



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

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Statement of
RICHARD C. LIM
Director
Department of Business, Economic Development, and Tourism
before the
**HOUSE COMMITTEES ON ECONOMIC DEVELOPMENT & BUSINESS AND
ENERGY AND ENVIRONMENTAL PROTECTION**

Thursday, February 7, 2013
8:30 a.m.
State Capitol, Conference Room 325

in consideration of
HB 450
RELATING TO HYDROGEN FUELING STATIONS.

Chairs Tsuji and Lee, Vice Chairs Ward and Thielen, and Members of the Committees.

The Department of Business, Economic Development & Tourism (DBEDT) provides comments on HB 450, which directs DBEDT to establish hydrogen (H₂) fueling station demonstration projects in each county with at least 170,000 residents, funded and operated through public/private partnerships, over a five year period. However, DBEDT currently does not have the necessary resources and funding to implement these projects.

Based on the resident criteria, this measure applies to Honolulu and Hawaii County. Projects could be developed to leverage renewable energy in the electrolysis conversion to H₂, dispensing it through H₂ fueling station technology or powering fuel-cell vehicles and could expand on current H₂ test projects and infrastructure development.

We suggest that results from the current Air Force & State of Hawaii partnership at Joint Base Pearl Harbor-Hickam and H₂ Power Park demonstrations in Hawaii County should be analyzed prior to embarking on similar demonstrations. We defer to Hawaii Center for Advanced Transportation Technologies and the Hawaii Natural Energy Institute, project managers on these and other similar H₂ projects, on the technical merit of additional demonstrations at this time.

Thank you for the opportunity to offer these comments on HB 450.

Written Statement of
YUKA NAGASHIMA
Executive Director & CEO
High Technology Development Corporation
before the

HOUSE COMMITTEES ON ENERGY & ENVIRONMENTAL PROTECTION
And
ECONOMIC DEVELOPMENT & BUSINESS

Thursday, February 7, 2013
8:30 a.m.
State Capitol, Conference Room 325
In consideration of

HB 450 RELATING TO HYDROGEN FUELING STATIONS.

Chairs Lee and Tsuji, Vice Chairs Thielen and Ward, and Members of the Committees on Energy & Environmental Protection and Economic Development & Business.

The High Technology Development Corporation (HTDC) respectfully **offers comments** on HB 450 relating to hydrogen fueling stations.

HTDC manages the Hawaii Center for Advanced Transportation Technologies (HCATT) which organizes public/private partnerships between the federal government and private industry to develop advanced low emission and zero emission vehicles centered on electric drive technologies.

In short, our state already has (1) a demonstration project for hydrogen fuel station, and (2) entity and a program that can handle any related projects in hydrogen fuel or in renewable energies. HCATT under HTDC is poised to consider any new vehicular technologies given sufficient funding.

In 2001 HCATT formed a partnership with the Air Force Advanced Power Technology Office (APTO) and established the National Demonstration Center for Alternative Fuel Vehicles at Joint Base Pearl Harbor-Hickam (JBPHH) in Honolulu. In 2009 at the JBPHH HCATT installed a 146kW photovoltaic array providing the capability to produce up to 12kg/day of renewable hydrogen. Further details on the hydrogen fueling station and other HCATT hydrogen projects may be found on the HCATT website www.htdc.org/hcatt.

A few facts that HCATT has gathered through the demonstration project:

The cost to put in a reformation hydrogen station including 1 year of construction, equipment, management, operation and maintenance is approximately \$900,000. A reformation hydrogen

station that was partially or fully sponsored with natural Gas would be the most cost effective and proven method for hydrogen distribution.

Concerning the bill's 5 year plan:

(source: <http://www.fuelcelltoday.com/about-fuel-cells/applications/transport>)

“Fuel cell [Light Duty Vehicles] LDVs have so far seen limited use but this is set to change as most major automakers have targeted 2015 for initial commercial sales of their fuel cell vehicles. Initial locations for this rollout will most likely concentrate around clusters of early hydrogen refueling infrastructure in Japan, Germany and the USA, and will then spread outwards from these centers as the market is established.

