MINUTES OF THE
SENATE COMMITTEE ON GROWTH AND INFRASTRUCTURE

Eighty-second Session
April 26, 2023

The Senate Committee on Growth and Infrastructure was called to order by Chair Dallas Harris at 3:33 p.m. on Wednesday, April 26, 2023, in Room 2144 of the Legislative Building, Carson City, Nevada. The meeting was videoconferenced to Room 4412E of the Grant Sawyer State Office Building, 555 East Washington Avenue, Las Vegas, Nevada. Exhibit A is the Agenda. Exhibit B is the Attendance Roster. All exhibits are available and on file in the Research Library of the Legislative Counsel Bureau.

COMMITTEE MEMBERS PRESENT:

Senator Dallas Harris, Chair
Senator Pat Spearman, Vice Chair
Senator Julie Pazina
Senator Scott Hammond
Senator Ira Hansen

GUEST LEGISLATORS PRESENT:

Assemblywoman Selena La Rue Hatch, Assembly District No. 25

STAFF MEMBERS PRESENT:

Kristin Rossiter, Policy Analyst
Jessica Dummer, Counsel
Vicky Lind, Committee Secretary

OTHERS PRESENT:

Ryan McInerney, Director of Communications and Government Affairs, Nevada Department of Transportation
Rod Schilling, Chief Traffic Operations Engineer, Nevada Department of Transportation
Paul Enos, Nevada Trucking Association
Ashley Kennedy, Clark County
David Swallow, Regional Transportation Commission of Southern Nevada
Steven T. Polikalas, United States Hydrogen Alliance

Roxanna Bekemohammadi, United States Hydrogen Alliance
Ed Garcia, Nevada Hydrogen
Andrew Woods, Director, Center for Business and Economic Research, University of Nevada, Las Vegas
Joi Holliday Sparrow, Southwest Gas
Mark Hackmann, Nevada Petroleum Marketers & Convenience Store Association
Will Adler, ACES Delta
Danny Thompson, International Union of Operating Engineers Locals 3 and 12
Amy Shogren, General Motors
Terry Graves, Nevada Manufacturers Association
Regan Comis, Nevada Mining Association
Andy MacKay, Nevada Franchised Auto Dealers Association
Bobby Ernaut, TC Energy
Mark Fiorentino, Regional Transportation Commission of Washoe County
Greg Esposito, Nevada State Pipe Trades
Tim Farkas, Ameresco, Inc.
Alfredo Alonso, Alliance for Automotive Innovation
Sydney Krueger, Krueger Transport LLC
Belen Gallego, ATA Insights
Chloe Chism, NV Energy
Thomas Lawson, Ford Motor Company
Michael Lord, Toyota Motor Engineering & Manufacturing North America
Christie Cabrera-Georgeson, Nevada Conservation League
Angie Dykema, Southwest Energy Efficiency Project
Sam Anastassatos, Natural Resources Defense Council; Environmental Defense Action Fund
Patrick Donnelly, Center for Biological Diversity
Marlon Anderson, Pastor, Faith Organizing Alliance
Chris Bell, Sierra Club Toiyabe Chapter
Marion Williams, Western Resource Advocates
Gabriella Olmedo, Advanced Energy United
Kelly Trombley, Ceres
Brian Fadie, State Policy Manager, Appliance Standards Awareness Project
Jessica Adair, Ceres
Warren Hardy, Nevada Conservation League
Bari Levinson, Sierra Club Toiyabe Chapter
Jermareon Williams, Western Resource Advocates
Dylan Keith, Vegas Chamber

Sean Sever, Deputy Administrator, Division of Research and Project Management, Nevada Department of Motor Vehicles
J.D. Decker, Compliance Enforcement Division, Nevada Department of Motor Vehicles

CHAIR HARRIS:
We will open the meeting with Assembly Bill (A.B.) 56.

ASSEMBLY BILL 56 (1st Reprint): Revises provisions relating to the operation of certain motor vehicles on certain portions of a highway. (BDR 43-257)

RYAN MCINERNEY (Director of Communications and Government Affairs, Nevada Department of Transportation):
The Nevada Department of Transportation (NDOT) would like to present A.B. 56, which will authorize certain vehicles to drive on the paved shoulder of a highway, otherwise known as hard shoulder running, under certain circumstances.

