maximum theoretical capacity of biofuel production in the state was equal to the equivalent of 848 million gallons of "green gasoline" or 779 million gallons of "green diesel" per year (see chart below). This is around 2.5 times the total amount of gasoline and diesel used in ground transportation in Hawai'i today.

<b>Table 1-6. Maximum Theoretical Hawai'i Biofuel Production Potential.</b>					
<b>Feedstock</b>	<b>Biofuel</b> 10 <sup>12</sup> Btus/yr	<b>Ethanol</b> million gal/yr	<b>Green Gasoline</b> equivalent million gal/yr	<b>Green Diesel</b> equivalent million gal/yr	<b>Green Jet Fuel</b> equivalent million gal/yr
Energy Crops	101	1,202	786	722	751
Cellulosic Wastes	8	95	62	57	59
Total:	109	1,297	848	779	810

*Source: DBEDT (2010). "The Potential For Biofuels Production in Hawaii"*

The report also concluded that "...it should be quite achievable for biofuels produced from in-state resources to displace 20 percent [over 50 million gallons] of the gasoline and diesel fuel needed for vehicle transportation in Hawai'i. This could be accomplished using about 10 percent of available agricultural land for energy crop production to supply the required biomass feedstock." In short, local biofuels are a viable option for powering significant portions of the transportation sector.



Healthy Climate  
Communities

## Testimony in support of HB1580 RELATING TO ENERGY

### SENATE COMMITTEE ON WAYS AND MEANS

Decision making, March 28, 2017 9:30am

Dear Chair Tokuda, Vice Chair Dela Cruz and members of the Committee on Ways and Means:

Healthy Climate Communities is a Hawaii-based non-profit seeking to empower communities to slow and adapt to climate change. **We strongly support the intent of HB1580 and ask that you restore the original goal of 100% renewable energy by 2045.**

Two years ago you had the vision and commitment to our children's futures to pass a law setting a goal for 100% renewable power by 2045. Now it is time to address ground transportation.

The technology to replace fossil fuel based transportation is improving and becoming cheaper at an astonishing rate. The automobile industry has embraced the change. Our State government can make the transition smoother and faster by setting a clear target date. It will inform infrastructure investments in both the public and the private sector.

Having 100% renewable ground transportation is the perfect complement to 100% renewable power. Energy stored in the fleet of automobiles will stabilize the grid from fluctuations in intermittent energy sources such as solar and wind. Being able to power our transportation from local, renewable energy sources means we will export fewer dollars to buy oil, we will have a more secure supply without volatile price fluctuations, we will breathe cleaner air, and we will be pulling our weight to slow climate change.

Mahalo,

Dr. Lisa Marten  
Executive Director  
Healthy Climate Communities



COLLEGE OF SOCIAL SCIENCES  
**HAWAII ENERGY POLICY FORUM**  
UNIVERSITY OF HAWAI'I AT MĀNOA

**Hawaii Energy Policy Forum**

Jeanne Schultz Afuvai, Hawaii Inst. for Public Affairs  
Hajime Alabanza, Hawaii Solar Energy Association  
John Antonio, US Dept of Agriculture  
Karlle Asato, Hawaii Government Employees Assn  
David Bissell, Kauai Island Utility Cooperative  
Joseph Boivin, Hawaii Gas  
Warren Bollmeier, Hawaii Renewable Energy Alliance  
Michael Brittain, IBEW, Local Union 1260  
Albert Chee, Island Energy Services  
Elizabeth Cole, The Kohala Center  
Kyle Datta, Ulupono Initiative  
Mitch Ewan, UH Hawaii Natural Energy Institute  
Jay Fidell, ThinkTech Hawaii  
Carl Freedman, Haiku Design & Analysis  
Matthias Fripp, REIS at University of Hawaii  
Ford Fuchigami, Hawaii Dept of Transportation  
Justin Gruenstein, City & County of Honolulu  
Dale Hahn, Ofc of US Senator Brian Schatz  
Michael Hamnett, SSRI at University of Hawaii  
Senator Lorraine Inouye, Hawaii State Legislature  
Randy Iwase, Public Utilities Commission  
Brian Kealoha, Hawaii Energy  
Darren Kimura, Energy Industries  
Kelly King, Sustainable Biodiesel Alliance  
Kal Kobayashi, Maui County Energy Office  
Representative Chris Lee, Hawaii State Legislature  
Gladys Marrone, Building Industry Assn of Hawaii  
Stephen Meder, UH Facilities and Planning  
Joshua Michaels, Ofc of US Rep. Colleen Hanabusa  
Sharon Moriwaki, UH Public Policy Center  
Ron Nelson, US Pacific Command Energy Office  
Denise Oda, US Department of Agriculture  
Jeffrey Ono, Division of Consumer Advocacy, DCCA  
Stan Osserman, HCATT  
Darren Pai, Hawaiian Electric Companies  
Melissa Pavlicek, Hawaii Public Policy Advocates  
Randy Perreira, Hawaii Government Employees Assn  
Fredrick Redell, Maui County Energy Office  
Rick Rocheleau, UH Hawaii Natural Energy Institute  
Ross Roley, PACOM  
Will Rolston, Hawaii County, Research & Development  
Peter Rosegg, Hawaiian Electric Companies  
Riley Saito, SunPower Systems  
Scott Seu, Hawaiian Electric Companies  
Joelle Simonpietri, UH Applied Research Lab  
Ben Sullivan, Kauai County  
Terry Surles, Hawaii State Energy Office, DBEDT  
Lance Tanaka, Par Hawaii  
Maria Tome, Public Utilities Commission  
Kirsten Turner, Ofc of US Representative Tulsi Gabbard  
Alan Yamamoto, Ofc of US Senator Mazie Hirono

Testimony of  
Hawaii Energy Policy Forum  
To the  
Senate Committee on Ways and Means  
March 28, 2017 at 9:30 am in Conference Room 211  
**COMMENTS on HB 1580, SD1 Relating to Energy**

Chair Tokuda, Vice Chair Dela Cruz, and Members of the Committee,

Aloha Senators. Thank you for your interest in this bill. The Hawaii Energy Policy Forum offers comments, and recommends a change.

It has come to our attention that Section 5 of HB 1580 SD 1 (Relating to Energy), proposes a statutory change that is intended to address transportation energy. However, the wording change would also affect planning for the electricity sector and could create a conflict with the state's Renewable Portfolio Standards law (HRS 269-91 et seq). Therefore, we recommend that section 5 of the bill be deleted.