The fuel cell bus sector is showing year-on-year growth, with more prototypes being unveiled. Successful deployments have taken place in Europe, Japan, Canada and the USA but the high capital cost is still a barrier to widespread adoption. However, it is hoped that soon after 2014 fuel cell bus prices will be comparable to diesel-hybrid bus prices.

'Niche' transport consists of a number of sub-applications with differing levels of commercial success to date. Materials handling vehicles account for over 90% of niche transport shipments, with [Proton Exchange Membrane Fuel Cell] PEMFC technology dominating. This market has seen much success in the USA so far. Unmanned aerial vehicles (UAVs), e-bikes and trains amongst others are still under development with limited deployments to date”

Concerning the fuel cell bus sector:

General Motors, in cooperation with HCATT has applied for a National Fuel Cell Bus grant from the USDoT. The Hydrogen bus, if Honolulu is selected, is projected to arrive for operation in late 2014.

Finally, if further demonstration projects are requested by the State, appropriations to fund these projects will be required.



Thursday, February 7, 2013 8:30 A.M.
State Capitol, Conference Room 325
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION
AND
HOUSE COMMITTEE ON ECONOMIC DEVELOPMENT & BUSINESS

Testimony in SUPPORT with amendments of HB 450

Chair Lee, Chair Tsuji, Members of the House Committees on Energy & Environmental Protection and Economic Development & Business Environment, my name is Joe Boivin and I am the Senior Vice President for Public Affairs and Communications at HAWAII'IGAS testifying in support with proposed amendments of HB 450. HAWAII'IGAS is the only franchised gas utility in the state of Hawai'i, providing gas service to over 70,000 utility and tank and bottled gas customers throughout the state. HAWAII'IGAS also produces hydrogen as a byproduct of our synthetic natural gas and renewable natural gas refining processes.

HAWAII'IGAS recommends amending HB450 by removing the preference for hydrogen produced by renewable energy electrolysis and changing to hydrogen produced from renewable sources of energy. This is a more inclusive approach and would include all sources of renewable hydrogen.

Thank you.

A BILL FOR AN ACT

relating to hydrogen fueling stations.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. (a) The department of business, economic development, and tourism (department) shall establish a hydrogen fueling station demonstration project in counties with a population of not less than one hundred and seventy thousand residents. The demonstration project shall be funded and operated through public and private partnerships established by the department with other state or county agencies and private entities. The project shall commence for a five year period beginning on July 1, 2013, and shall terminate on June 30, 2018.

(b) In establishing and operating the demonstration project, the department shall grant preferences to suppliers, distributors, and producers of hydrogen produced ~~through the process of renewable energy electrolysis~~ from renewable sources of energy.

(c) The department shall adopt rules pursuant to chapter 91, Hawaii Revised Statutes, to implement this Act.

(d) The department shall submit an annual report, including any proposed legislation, to the legislature not later than twenty days prior to the convening of the regular sessions of 2014 to 2018.

SECTION 2. There is appropriated out of the general revenues of the State of Hawaii the sum of \$ or so much thereof as may be necessary for fiscal year 2013-2014 and the same sum or so much thereof as may be necessary for fiscal year 2014-2015 for the establishment of hydrogen fueling station demonstration project.

The sums appropriated shall be expended by the department of business, economic development, and tourism for the purposes of this Act.

SECTION 3. This Act shall take effect on July 1, 2013, and shall be repealed on June 30, 2018.