ROD SCHILLING (Chief Traffic Operations Engineer, Nevada Department of Transportation):
Vehicles in the bill include certain emergency vehicles, such as freeway service patrol, tow trucks, hazardous material vehicles, as well as coroner vehicles and public transit buses. This bill will allow them to drive more than 200 feet where lawfully placed signage allows such vehicles. Refer to our presentation (Exhibit C), Hard Shoulder Running for the timeline on implementation on page 2.

The Regional Transportation Commission (RTC) of Southern Nevada and NDOT reached out to other states, as identified on page 3 of Exhibit C, regarding the laws they had enacted for shoulder running. *Nevada Revised Statutes* were reviewed and proposed changes have been developed. These statutes are identified on pages 4 through 6 of Exhibit C. We have developed a public education plan as detailed on page 7, in addition to a friendly amendment by Clark County to remove mortuary personnel from the definition of "coroner vehicle," page 8, Exhibit C.

PAUL ENOS (Nevada Trucking Association):
We are here today to testify in favor of A.B. 56 to include tow truck operators. Many members of the Nevada Trucking Association are also first responders.

This is a commonsense bill that will help expedite responses to emergencies and clearing traffic.

ASHLEY KENNEDY (Department of Administrative Services, Clark County):
We support A.B. 56 with the incorporation of our friendly amendment (Exhibit D). To clarify, this was an amendment worked on by both the Washoe and Clark County Coroners; however, it is submitted on behalf of Clark County.

DAVID SWALLOW (Regional Transportation Commission of Southern Nevada):
The RTC supports A.B. 56 as it relates to incident response as well as the future opportunity to have transit service be able to pass congested areas on the freeway.

CHAIR HARRIS:
We close the hearing on A.B. 56 and open the hearing on Senate Bill (S.B.) 451.

SENATE BILL 451: Enacts provisions to promote the development and use of clean hydrogen technology in this State. (BDR 58-32)

SENATOR PAT SPEARMAN (Senatorial District No. 1):
I am here today to present S.B. 451, which changes some ways we promote the production of renewable energy. I know hydrogen is a controversial subject, but as you hear from testifiers on this subject today, I believe you may become positively educated on the subject. Also, note that the Biden Administration has allocated $8 billion for funding hydrogen hubs.

STEVEN T. POLIKALAS (United States Hydrogen Alliance):
The United States Hydrogen Alliance has drafted a proposed amendment (Exhibit E) with some additional substantive text that should be taken under consideration.

ROXANA BEKEMOHAMMADI (Executive Director, United States Hydrogen Alliance):
Our organization, United States Hydrogen Alliance is comprised of companies across the fuel cell and hydrogen supply chains, including Southwest Gas. My organization is not here just to advocate for hydrogen, but also to advocate for a diverse, robust and reliable energy system, and clean transportation. Senate Bill 451 was crafted from the understanding of the role and status of hydrogen in our State, Country and globally. Hydrogen is and has always played

a critical role in our lives and precedes our existence from the moment after the big bang. The universe became 90 percent hydrogen at that time.

The federal government just allocated $22.5 billion in the last nine months to incentivize hydrogen. A team of 40 companies have joined together across Nevada and Arizona to pursue an $8 billion grant opportunity to build a hydrogen hub. Senate Bill 451 asks State agencies to assess and incentivize the production of hydrogen to support current and future hydrogen activities in the State by ensuring a tailored plan that will optimize job creation, environmental benefits, clean transportation and economic development.

I will let my colleagues explain why a multinational company built the largest hydrogen facility in the world here in North Las Vegas. I will also allow the RTC of Washoe County and Southern Nevada explain why they are adopting fuel cell electric transit buses that produce zero emissions and abate carcinogenic emissions. See my letter in support (Exhibit F) of S.B. 451.

ED GARCIA (Nevada Hydrogen):
Nevada Hydrogen was one of the coordinating entities of the Nevada hydrogen hub application, in a partnership between Nevada and Arizona. We recently submitted an application to the Infrastructure Investment and Jobs Act.

ANDREW WOODS (Director, Center for Business and Economic Research, University of Nevada, Las Vegas):
We are involved with the hydrogen hubs project, which is a $1.1 billion grant we submitted this month between the states of Arizona and Nevada for clean hydrogen. Nevada would be impacted by approximately $400 million of that, and $16 million is for the University of Nevada, Las Vegas (UNLV). This is a partnership between UNLV and the College of Southern Nevada, and other institutions of higher education. We support S.B. 451.