Section 5 of HB 1580 SD1 revises the energy section of the Hawaii State Planning Act, HRS §226-18. However, the proposed change on page 8, line 21, would require that planning for "fuels for electrical generation" be in accordance with transportation sector energy goals, rather than electricity sector energy goals. This does not make sense. Here is the section from the bill:

SECTION 5. Section 226-18, Hawaii Revised Statutes, is amended by amending subsection (a) to read as follows:

"(a) Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:

(1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;

(2) Increased energy security and self-sufficiency through the reduction and ultimate elimination of Hawaii's dependence on imported fuels for electrical generation [~~and ground transportation~~] in accordance with the goal of reducing and ultimately eliminating the use of fossil fuels for ground transportation by 2045 and the benchmarks established pursuant to section 196-10.5(a)(8);

(3) Greater diversification of energy generation in the face of threats to Hawaii's energy supplies and systems;

(4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use; and

(5) Utility models that make the social and financial interests of Hawaii's utility customers a priority."

As shown above, HRS 226-18 currently states that "Planning... with regard to energy ... shall be directed toward... the reduction and ultimate elimination of Hawaii's dependence on imported fossil fuels for electrical generation and ground transportation." Therefore, the statute in its current form – without revision – is consistent with the rest of the bill's actions and objectives. Therefore, the proposed changes to §226-18 are not necessary, and section 5 of the bill should be deleted.

In summary, the Forum respectfully requests that if you approve this bill, that it be with the suggested amendment above.

*This testimony reflects the position of the Forum as a whole and not necessarily of the individual Forum members or their companies.*

# SanHi Government Strategies

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DATE: March 27, 2017

TO: Senator Jill Tokuda  
Chair, Committee on Ways and Means  
*Submitted via Capitol Website*

RE: **H.B. 1580, H.D.2, S.D.1 – Relating to Energy**  
**Hearing Date: Tuesday, March 28, 2017 at 9:30 a.m.**  
**Conference Room: 211**

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Dear Chair Tokuda and Members of the Committee on Ways and Means:

On behalf of the Alliance of Automobile Manufacturers (“Alliance”), we submit these **comments** on H.B. 1580, H.D.2, S.D.1. The Alliance is a trade association of twelve car and light truck manufacturers including BMW Group, Fiat Chrysler Automobiles, Ford Motor Company, General Motors Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche, Toyota, Volkswagen Group of North America, and Volvo Car USA.

Automobile manufacturers have invested heavily in the research and development of alternative fuel vehicles, and respect efforts to reduce petroleum consumption in the transportation sector. The Alliance supports efforts to increase the penetration of alternative fuel vehicles and to increase the availability of supporting infrastructure, but is concerned that there are provisions in the S.D.1 that place unrealistic goals in statute.

There will still be gasoline-fueled vehicles driven in 2045. Any plug-in hybrid electric vehicle sold beyond 2045 would still require petroleum to run. Given that the national fleet average age of vehicles is currently 12 years, and in Hawaii can be much longer, in order to meet the 2045 goal, it would require that by 2033, at a minimum, all vehicles sold in the state would have to be

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Gary M. Slovin  
Mihoko E. Ito  
R. Brian Tsujimura  
C. Mike Kido  
Tiffany N. Yajima  
Matthew W. Tsujimura



gasoline-free alternative fuel vehicles. California has the most rigorous standards in the country, but does not contemplate that scenario occurring until 2050, and would still have fuel available for all other used vehicles, cars and trucks with internal combustion engines.

There are over 1 million cars and trucks registered in Hawaii, but, presently, the number of electric vehicles registered in the state constitutes less than 1% of all vehicles. Under this bill, there are thousands of residents who would be either unable to purchase, drive or fuel an alternative fuel vehicle which would create an undue hardship, and it is uncertain if the number of electric vehicles needed to meet the goal can be made available in Hawaii by 2045.

In 2015, the Department of Business, Economic Development and Tourism commissioned the International Council on Clean Transportation (“ICCT”) to analyze Hawaii’s transportation sector and work with stakeholders to develop tactics to reduce petroleum consumption for ground transportation. The culmination of those efforts resulted in the Hawaii Clean Energy Initiative Transportation Energy Analysis report, which recommended reasonable tactics to reduce fuel consumption in the ground transportation sector. As a participant to the working group meetings, the Alliance is very interested in continuing that dialogue with stakeholders before placing such ambitious goals in statute, and would be willing to work with the Department of Transportation, DBEDT, and any other participants to set a more reasonable goal.

Finally, if the committee is inclined to adopt a goal for fuel in the transportation sector, the Alliance would note that a more reasonable approach may be considered in the H.D.2 of this bill. While still ambitious, a goal of 5% reduction in fossil fuel by 2025 for ground transportation would appear to be more rational than a goal to eliminate fuel for all ground transportation in the state.

Thank you for the opportunity to submit these comments.

# Citizens' Climate Lobby

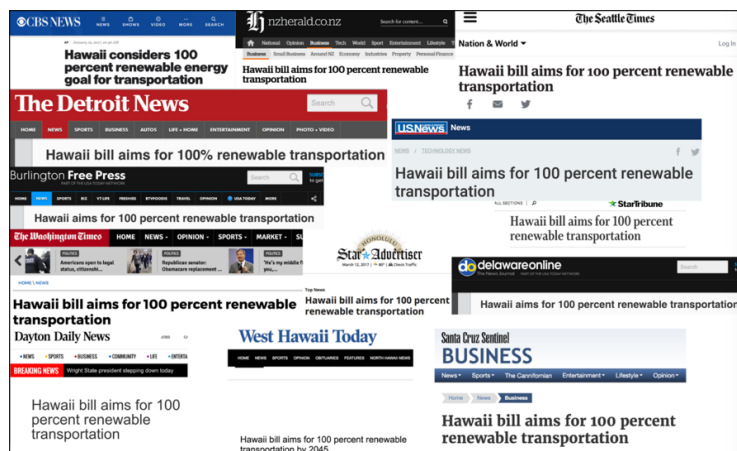
Email: [honolulu@citizensclimatelobby.org](mailto:honolulu@citizensclimatelobby.org)

SENATE COMMITTEE ON WAYS AND MEANS  
Tuesday, March 28th, 2017 – 9:30am, room 211

Aloha Chair Tokuda, Vice Chair Dela Cruz and Members of the Committee,

Citizens' Climate Lobby (CCL) **strongly supports the intent of HB1580** on behalf of our 389 chapters worldwide. Without taking too much of your time to iterate the points that other clean energy supporters have stated, we highly encourage you to pass this bill with language that would set a state goal for Hawai'i to have fossil fuel free ground transportation by 2045.