HADA testimony in STRONG SUPPORT
of HB 450
Relating to Hydrogen Fueling Stations

Presented to the House Committee on Energy & Environmental Protection and the House
Committee on Economic Development & Business

At the joint-committee hearing to be held
8:30 a.m. Thursday, February 7, 2013
in Conference Room 325, Hawaii State Capitol

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

Chairs Lee and Tsuji, Vice Chairs Thielen and Ward, and Members of the Committees:

No longer twenty or thirty years away, mass-production of hydrogen fuel cell vehicles is on the near horizon, with some vehicles available as early as 2015 according to a Toyota projection. Other auto manufacturers plan to roll out their vehicles shortly thereafter in 2017.

In our association's continuing support of the State's clean energy goals, HADA offers the association's STRONG SUPPORT of HB 450—a bill which proposes that the State provide funding to help establish a hydrogen fueling station demonstration project in Hawaii.

HADA applauds legislative leaders for consideration of this measure which will allow the new vehicles and the new fueling facilities to arrive on relatively the same time line in Hawaii—creating a chicken and the egg concomitant rollout of hydrogen fuel cell product and the hydrogen fueling stations.

A February 4, 2013 *Automotive News* story by David Sedgwick and Gabe Nelson reports that “the biggest barrier to the technology may be the lack of fuel stations.”

HB 450, which you are considering, seeks to remove this barrier for Hawaii.

The *Automotive News* story adds that “each hydrogen station costs \$1 million to \$1.5 million to build.” (Source: Catherine Dunwoody, California Fuel Cell Partnership).

--continued next page--

Continuing our quote from the *Automotive News* story :

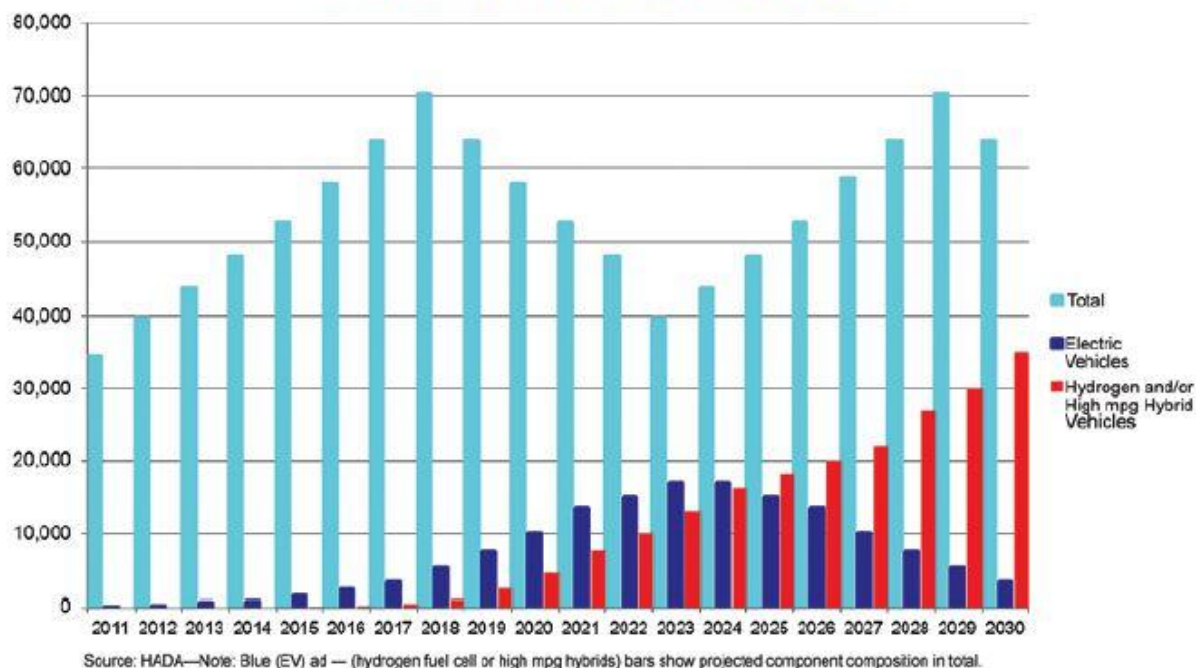
- “...(California’s) energy commission has earmarked \$28.6 million for new facilities.
- Toyota and BMW last month announced a fuel cell production alliance, and last week Daimler, Ford, and Nissan said they would join to develop a line of affordable fuel cell cars for sale as early as 2017.
- ‘We can’t deploy them (HFC vehicles) to consumers unless they have a place to refuel,’ said Steve Ellis, Honda’s U.S. Manager of sales and marketing for fuel cell vehicles.’”