JOI HOLLIDAY SPARROW (Southwest Gas):
I am a public affairs administrator with Southwest Gas and we support S.B. 451. Southwest Gas is heavily invested in the future of the hydrogen economy in Nevada. Hydrogen technologies are already being developed and deployed throughout the Country and the entire world. The issue is not whether hydrogen will be part of the future, it is a matter of whether Nevada will take advantage of the vast resources that are available to us.

As you heard, Southwest Gas was part of the application for a hydrogen hub project together with Arizona to access the billions of available federal dollars for hydrogen projects across the Country. Our partners in this application included the RTC of Southern Nevada, UNLV and the Governor's Office of Energy. I also think it is worth noting that the previous administration initiated the process for partnering with us on the hydrogen hub application and the current administration has decided to continue pursuing the application. This is not a partisan issue.

We have also partnered with UNLV on a hydrogen study that will determine how much hydrogen can be blended into our existing infrastructure without having adverse impacts on end users. Hydrogen resources are essentially limitless and offer a great deal of energy storage solutions, making this very versatile. It can be used to decarbonize areas of our economy that can be considered difficult. We believe that hydrogen and renewable natural gas are powerful solutions for Nevada's sustainable energy future.

MARK HACKMANN (Nevada Petroleum Marketers & Convenience Store Association):
We support S.B. 451. Nevada Petroleum Marketers operate terminals and bulk plants that distribute all permitted transportation fuels throughout Nevada. This should include clean hydrogen. There are approximately 1,000 public fueling sites in the State selling all forms of transportation fuels and lubricants. Traditional retail refueling sites have been overlooked by State and utility officials as potential electric vehicle fast-charging sites, and we do not want that to happen with hydrogen, specifically.

Petroleum Marketers support S.B. 451 because they have the knowledge, experience and infrastructure in place to make a smooth and efficient transition to hydrogen as the primary transportation fuel in Nevada.

MR. SWALLOW:
The RTC of Southern Nevada supports S.B. 451. Fostering clean transportation solutions is a primary focus of RTC; solutions that lead to good air quality and a better quality of life for everyone. Over the years, we have transitioned our fleet away from diesel buses and are beginning to transition to zero-emission vehicles. We have almost a dozen hydrogen fuel cell electric buses on order, having received our first two buses last month. It is important to consider the best application, whether they are battery electric buses or hydrogen fuel cell

electric buses. We find that we get a better range for our hydrogen fuel cell electric buses over the battery electric ones. As a result, we are looking to continue to transition our fleet, our goal being to get to 50 percent by the year 2035 and to 100 percent by 2050.

WILL ADLER (ACES Delta):
There is a company operating in Utah today that is providing a hydrogen replacement to the current coal-fired power plant. It will provide a blended hydrogen natural gas facility that will ultimately green up the power supply of Utah. We would like to do the same here in Nevada. The company has applied for a job application that would partner Utah and Nevada. Hydrogen is the future. We support S.B. 451.

DANNY THOMPSON (International Union of Operating Engineers Locals 3 and 12):
In 2019, S.B. 358 of the 80th Session declared it was the policy of this State to have 50 percent renewable energy by 2030. If you read the declarations in that bill, I think it fits perfectly with what you are talking about here today. The first is to encourage and accelerate the development of new renewable energy projects for the economic health and environmental benefits provided to Nevada. The second is to become a leader, producer and consumer of clean and renewable energy. The goal is to achieve, by 2050, an equal amount of energy production from zero carbon dioxide emissions to the total amount of electricity sold by providers of electric service in Nevada. Lastly, it was to ensure that the benefits of the increased use of the portfolio energy systems and energy efficiency measures are received by Nevada residents. Benefits are better air quality, reduced water use in a more diverse portfolio of resources for generating electricity, reduced fossil fuel consumption and more stable rates for retail customers. We are at 29 percent of that goal. It is 2023 and we only have seven more years to reach our goal. We support S.B. 451.

AMY SHOGREN (General Motors):
We support S.B. 451 to promote the development and use of clean hydrogen technology in Nevada. When fed into a fuel cell, clean hydrogen can power vehicles without releasing harmful emissions, thus significantly reducing air pollution in the form of greenhouse gas. Adoption of refueling infrastructure will be key in the Silver State. The use of clean hydrogen will facilitate economic development and diversification in Nevada.

TERRY GRAVES (Nevada Manufacturers Association):
Trucking is looking at utilizing hydrogen for transportation purposes and the Nevada Manufacturers Association utilizes natural gas and can also utilize hydrogen in process heating. We support S.B. 451.