CCL Chapters from across the United States have been sending the Honolulu Chapter articles written from their cities reporting that Hawai'i could pass a bill for 100% renewable transportation by 2045 and that it would be the most ambitious clean transportation goal in the country should it pass.



Science Magazine published an article on March 24th, 2017 which states:

**A**lthough the Paris Agreement's goals (1) are aligned with science (2) and can, in principle, be technically and economically achieved (3), alarming inconsistencies remain between science-based targets and national commitments. Despite progress during the 2016 Marrakech climate negotiations, long-term goals can be trumped by political short-termism.

As a state which passed the country's first 100% renewable portfolio standards goal, we believe that Hawai'i has an opportunity to continue to set a good example for others; a state which sees the need for action and responds accordingly.

As far as the needs, they couldn't be greater with new research from the University of Hawai'i

SUNDAY 3/26/17 staradvertiser.com >> \$2.25 Oahu, \$3.25 neighbor islands >> Partly sunny. High 84, low 71 >> A12 

GLOBAL WARMING THREAT

# WATER RISING

*UH researchers warn that groundwater will flood many low-lying areas around the state as oceans rise*

**By Timothy Hurley**  
thurley@staradvertiser.com

**U**niversity of Hawaii researchers have updated scientific models that confirm that low-lying areas of the islands face a lesser known but more insidious threat from sea-level rise generated by global warming: groundwater flooding.

A new study from UH scientists shows a large part of urban Honolulu and Waikiki increasingly swamped with groundwater as the rising ocean pushes up the water table, threatening some \$5 billion of taxable real estate, nearly 30 miles of roadway, and a host of other facilities and assets.

This will happen regardless of any seawalls built, according to the study, thus requiring special engineering, costly public works and other measures to deal with the standing water.

"We're talking about new wetlands forming in our

**WHAT HAPPENS WHEN SEA LEVEL RISES**  
A University of Hawaii study was published in the science journal *Water Research*. The study was to develop a model to simulate groundwater inundation induced by sea-level rise and high tides. Worsening sea-level rise is lifting Oahu's caprock aquifer, an underground lens of brackish and polluted water that floats on a base of higher-density saltwater connected to the ocean. The result is groundwater inundation in low-lying areas, illustrated below.



--- Normal water levels

④ Groundwater floods surface

③ Groundwater is pushed up

② Saltwater lens rises

① Sea level rises

Labels: STREAM, LAND SURFACE, SEA LEVEL, OCEAN, GROUNDWATER

and continuing research from Oxford Martin School

# trillionthtonne.org

Explaining the need to limit cumulative emissions of carbon dioxide.

Estimated cumulative emissions from fossil fuel use, cement production and land-use change since industrialization began are

## 609,732,853,112

tonnes of carbon.

**Explore what this means**

Cumulative emissions matter, because the total amount of carbon dioxide that can be released into the atmosphere is limited if we are to avoid dangerous climate change. The limit depends on:

**How much warming should we expect per tonne of carbon released into the atmosphere?**

**At what level do you want global temperatures to peak?**

If temperatures rise by **2°C per trillion tonnes** of carbon released into the atmosphere, to avoid more than **2°C of warming** we need to limit total cumulative emissions to below **1,000,000,000,000** tonnes of carbon.

Based on emission trends over the past 20 years, we expect the **1,000,000,000,000th** tonne will be emitted on **Sun, 05 Jul 2037 17:04:26 GMT**

We would not release the **1,000,000,000,000th** tonne if emissions were to start falling now at **2.7908926037 %** per year

[Find out more...](#)








indicating that time is very short for addressing the problems at hand.

For these reasons and more, we find that for the people of Hawai'i and beyond, it is necessary to pass HB1580 using language which would most strongly reduce greenhouse gas emissions from ground transportation as quickly as possible.

Respectfully,

Jeffrey Kim  
Honolulu Chapter Leader  
Citizens' Climate Lobby



Brian Kitagawa, President  
Dave Rolf, Executive Director

HADA testimony with COMMENTS on  
HB 1580 HD2 SD1  
RELATING TO ENERGY

Presented to the Senate Committee on Ways and Means  
at the public hearing to be held  
9:30 a.m. Monday, March 28, 2017  
in Conference Room 211, Hawaii State Capitol

by the Members of the Hawaii Automobile Dealers Association  
Hawaii's franchised new car dealers

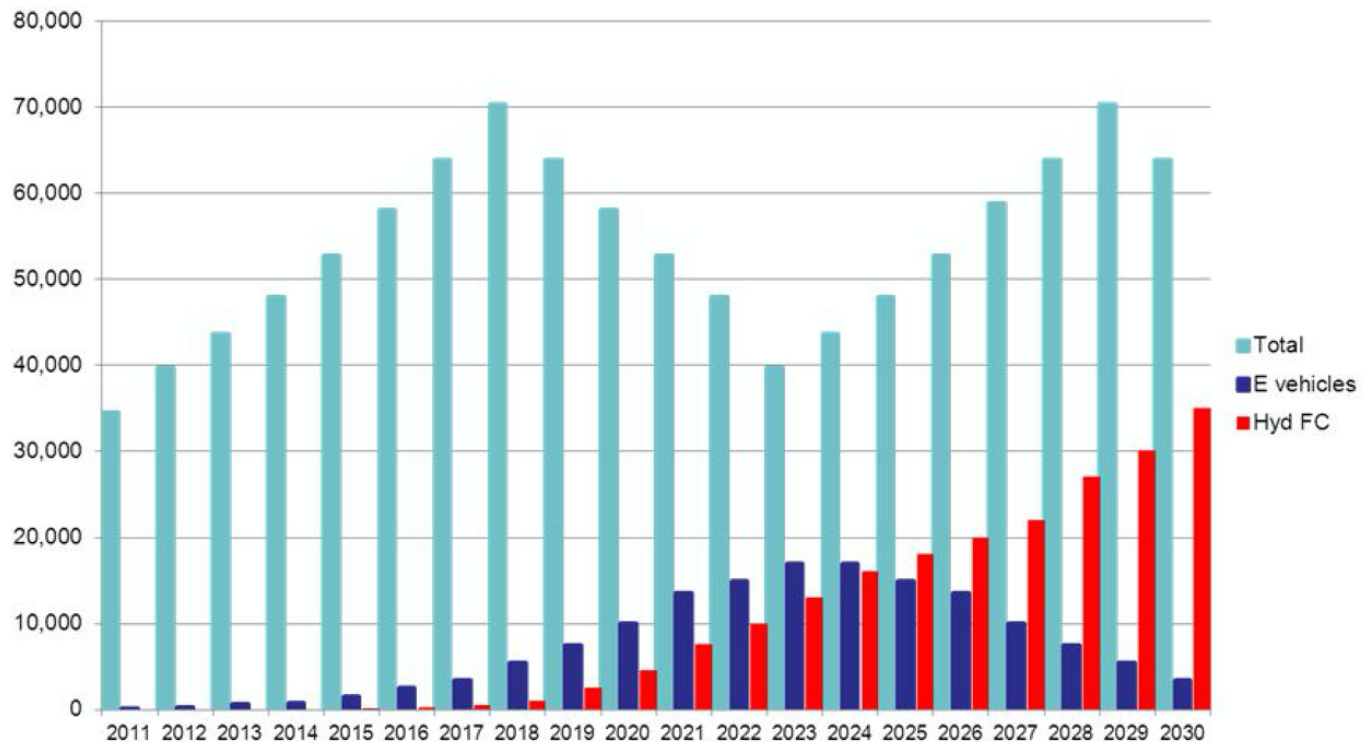
Chair Tokuda, Vice Chair Dela Cruz, and Members of the Committee:

I am David Rolf, representing the members of the Hawaii Automobile Dealers Association, Hawaii's franchised new car dealers, who have remained strong in their support of the transition to renewable energy for use in vehicles in Hawaii. The association supports the measured and considered transition to electric vehicles and hydrogen fuel cell electric vehicles, proposed in House Bill 1580, HD2, SD1 and offers the following comments on setting a goal to achieve 100% use of renewable fuel for ground transportation by 2045.

HB 1580's 100% renewable fuel goal for 2045 represents an extension of the 40% goal for renewable fuel use by 2030, established in the Hawaii Clean Energy Initiative. See the HCEI graphic below.



In 2010, HADA created a projection of the adoption rate for renewable fuel vehicles—electric vehicles and hydrogen fuel cell electric vehicles—showing what uptake would be “needed” to hit the HCEI 40% renewable goal in the ground transportation personal light vehicle (cars and trucks) sector.



HADA's Golden Gate Graph, nicknamed because of its resemblance to the bridge, shows the projected annual sales of new cars and light trucks, including, the 400,000 electric and hydrogen fuel cell vehicles "needed" to meet the Hawaii Clean Energy Initiative's goals—40% of the light vehicles in operation by 2030. So far, HADA's projections have been surprisingly accurate. The red and blue bar levels, going forward are laudable goals but likely unattainable without \$3 million needed from the Hawaii Energy fund for a strong education-of-the-public program run on tv, local newspapers, radio, and internet advertising, a significant increase in the barrel tax with much of it devoted to infrastructure development for EVs and HFCEVs, and a reshaping of America's flawed patchwork-quilt system of ZEV states, which uses mandates and penalties on auto manufacturers which have proven largely ineffective in creating customer uptake compared to customer incentives and market-driven forces. With gasoline prices remaining low for the foreseeable future into the 2020s, recent EV uptake numbers are not currently hitting the state projection. It will take a complex, multi-faceted approach to stay on track.

## What's just up the road?

New car dealers have enjoyed a thrilling, sometimes curvy, road up the hill, filled with great views, and exciting turns, for the past few years.

The same could be said for the Hawaii economy, which always seems to closely correspond to the bars on the graph showing the activity at new car dealerships.

New vehicle sales, after topping off, like old Pharaoh's dream, are in for some leaner years ahead. One can plan for just about anything ahead using these projected new car numbers.

There will remain about a million cars on the roads. The average of about 50,000 new cars and trucks imported each year, is offset by the 50,000 older vehicles coming off the roadways because the average lifespan of vehicles of about 20 years.

Hawaii's population will increase through 2030, but the number of vehicles on the roadways will remain relatively constant at one million vehicles because alternative public transportation is being developed, and people nowadays are doing more walking and biking. Another positive factor is that electronic commuters--those employees working at home via computer--are becoming more prevalent.

It's not a time to be afraid of adding more highway lanes.

Speaker Souki's opening day address talked about the addition of toll roads which could add to corridor capacity --rapidly reducing the currently aggravating traffic congestion in Hawaii, and as cars and trucks, with their new autonomous driving features move closer and closer to putting a driverless fleet on the roadways in the next few years, the congestion will be further reduced. Of course, we'll all be "driving" for quite some time. But new technology is being placed in new vehicles already that is moving new autonomous features into cars very rapidly.

A multi-modal transportation plan, involving personal vehicles, public transit, walking, biking, electronic commuting, and future housing development is what is needed.

And life can soon be a lot more enjoyable for all.

Part of the problem facing Hawaii in the recent past has been inaccurate estimates. This lack of a clear-eyed understanding of costs associated with public policy has resulted in public spending for ground transportation that has become uncontrollable.



HADA dealers have ardently pursued the state's renewable fuel in transportation goals which were set by stakeholders through the legislative process.

The new car dealers association welcomes the opportunity to participate in this bill's goal-setting process, for 2045.

Members of the new car dealers association bring a great deal of experience to the table. That experience has proven useful in predicting results relating to various public policy decisions in the past.

In 1998, an accurate prediction of tax revenues was made. In that year, projected new car sales were wrapped into the calculation to determine anticipated tax revenues. The calculation also used the number of construction workers employed, and hotel room revenue numbers to accurately predict the future tax revenues, missing the mark by only tens of thousands of dollars. The Council on Revenues missed the mark by \$342 million.



In an independent study on EVs prepared by Glen Mercer for the National Automobile Dealers Association, January 2017, Mercer writes, "As of this writing, US EV sales from 2012 through 2015 were 55,000, 100,000, 125,000 and 115,000, with 2016 expected to come in at about 140,000.



Here in 2017, Hawaii has passed the 5,000 electric vehicle adoption mark. A number which was foretold on HADA's so-called Golden Gate Bridge graphic, created in 2010, showing projected of new vehicle customer uptake by fuel source.

With specific comment on HB1580 HD 2 SD1 HADA would like to point out that the bill's reference to electric vehicle charging systems and the required placement of such is overly vague.

If and when renewable fuel vehicle benchmarks are being set to measure the renewable fuel vehicle uptake needed to meet the State's goals through 2045, HADA dealers welcome the opportunity to participate in the process.