(Source: *Automotive News* “Fired up for fuel cells,” Feb. 4, 2013)

HADA developed the following uptake rate of renewable fuel vehicles which is needed to meet the goals of the Hawaii Clean Energy Initiative.

Electric /Hydrogen Vehicle Adoption Rate 2011-2030

Needed to meet goals of Hawaii Clean Energy Initiative

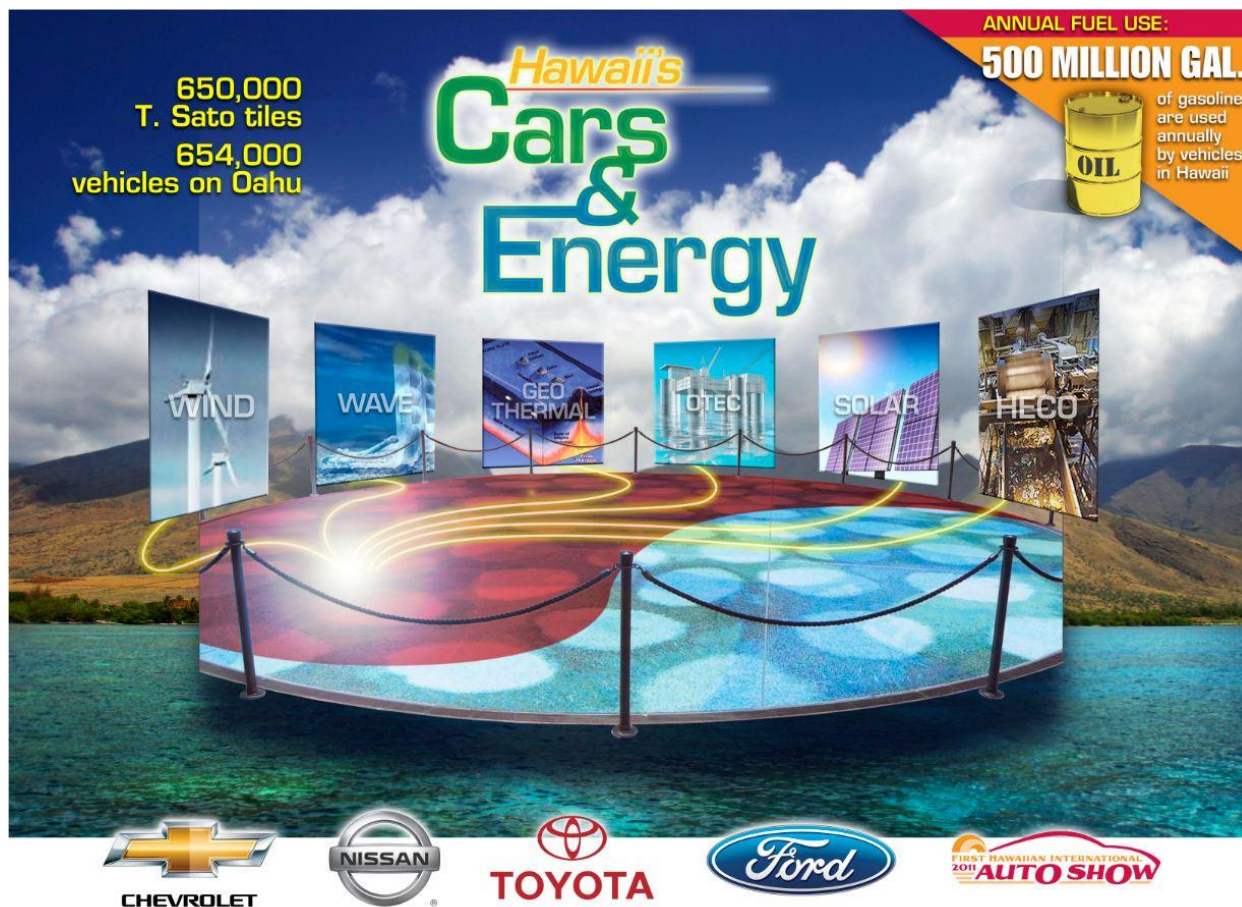


HADA testimony in STRONG SUPPORT of HB 450, submitted 2-5-13, page 3

The hydrogen fuel cell car can be considered to be part what is known as the electrification of the car – a transformation to renewable energy that is taking place in the retail auto industry.

The electrolysis process utilizing Hawaii’s abundant renewable energy resources—separates hydrogen from its oxygen molecule to create hydrogen gas. In the fuel cell vehicle the hydrogen is reunited with oxygen creating an electric current that powers a car’s electric motor, with the by-product being H₂O from the tailpipe.

HADA produced the following chart to show how use of Hawaii’s abundant renewable energy resources in vehicles, along with fuel-efficiency in gas vehicles, can reduce fossil fuel usage on Hawaii’s roadways. Thereby draining the 500-million-gallon oil barrel, representing the state’s annual fossil fuel usage in transportation, to 150 million gallons a year, in a little under 20 years.



HADA respectfully asks the committees to pass HB450.

Respectfully submitted,
David H. Rolf, on behalf of the members of the Hawaii Automobile Dealers Association.
PH: 808 593-0031 Email: drolf@hawaiidealer.com

edbtestimony

From: mailinglist@capitol.hawaii.gov
Sent: Monday, February 04, 2013 1:50 PM
To: edbtestimony
Cc: mendezj@hawaii.edu
Subject: *Submitted testimony for HB450 on Feb 7, 2013 08:30AM*

HB450