REGAN COMIS (Nevada Mining Association):
We support S.B. 451 with the amendment. We recognize the need for Nevada to look at resources that are available and the potential that hydrogen must produce clean energy. Additional studies need to be done before converting abandoned and inactive mines into resources for clean energy production.

ANDY MACKAY (Nevada Franchised Auto Dealers Association):
We support S.B. 451. This is exciting technology, and as the State and our Nation goes to decarbonization of our industry, this is where we are going to want to be.

BOBBY ERNAUT (TC Energy):
Ditto, we support S.B. 451.

MARK FIORENTINO (Regional Transportation Commission of Washoe County):
Ditto to the testimony that you received from the RTC of Southern Nevada. In Washoe County, we have been looking to secure sustainable transportation. We obtained a couple of hydrogen buses that we are hoping will join the fleet soon. We are regularly looking for federal grant funding to expand that portion of the fleet.

GREG ESPOSITO (Nevada State Pipe Trades):
We are looking forward to the jobs that this technology will bring to the State.

MR. GARCIA:
On behalf of Nevada Hydrogen, we are involved with the hydrogen hub opportunity. We believe it is the first of many more efforts to come to promote hydrogen development in the region. It is legislation like S.B. 451 that will demonstrate to the federal government that Nevada is willing to lean in on this emerging industry and will serve to make Nevada more competitive versus other states, and the region more competitive in this rapidly emerging area.

TIM FARKAS (Ameresco, Inc.):
We were also a part of the hydrogen hub application process. Having been in the green energy field for decades, hydrogen is a particularly exciting fuel source as it provides base load power for buildings, process hydrogen for manufacturing processes and fleet fuel. There are utilities adding hydrogen to cleaner greener gas that goes into our natural gas pipeline. It is an important type of fuel for the future of a diverse green energy solution.

MR. WOODS:
We echo everyone's comments. We do forecasts at the Center and have estimated that there is $4.6 trillion coming to support the clean energy revolution. As we see in Arizona and Utah, there is leadership on this issue, and we would like to see Nevada, as well, provide more leadership in this direction and make sure we can be competitive on these federal grants.

ALFREDO ALONSO (Alliance for Automotive Innovation):
There are currently six member companies doing extensive research beyond electric vehicles on converting vehicles from internal combustion engines. Electric vehicles are a challenge to upkeep, as we are finding out. The reality of the lack of accessibility for charging stations has come to light. The future is in a hybrid electric and hydrogen fuel cell vehicles.

SENATOR HAMMOND:
I was driving next to a hydrogen fuel cell car in California over the weekend. How easy is it to refuel and how difficult is it change out the fuel cell?

MS. BEKEMOHAMMADI:
We can refuel it like any of the incumbent technologies. It is convenient because there is no paradigm shift; you go to a gasoline station with a hydrogen pump. As to your reference to the stack, you can change individual cells out easily in the fuel cell. In addition, fuel cells are not toxic. There are no issues with their end of life.

SENATOR SPEARMAN:
I would like to emphasize what Mr. Alonso was referring to when he spoke of the new hybrids. They are hydrogen fuel cell and electric battery vehicles. It is important for the Committee to know these have already been deployed by various automakers.

SENATOR HAMMOND:
I was asking because I know that the military is also looking at this as a potential use vehicle. I cannot imagine the military wanting something that is cumbersome.

SENATOR SPEARMAN:
The military is looking at ways to ensure we are sending our men and women into war to guard our assets and that our fossil fuels get to where they are intended. As part of my doctoral dissertation, I researched how costly the wars in Iraq and Afghanistan were on the lives of our troops. I found that six of every ten deaths were related to offloading or misuse of fossil fuels, such as in the construction of improvised explosive devices (IEDs).

Typically, IEDs are made with fossil fuels, which result in fatalities or near fatalities to our troops. Each branch of the service has an Office of Energy and is strategically looking at alternative renewables for energy supply going forward. Renewables will result in fewer people dying, or being injured, and we will be more energy efficient as we move towards clean fuel that has been proven safe and effective.

MS. BEKEMOHAMMADI:
The Department of Defense has been investing in fuel cells, including electrolyzers in hydrogen technology for over 70 years. The U.S. Army has said that hydrogen is our next tactical fuel. The question is, are we going to produce it domestically or are we going to rely on our allies? I want to tell you that hydrogen is key to our national security as well as energy security with respect to the cybersecurity threats that we are facing.

SYDNEY KRUEGER (Krueger Transport LLC):
I have submitted my written testimony (Exhibit G) in support of S.B. 451.