Respectfully submitted,  
David Rolf  
Executive Director, Hawaii Automobile Dealers Association

**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Friday, March 24, 2017 3:45 PM  
**To:** WAM Testimony  
**Cc:** mendezj@hawaii.edu  
**Subject:** \*Submitted testimony for HB1580 on Mar 28, 2017 09:30AM\*

**HB1580**

Submitted on: 3/24/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Javier Mendez-Alvarez	Individual	Support	No

Comments:

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [Ava Fedorov](#)  
**To:** [WAM Testimony](#)  
**Subject:** I support HB150 the clean transportation bill!  
**Date:** Sunday, March 26, 2017 1:10:54 AM

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Aloha,

I am submitting testimony in favor of HB1580. Hawaii stands to become a leader in the nation and across the globe when it comes to the future of energy consumption and creation. I completely and wholeheartedly support Hawaii committing to sourcing 100% of its energy, *including transportation energy* from renewable sources.

Thank you!

Ava Fedorov  
Kailua, HI 96734

HB1580

Department of Transportation, Renewable Energy; Working Group

March 28, 9:30 am, 2017, Room 211

Relating To Energy

Aloha Chair Takuda, and members of the committee. My name is Maxim Poudrier-Tudan, I am a student at the University of Hawaii at Manoa, and I am testifying in support of HB1580 for the Department of Transportation, Renewable Energy; Working Group.

This bill is so important to insure the well-being of the Hawaiian Islands, and the entire planet itself. As a twenty-year-old student, I am highly concerned with the state of the planet that I am succeeding from my predecessors, especially in the way in which transportation currently burns through fossil fuels, while emitting harmful gases into the air we breathe. By achieving this goal of total renewable ground transportation, this bill would drastically reduce the pollutants in the air in which I and my children in the future will be breathing. This state is one of the most beautiful places in the world, and it sickens me to see the smog level rising from an issue that is so easily fixed.

Another major issue is that of the planet. With global temperatures at an all-time high, and 2016 being the hottest year on record, it is apparent that there is a problem that needs to be fixed. Hawaii is seen as a leader in environmental progression for the entirety of the Nation, putting in place a bill that will help reduce air pollution state wide will set the stage for other states to follow in this direction, and push for more policies that will combat the deadly effects of climate change.

Senator Tokuda,

I would like to express my strong **support** for HB1580. As a resident of Hawaii, it is overwhelmingly clear to me that there needs to be changes to infrastructure (namely to accommodate renewable technologies) in order to make the state's 2045 goal a reality. Transitioning Hawaii away from fossil fuels is in the best interest of the island community for so many reasons. The two big ones for me are 1) over time, the elimination of fossil fuels will lower energy costs and protect consumers from volatile prices associated with fossil fuels (oil is a finite resource!) 2) eliminating fossil fuel usage will reduce emissions, which we know causes global warming, (and global warming means threats to public health, rising sea levels, increased storms, and a whole suite of other troubles). This bill will help us get to where we need to be, and time is running out. Thank you for holding a hearing for the bill, and for your time.

Sincerely,

Alison Crabb

**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:27 AM  
**To:** WAM Testimony  
**Cc:** moonierjames@gmail.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
James Moonier	Individual	Support	No

Comments: Chair Tokuda, Vice Chair Dela Cruz and WAM memebbers, I strongly support HB1580. Hawaii's energy policy already aims to eliminate the use of imported fossil fuels for electricity and ground transportation. Two years ago you enacted a deadline for 100% renewable energy in the electricity sector re-framed energy issues, fostered collaboration, and catalyzed progress in electricity regulation and planning. Now it is time to do the same for the transportation sector. Please pass this bill for the good of Hawaii and the planet. James Moonier Kailua, Oahu

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:26 AM  
**To:** WAM Testimony  
**Cc:** vickieinkailua@gmail.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Vickie Fullard-Leo	Individual	Support	No

Comments: We are the sunny, beautiful, Aloha State. Help protect us! I request that you pass HB1580. Without a firm plan for infrastructure Hawaii residents will not be able to take advantage of the new transportation technologies such as electric and hydrogen vehicles. Residents who want to do the right thing for the planet and their pocketbooks deserve this opportunity. Renewable energy stored in our cars and buses will help balance renewable energy on the grid. This will allow more people to benefit from solar panels on their homes. Mahalo, Vickie Fullard-leo, Kailua

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:24 AM  
**To:** WAM Testimony  
**Cc:** jean67@me.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
jean homsy	Individual	Support	No

Comments: Without a firm plan for infrastructure Hawaii residents will not be able to take advantage of the new transportation technologies such as electric and hydrogen vehicles. Residents who want to do the right thing for the planet and their wallets deserve this opportunity.

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:23 AM  
**To:** WAM Testimony  
**Cc:** kittyc8571@gmail.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Catherine Courtney	Individual	Support	No

Comments: Aloha Chair Tokuda and members of the committee on Ways and Means, I strongly support and ask you to pass HB1580. We need to make Hawaii's energy policy comprehensive. Our policy already aims to eliminate the use of imported fossil fuels for electricity and ground transportation. Two years ago you enacted a deadline for 100% renewable energy in the electricity sector re-framed energy issues, fostered collaboration, and catalyzed progress in electricity regulation and planning. Now it is time to do the same for the transportation sector. Mahalo, Dr. Katherine Courtney, Kailua

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:22 AM  
**To:** WAM Testimony  
**Cc:** jlarson@lejardinacademy.org  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Julie Larson Hicks	Individual	Support	No

Comments: I request that you support HB1580. Using local, renewable energy in Hawaii's transportation sector will keep our air clean, slow climate change, save money on imported fossil fuel, stimulate our economy, and make our energy supply more secure. We need to set a firm date in order to guide decision makers when they are making investment decisions. Mahalo, Julie Larson Hicks, Kaneohe

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:21 AM  
**To:** WAM Testimony  
**Cc:** sksb@earthlink.net  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Karen Simmons	Individual	Support	No

Comments: Aloha Chair Tokuda, Vice Chair Dela Cruz and Committee Members, I ask that you support and pass HB1580. Without a firm plan for infrastructure Hawaii residents will not be able to take advantage of the new transportation technologies such as electric and hydrogen vehicles. Residents who want to do the right thing for the planet and their pocketbooks deserve this opportunity. Thank you, Karen Simmons Kailua

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:19 AM  
**To:** WAM Testimony  
**Cc:** cochrah@gmail.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Heather Cochran	Individual	Support	No