Submitted on: 2/4/2013

Testimony for EDB/EEP on Feb 7, 2013 08:30AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
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.

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edbtestimony

From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 05, 2013 11:07 AM
To: edbtestimony
Cc: mack127osu@yahoo.com
Subject: *Submitted testimony for HB450 on Feb 7, 2013 08:30AM*

HB450

Submitted on: 2/5/2013

Testimony for EDB/EEP on Feb 7, 2013 08:30AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Kristin	Individual	Oppose	No

Comments:

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edbtestimony

From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 05, 2013 4:12 PM
To: edbtestimony
Cc: rondavis@prettyrocks.com
Subject: *Submitted testimony for HB450 on Feb 7, 2013 08:30AM*

HB450

Submitted on: 2/5/2013

Testimony for EDB/EEP on Feb 7, 2013 08:30AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Ronald Davis	Individual	Oppose	No

Comments:

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edbtestimony

From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 05, 2013 4:23 PM
To: edbtestimony
Cc: lukeOcampbell@gmail.com
Subject: Submitted testimony for HB450 on Feb 7, 2013 08:30AM

HB450

Submitted on: 2/5/2013

Testimony for EDB/EEP on Feb 7, 2013 08:30AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Luke Campbell	Individual	Oppose	No

Comments: 32 wind turbines making "free" energy now stand on west Maui ridge .. and there is no decrease in electric bills. We do NOT need to spend taxpayer dollars for a study about hydrogen. What we need is to use the coal and oil we have in the country on the one hand, and for people to conserve on the other .. WITHOUT government laws.