BELEN GALLEGO (ATA Insights):
I support S.B. 451. We are very excited about this bill as we have been working to promote hydrogen in Nevada. We are organizing an event July 12 and 13, which will take place at the Palace Station Hotel in Las Vegas, where we will cover topics of hydrogen: regulation, financing and designing projects. There will be representatives from the Nevada Clean Energy Fund, NV Energy and others. We are working hard to put Nevada at the forefront of this future industry.

CHLOE CHISM (NV Energy):
We support S.B. 451. The research and development of clean hydrogen will help Nevada achieve our renewable energy and carbon reduction goals, while also providing our customers with new and innovative energy solutions.

THOMAS LAWSON (Ford Motor Company):
I cover 13 states in the western region, and we support S.B. 451. As the market leader in the commercial vehicle industry, we are beginning to explore the role that hydrogen-powered vehicles can play in the clean vehicle ecosystem. In March 2022, Ford was awarded a $25 million matching grant from the U.S. Department of Energy to advance the use of high-efficiency fuel cells for medium-duty vehicles. This project will help develop and pilot fuel cells for super duty vocational vehicles. With partners such as the National Renewable Energy Laboratory, we will receive real world feedback on fuel cell usage and efficiency, durability, refueling and operating costs. We strongly believe the medium- and heavy-duty sectors are the right application for hydrogen-powered vehicles. Fleets that use these types of vehicles rely on them to respond to an emergency. As an advantage, hydrogen fuel cell vehicles refuel within minutes.

We believe that targeting these sectors is critical to helping us reduce our greenhouse gas emissions and provide clean transportation alternatives. We are in the early stages of our pilot, and we see some hurdles to the deployment of hydrogen vehicles. The hurdle is a lack of infrastructure. We believe active build out of hydrogen infrastructure sends signals to the fleet that they can begin to invest in purchasing these vehicles, which leads to manufacturers developing and offering more models. Other states have built their refueling stations focused on light-duty vehicles and most of those are limited to fueling tanks less than ten kilograms (kg) in size. It is important that hydrogen stations have the capacity to refuel tanks that are 20 kg to 30 kg to accommodate vocational vehicles.

MICHAEL LORD (Toyota Motor Engineering & Manufacturing North America):
We support S.B. 451 which will promote the production and usage of hydrogen electrification including battery-powered electric vehicles (BEV), plug-in hybrid electric vehicles and, of course, fuel cell electric vehicles. We have each type of vehicle in the market right now in the U.S. Fuel cell electric vehicles have particular benefits in the market. They have a very long range, fast refueling and can be filled just like a conventional vehicle in three to five minutes and work

well in hot and cold weather. I think a previous testifier noted that they are also a good electric vehicle (EV) option for folks who do not have convenient charging at home and people that do not have a parking spot with a charger and those parking on the street or in apartment buildings and multi-unit dwellings.

Toyota is in our second generation of fuel cell EVs. The first generation was 312 miles and the second is 402. There are over 11,000 Toyota Mirai vehicles on the road in California where the infrastructure exists and we would hope to be able to bring them into Nevada as the infrastructure is built there. We also have a project portal. We have done a project with the Port of Los Angeles with ten heavy-duty Class A trucks, using two of our fuel cell systems from the Toyota Mirai and we just announced certification of a unit for heavy-duty trucks to be used for future applications.

CHRISTI CABRERA-GEORGESON (Nevada Conservation League):
I submitted my letter of testimony in opposition (Exhibit H) to S.B. 451 in addition to my Nevada Hydrogen Fact Sheet (Exhibit I).

ANGIE DYKEMA (Southwest Energy Efficiency Project):
We oppose S.B. 451 because we believe an advantage should generally focus on the development of our domestic renewable resources instead of promoting development of hydrogen. The specific components that are problematic in this bill are there are higher tiers of hydrogen production. The definition here is not clear and there is also no mention of environmental impacts of hydrogen production. Directing our agencies to focus on hydrogen production without limitation, as described in this bill, is too broad and counter to the progress we have already made with our own abundance of proven cost-effective renewable resources.

SAM ANASTASSATOS (Natural Resources Defense Council; Environmental Defense Action Fund):
The Natural Resources Defense Council (NRDC) and the Environmental Defense Action Fund (EDF) opposes S.B. 451 as currently drafted. Hydrogen is a key solution to decarbonizing hard-to-electrify sectors, but it is a serious climate risk if implemented without adequate guardrails.