Comments: I, Heather Cochran, strongly ask you to pass HB1580. Hawaii's energy policy already aims to eliminate the use of imported fossil fuels for electricity and ground transportation. Two years ago you enacted a deadline for 100% renewable energy in the electricity sector re-framed energy issues, fostered collaboration, and catalyzed progress in electricity regulation and planning. Now it is time to do the same for the transportation sector. Sincerely, Heather Cochran

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:19 AM  
**To:** WAM Testimony  
**Cc:** donascot67@gmail.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Scott Sullivan	Individual	Support	No

Comments: To Chair Tokuda and WAM members: I strongly support and urge you to facilitate the passage of HB1580. Given Hawaii's ample wind, sun, geothermal and other ways of generating clean renewable energy, weaning our transportation modes and systems away from fossil fuels should be a high priority for the State. Setting a firm date for a complete transition to renewable fuels will facilitate making this happen. Sincerely, Scott Sullivan Kaneohe

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:17 AM  
**To:** WAM Testimony  
**Cc:** alohasteph@mac.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
stephanie frazier	Individual	Support	No

Comments: Aloha, I ask you to pass HB1580. Using local, renewable energy in Hawaii's transportation sector will clean our air, slow climate change, save money on imported fossil fuel, stimulate our economy, and make our energy supply more secure. We need to set a firm date so that decision makers will take it into account when making investment decisions. Thank you, Stephanie Frazier Kailua resident

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:16 AM  
**To:** WAM Testimony  
**Cc:** rangood4@hotmail.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Randy Erickson	Individual	Support	No

Comments: Dear Chair Tokuda and members of WAM, Having a photo voltaic system attached to our home and a vehicle that charges off a normal 115 volt home outlet is a simple process and keeps on giving free energy and a feeling of independence. A plan like this should be implemented to include all of Hawaii's transportation needs. Please support HB1580. Randy Erickson Kaneohe

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:14 AM  
**To:** WAM Testimony  
**Cc:** annmarten@hawaii.rr.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Ann Marten	Individual	Support	No

Comments: I strongly support HB1580. We can no longer stick our heads in the sand and pretend that it is the '70's and everyone 16 and over should have their own car. Many will want cars though so they need to be clean. Our population, both temporary and permanent, keeps growing and we must protect Hawaii from the exhaust from cars and trucks, etc. Fossil fuels come here on a boat, and we cannot take the chance that boats will not want to or be able to come to Hawaii. Hawaii's energy policy already aims to eliminate the use of imported fossil fuels for electricity and ground transportation. Two years ago you enacted a deadline for 100% renewable energy in the electricity sector re-framed energy issues, fostered collaboration, and catalyzed progress in electricity regulation and planning. Now it is time to do the same for the transportation sector. Thank you, Ann Marten Kailua

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:10 AM  
**To:** WAM Testimony  
**Cc:** htyeric@gmail.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Eric Johnson	Individual	Support	No

Comments: I strongly support HB1580. Hawaii's energy policy already aims to eliminate the use of imported fossil fuels for electricity and ground transportation. Two years ago you enacted a deadline for 100% renewable energy in the electricity sector re-framed energy issues, fostered collaboration, and catalyzed progress in electricity regulation and planning. Now it is time to do the same for the transportation sector. Mahalo, Eric Johnson Honolulu

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:09 AM  
**To:** WAM Testimony  
**Cc:** bbreis@me.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Brijit Reis	Individual	Support	No

Comments: Dear Chair Tokuda, Vice Chair Dela Cruz and Members of Ways and Means, I support HB1580. Using local, renewable energy in Hawaii's transportation sector will clean our air, slow climate change, save money on imported fossil fuel, stimulate our economy, and make our energy supply more secure. We need to set a firm date so that decision makers will take it into account when making investment decisions. Thank you, Dr. Brijit Reis Kailua

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:07 AM  
**To:** WAM Testimony  
**Cc:** hkuo19@punahou.edu  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Hailey Kuo	Individual	Support	No

Comments: I am a high school student and I ask you to think of my future. I strongly support that you pass HB1580. Hawaii's energy policy already aims to eliminate the use of imported fossil fuels for electricity and ground transportation. Two years ago you enacted a deadline for 100% renewable energy in the electricity sector re-framed energy issues, fostered collaboration, and catalyzed progress in electricity regulation and planning. Now it is time to do the same for the transportation sector. Thank you, Hailey Kuo

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:05 AM  
**To:** WAM Testimony  
**Cc:** mwahl17@punahou.edu  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Mikaila Wahl	Individual	Support	No

Comments: Chair Tokuda, Vice Chair Dela Cruz and Members of WAM, My name is Mikaila, and I am a senior in high school. I strongly support and ask you to pass HB1580. Hawaii's energy policy already aims to eliminate the use of imported fossil fuels for electricity and ground transportation. Two years ago you enacted a deadline for 100% renewable energy in the electricity sector re-framed energy issues, fostered collaboration, and catalyzed progress in electricity regulation and planning. Now it is time to do the same for the transportation sector. Thank you for your time, and I look forward to our island's sustainable future!

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 9:03 AM  
**To:** WAM Testimony  
**Cc:** ronirooks@gmail.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Veronica J Rooks	Individual	Support	No

Comments: Dear Chair Tokuda, Vice Chair Dela Cruz and members of the Committee on Ways and Means: 100% renewable ground transportation complements our 100% renewable power goal. Electric vehicles serve as energy storage for intermittent renewable energy. Powering our transportation from local, renewable energy sources helps our economy, our security and our environment. Thank you, Dr. Veronica Rooks Kailua

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Rachel Schutz  
1504 Uluhao St.  
Kailua, HI 96734

March 27th, 2017

Aloha WAM Committee Members,

My name is Rachel Schutz and I am writing in support of HB1580 which establishes the objective of reducing the use of fossil fuels for ground transportation.

I am an educator that teaches both at UH Mānoa and Punahou, but I live in Kailua. I spend a good amount of time and money commuting back and forth which means that the price of gas affects my bottom line. Importing our gas naturally inflates the price, meaning that Hawai'i has some of the highest gas prices in the country. By switching to renewable sources, we could, over time, reduce the price of my daily commute while improving our environment simultaneously.

Beyond the personal economic consequences of this bill, it would also give us the opportunity to make Hawai'i both a technological and moral center for the upcoming energy transition. By pledging our support to renewable transportation, we could introduce a whole new sector to our economy and be a leader worldwide in this field, which would, in turn, improve opportunities for our young people. As an island state, Hawai'i knows better than most what the consequences of climate change can be. We must therefore set an example to other states/nations, as well as to our own keiki, that protecting our natural resources, fighting climate change, and transitioning to a renewable energy future is our kuleana.