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edbtestimony

From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 05, 2013 5:54 PM
To: edbtestimony
Cc: ed.j.wagner@gmail.com
Subject: Submitted testimony for HB450 on Feb 7, 2013 08:30AM

HB450

Submitted on: 2/5/2013

Testimony for EDB/EEP on Feb 7, 2013 08:30AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Ed Wagner	Individual	Support	No

Comments: Members of EDB & EEP Committee, I am sure you are aware that car manufacturers are doing R&D ON hydrogen fuel-cell cars. Honda has been testing such vehicles in Southern CA. According to online information, Honda plans to market such a vehicle in 2015, and my personal goal is to own such a vehicle. It is my understanding that Hydrogen is used on Hickam / Pearl Harbor. I support the test project and hope it will enable me and other residents to buy a hydrogen car in the next couple of years.

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edbtestimony

From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 05, 2013 7:24 PM
To: edbtestimony
Cc: medman@prodigy.net
Subject: Submitted testimony for HB450 on Feb 7, 2013 08:30AM
Attachments: HB 450 and hydrogen production through electrolysis.docx

HB450

Submitted on: 2/5/2013

Testimony for EDB/EEP on Feb 7, 2013 08:30AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Larry Quimby	Individual	Oppose	No

Comments:

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Dear Committee Members;

HB 450 proposes subsidizing an industry that has yet to be proven effective.

The process of hydrolysis to produce oxygen and hydrogen is well known. All one has to do is provide the right amount and type of energy into the water to overcome the energy of the bonds that hold the hydrogen and oxygen components together. The hydrogen would be collected and utilized as an energy source through oxidation.

Unfortunately, a flaw exists. No more energy can be derived through the conversion of hydrogen and oxygen into water can be created than that used to separate the elements initially. This is called conservation of energy, a very important and basic fact of physics.

Since the process of energy transfer (the basic tenet of this process) rarely approaches 100%, there would be a net loss of energy through this process. Wouldn't the original energy input into this system serve a better purpose to provide the energy needed that the fuel cell would produce in the first place?

Please, do not use my and other taxpayers' money to fund this project. Certainly a better use of our limited funds exists than using it for an unproven process that promises such a poor return on its investment.

edbtestimony

From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 05, 2013 8:46 PM
To: edbtestimony
Cc: leealdrige@msn.com
Subject: Submitted testimony for HB450 on Feb 7, 2013 08:30AM

HB450

Submitted on: 2/5/2013

Testimony for EDB/EEP on Feb 7, 2013 08:30AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Rosemary Aldridge	Individual	Oppose	No

Comments: Another boondoggle. A huge waste of money. While we should be cutting government spending, the legislature passes bill after bill spending money like there is an unlimited supply.

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edbtestimony

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To: edbtestimony
Cc: leealdridge@msn.com
Subject: Submitted testimony for HB450 on Feb 7, 2013 08:30AM

HB450

Submitted on: 2/5/2013

Testimony for EDB/EEP on Feb 7, 2013 08:30AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
Lee Aldridge	Individual	Oppose	No

Comments: I oppose HB450 because a hydrogen fueling station demonstration project lasting 5 years on Oahu is waste of taxpayer money as I see no practical application for this technology on a Statewide basis any time in the near or or even long term future. I can see no way that production of explosive hydrogen gas, compression, liquification, storage and transport will be acceptable to state residents. Nor will it be likely that importation will be accepted. There is already resistance from some State agencies and politicians to importing liquified natural gas to Hawaii. This another example of wasting taxpayer money - how much can't be ascertained as the amount of appropriation has been left blank in this bill.

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edbtestimony

From: mailinglist@capitol.hawaii.gov
Sent: Wednesday, February 06, 2013 3:48 AM
To: edbtestimony
Cc: w9w@hotmail.com
Subject: Submitted testimony for HB450 on Feb 7, 2013 08:30AM

HB450

Submitted on: 2/6/2013

Testimony for EDB/EEP on Feb 7, 2013 08:30AM in Conference Room 325

Submitted By	Organization	Testifier Position	Present at Hearing
kurt	Individual	Oppose	No

Comments: This sounds like more wasted taxpayer money. Why not let the private sector pick up the tab if its viable? This sounds like another Solyndra type boondoggle.

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