This bill would deepen our dedication to renewable energy and begin to fill in the gaps that our 2015 bill left open when it pledged to achieve 100% renewable energy by 2045. Please protect our 'aina, our bottom lines, and our children's futures.

Mahalo for your time.

Rachel Schutz

**From:** [Darren Kimura](#)  
**To:** [WAM Testimony](#)  
**Subject:** TESTIMONY IN STRONG SUPPORT OF HB 1580 SD1  
**Date:** Monday, March 27, 2017 9:00:14 AM

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SENATE COMMITTEE ON WAYS AND MEANS

March 28, 2017, 9:30 A.M.

Room 211

TESTIMONY IN STRONG SUPPORT OF HB 1580 SD1

Aloha Chair Tokuda, Vice Chair Dela Cruz, and Committee members:

I'm writing in strong support of HB 1580, SD1. This measure sets a planning vision for the elimination of fossil fuels from ground transportation in Hawaii by 2045. By setting a target for 100% clean transportation, this bill helps to align our planning efforts and investments across Hawaii's energy systems.

Having worked in the energy sector for over three decades, it's refreshing to see Hawaii's significant progress on renewable energy. Hawaii has turned the corner on fossil fuel use in the electricity sector, using incrementally less year over year in the past decade, thanks to investments in energy efficiency and gains in renewable energy.

Today, our largest source of greenhouse gas emissions is from the transportation sector, with over half of that coming from cars and trucks. And we're heading in the wrong direction, with gasoline consumption in Hawaii increasing in recent years. It's time to seriously address our dependence on imported oil for transportation, and setting the long-term goal is the first step.

I recognize that this measure simply sets forth the vision for ground transportation. This is rightly the first step. In business, we set goals and visions and then build plans to achieve them. The details on the pathway to achieve our renewable transportation future--the policies, technologies, programs, investments--will follow.

The good news is it will be easier to solve our renewable energy challenge and our transportation challenge together rather than separately. Electric vehicles can act as "batteries on wheels," absorbing excess solar energy during the day and putting it to work for us at night. Similarly with hydrogen fuel cell vehicles, like the new Toyota Mirai. Hydrogen can be produced from water using curtailed renewable energy from wind, solar, geothermal, or other sources. Biofueled vehicles--such as those on our roads today--will likely use the fraction of biofuel that's not being used for jet fuel, helping to make biofuel crops more economically attractive. We need to be optimizing these systems together. This starts with concurrent goals.

Being born and raised in Hilo and now with a family of my own, the urgency of moving off of fossil fuels is even more critical. We can--and must--do better. I'm encouraged by the rapid technological and business progress in solving our electricity challenge. It's time to foster the same progress for clean transportation.

This bill is an important step in realizing our clean energy future. I respectfully urge you to pass it in its current form with a proper effective date ("upon approval").

Mahalo for the opportunity to testify.

Darren Kimura

Senate Committee on Ways and Means  
March 28, 2017, 9:30 A.M.  
Room 211

## TESTIMONY IN STRONG SUPPORT OF HB 1580 SD1

Aloha Chair Tokuda, Vice Chair Dela Cruz, and Committee Members:

Mahalo for the opportunity to share my thoughts on HB 1580 SD1. I am in strong support of this measure, setting a planning vision for achieving a 100% clean energy future for our ground transportation in Hawaii. This is the right thing to do for the stability of our residents, for our visitor industry, for our economy, and for our future.

I've worked in the hospitality industry for most of my career and understand deeply how vulnerable Hawaii is to the price and availability of oil. We're fortunate today that the price of oil is relatively low, which enables our visitor industry to keep our second highest expenditure, energy cost (gasoline, diesel, and electricity) at reasonable levels--although still expensive. But we cannot be certain that this current situation will continue in future years. Oil is a limited resource, and Hawaii's oil originates from regions that are not always stable.

What if something were to happen to that supply? Or even if the price of oil started climbing back to its historic highs? We are completely at the mercy of the global market. But it doesn't need to be this way. We can start to transition to local sources of fuel for our vehicles--be it biofuels, electricity, hydrogen, or whatever else might be on the horizon. We can help secure our economic future by powering our vehicles with the renewable energy that we have in abundance here in Island State. In addition, the transition to clean transportation aligns well with the image of Hawaii—an environmental conscious destination that will attract many more visitors from around the world.

I learned recently that JTB Hawaii will be investing in zero-emission buses to replace their current "whale" fleet, which I believe, will lead other Japanese wholesalers to do the same. When visitors experience these new, quiet, zero-emission vehicles, they won't want to go back to the noisy diesel buses on our streets today--especially the open-air ones. It's really going to be a new experience for our visitors and reflect well on our State's image as a cleaner and greener community.



We know that significant change is coming to the transportation sector. We now have thousands of electric vehicles in the state, and new models are coming out every year. New fuel cell cars and buses are coming. The transition globally is starting to happen and I believe that Hawaii should be the leader in this transition to zero-emission vehicles.

A quarter of a century is a long time, but we need to start putting the plans in place today to make Hawaii a cleaner and better place for our children and all future generations. What's more, setting a target for 100% clean transportation will send a market signal to the globe that Hawaii is open for business. Clean transportation companies (automakers like Tesla and BYD from China; charging infrastructure companies; etc.) will be more eager to invest in our state if they have an indication that we are committed to moving toward clean transportation.

I respectfully ask the Senate Committee on Ways and Means to advance HB 1580 SD1.

Mahalo for the opportunity to testify.

Ernest K. Nishizaki  
Acumen Advisor LLC  
Principal

**From:** [Virginia Hinshaw](#)  
**To:** [WAM Testimony](#)  
**Subject:** Testimony in Strong Support of HB 1580 SD1  
**Date:** Sunday, March 26, 2017 7:19:23 PM

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Aloha Chair Tokuda, Vice Chair Dela Cruz, and Committee members:

I am writing to express my strong support of HB 1580 SD1. This bill will provide a sorely needed vision for the transition away from fossil fuels in our ground transportation sector.

Ground transportation is Hawai'i's largest source of greenhouse gas emissions, and gasoline consumption is rising. We cannot wait for others to solve this problem for us. At the federal level, the administration of President Donald Trump is taking us backwards. The administration has announced plans to roll back vehicle fuel economy standards, retract the Clean Power Plan, eliminate the Climate Action Plan, and embrace a "revolution" in the oil, gas, and coal industries.

These steps will do nothing for Hawai'i. Now is the time for state action. By passing HB 1580 SD1, the legislature can set in motion Hawai'i's own energy revolution, powered by clean, local sources of energy.

I applaud the legislature for passing a 100% renewable electricity standard in 2015. It is time to set the same vision for 100% clean transportation.

I respectfully urge you to pass the bill in its current form with a proper effective date ("upon approval").

Mahalo for the opportunity to testify. Virginia S. Hinshaw, Board Member of Blue Planet

1617 Kapiolani Boulevard, Unit 1402, Honolulu, Hawaii 96814

**PUBLIC HEARING TESTIMONY IN SUPPORT OF HB1580 HD2 SD1**

Tuesday, March 28, 2017, 9:30 AM  
Hawaii State Capitol, Conference Room 211  
Senate Committee on Ways and Means

To the Senate Committee on Ways and Means:

I am a voting constituent, and I support this bill.

Justin M. Salisbury

**From:** [Henk Rogers](#)  
**To:** [WAM Testimony](#)  
**Subject:** TESTIMONY IN STRONG SUPPORT OF HB 1580 SD1  
**Date:** Monday, March 27, 2017 2:52:53 PM

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Senate Committee on Ways and Means  
March 28, 2017, 9:30 A.M.  
Room 211

## TESTIMONY IN STRONG SUPPORT OF HB 1580 SD1

Aloha Chair Tokuda, Vice Chair Dela Cruz, and Committee members:

I'm writing in strong support of HB 1580 SD1, a measure that sets a 100% clean transportation target for the state of Hawaii. We need to set this goal to better align our long-term planning for clean energy and to send a market signal to the globe that Hawaii is serious about transitioning away from fossil fuels.

As you may know, one of my missions is to end the use of carbon-based fuels on Earth. It is imperative for the continued existence of civilization as we know it to rapidly transition toward 100% renewable sources of energy. This is going to take vision, leadership, and courage. It was exactly that vision and leadership two years ago that put Hawaii on the map globally for its effort in committing to a target date for 100% renewable energy. That goal--the first of its kind in the nation--captured the world's imagination. Other states, such as Massachusetts and California, are following Hawaii's lead and have introduced similar 100% renewable energy policies.

While we can celebrate our success in moving toward renewable electricity, we know it is only part of our energy picture. Transportation accounts for over two-thirds of our fossil fuel use in Hawaii, and over half of that amount is used in our cars and trucks. We burned over a half billion gallons of gasoline and diesel for our vehicles last year--consumption that has been increasing in the past decade. Part of the problem is we have no state goal for reducing our fossil fuel use in the ground transportation sector. How do we expect to make progress if we haven't set a vision? In the words of Yogi Berra, "if you don't know where you are going, you might wind up someplace else."

Setting a target date for achieving a 100% clean transportation future is far more than a feel-good effort. Establishing a planning vision will spur alignment and collaboration on planning and infrastructure efforts, thus leading to more effective solutions. It will set market expectations, opening the door to innovation. And it will encourage personal action, to support the shared goal of island sustainability.

Because electric vehicles will be one part of the clean transportation transition, the state's renewable electricity goal goes hand-in-hand with the transportation goal in this bill. Electricity is already a less expensive fuel alternative to gasoline. But a growing fleet of EVs can provide a double benefit by helping to balance renewable energy on the grid and lower the cost of electricity. This is a win-win. It also underscores the need to align the state's electricity targets with its transportation targets.

I respectfully urge this committee to forward HB 1580 SD 1 in its current form with a correct start date ("effective upon approval").

Mahalo for the opportunity to testify.

Aloha,  
Henk B. Rogers

**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 8:33 PM  
**To:** WAM Testimony  
**Cc:** goran@haleakalasolar.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Goran Radovanovic	Individual	Support	No

Comments: Dear Chair Tokuda, Vice Chair Dela Cruz and members of the Committee on Ways and Means, I STRONGLY SUPPORT AND REQUEST THAT YOU SUPPORT HB1580. Hawaii's energy policy already aims to eliminate the use of imported fossil fuels for electricity and ground transportation. Two years ago you enacted a deadline for 100% renewable energy in the electricity sector re-framed energy issues, fostered collaboration, and catalyzed progress in electricity regulation and planning. Now it is time to do the same for the transportation sector. By using local, renewable energy in Hawaii's transportation sector will clean our air, slow climate change, save money on imported fossil fuel, stimulate our economy, and make our energy supply more secure. We need to set a firm date so that decision makers will take it into account when making investment decisions. Without a firm plan for infrastructure Hawaii residents will not be able to take advantage of the new transportation technologies such as electric and hydrogen vehicles. Renewable energy stored in our cars and buses will help balance renewable energy on the grid. This will allow more people to benefit from solar panels on their homes. Thank you, Goran Radovanovic

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**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, March 27, 2017 5:29 PM  
**To:** WAM Testimony  
**Cc:** casey.nishimura@gmail.com  
**Subject:** Submitted testimony for HB1580 on Mar 28, 2017 09:30AM

**HB1580**

Submitted on: 3/27/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Casey Nishimura	Individual	Support	No

Comments: Aloha Chair Tokuda, Vice Chair Dela Cruz, and members of the committee. I am writing in strong support of HB1580, especially the language the includes fuel cell electric vehicle under the definition of electric vehicles. Reducing our dependency on imported fossil fuels is important for the environment and the future of our economy. I believe that the State of Hawaii should encourage all clean transportation technologies that can reduce our dependency on imported oil.

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**From:** [Megan Bledsoe Ward](#)  
**To:** [WAM Testimony](#)  
**Subject:** Writing in support of HB 1580  
**Date:** Saturday, March 25, 2017 9:16:48 AM

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Dear Legislators,

I support HB 1580. Setting a target for 100% clean transportation no later than 2045 is a crucial goal for our planet, our country, our state, and our children.

Please pass HB 1580 with its original language.

Sincerely,  
Megan Bledsoe Ward (Honolulu)



**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [WAM Testimony](#)  
**Cc:** [rjames9@hawaii.edu](mailto:rjames9@hawaii.edu)  
**Subject:** \*Submitted testimony for HB1580 on Mar 28, 2017 09:30AM\*  
**Date:** Tuesday, March 28, 2017 9:11:47 AM

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**HB1580**

Submitted on: 3/28/2017

Testimony for WAM on Mar 28, 2017 09:30AM in Conference Room 211

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Rachel	Individual	Support	No

Comments:

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