Hydrogen is a potent indirect greenhouse gas. Research shows that hydrogen has a high leakage rate and there is virtually no real-world data to inform on how to mitigate and monitor hydrogen leakage. When released into the

atmosphere, hydrogen causes chemical reactions that exacerbate the damaging effects of other harmful greenhouse gases like methane. Furthermore, producing either green or blue hydrogen, both of which could be considered clean under the standards adopted by this bill, is incredibly energy intensive. For instance, data reveals that green hydrogen, which is produced using renewable energy, requires on average three to seven times more energy than direct electrification. This makes the use of hydrogen potentially practical for hard-to-decarbonize sectors like heavy industries. Steel making, long haul shipping, aviation and high temperature industrial processes are all potentially good uses of hydrogen because they are hard to electrify. This bill, as written, does account for this in its list of permissible uses of hydrogen. Furthermore, green hydrogen is only truly green if it is produced using new dedicated zero-carbon resources that are hourly matched, that is the electricity is used in the same hour it is generated on the same load balance area of the grid.

Electrolytic hydrogen is two to five times more carbon intensive than gray fossil-based hydrogen. Under the wording of S.B. 451, permissible uses are listed without limitation. It would allow blending hydrogen with natural gas to be considered a permissible use. This could significantly undermine the emissions reduction and community health goals suggested by this bill.

Hydrogen has the potential to delay much more efficient decarbonization solutions, particularly in buildings and transportation, where electrification is much more efficient. For example, it would take approximately five times the amount of renewable energy to heat homes via green hydrogen boilers than via heat pumps. For vehicles, it would take three times more renewable energy to run fuel cell vehicles on green hydrogen, compared to BEVs. For these reasons, EDF and NRDC oppose S.B. 451.

PATRICK DONNELLY (Center for Biological Diversity):
We oppose S.B. 451. I would like to echo the comments made earlier by Ms. Cabrera. I would focus on the definition of clean hydrogen in the bill. It allows for 4 kg of carbon dioxide equivalent per 1 kg of hydrogen. This explicitly would allow for fossil-fuel-derived hydrogen, also known as blue hydrogen. This bill could allow for the continued use or expansion of the current fossil fuel industry. That includes methane gas, which generally is produced with fracking, a destructive form of fossil fuel extraction.

This bill could promote more methane gas production and more fracking, which would be very harmful. A clean hydrogen definition of 1 kg of carbon dioxide equivalent per 1 kg of hydrogen would then focus on green hydrogen, developed from water using renewable energy. This should be the focus if we are going to embark on a hydrogen project. It really should focus on green hydrogen derived from renewable energy and not allow the continued use of fossil fuels.

MARLON ANDERSON (Pastor, Faith Organizing Alliance):
Our organization has concerns about the use of clean hydrogen in this bill and opposes S.B. 451 until further studies have been conducted. There is still much to be learned including how clean it can be made, how it can be safely transported and how affordable it can be used. The process of making hydrogen is water-intensive and unsustainable for Nevada.

CHRIS BELL (Sierra Club Toiyabe Chapter):
I am here on behalf of the Sierra Club, the world's largest environmental volunteer organization. There are more than 30,000 members and supporters Statewide. We oppose S.B. 451. We appreciate the efforts being made in Nevada to move to renewable energy free of fossil fuels and carbon dioxide emissions. We are enthusiastic about the parts of this bill that encourage partnerships and collaboration to study hydrogen technology and how it can best be utilized in our economy. Furthermore, we agree that hydrogen has a role to play in this clean energy future. However, there are many pitfalls in using hydrogen as a fuel source and this bill falls victim to some of these pitfalls.

First, hydrogen should only be considered as a future power source if it is produced from renewable energy electricity and is therefore genuinely green, as defined in another bill this Session regarding hydrogen. The green hydrogen definition should be referenced here, and green energy as defined in that bill to be the standard for hydrogen. Additionally, we think it is premature to incentivize the "production, processing, delivery, storage and use of hydrogen without limitation."

Generating hydrogen is extremely energy inefficient and consumes considerable amounts of water. In Nevada, it is best to focus hydrogen on those industries that cannot be practically electrified. We would advise that hydrogen not be used as a fuel in light- and medium-duty vehicles. The use in heavy industries is currently reliant on fossil fuels where electrification is impractical or impossible.

The Sierra Club supports S.B. 451 if it is amended to require green hydrogen, rather than clean hydrogen, eliminate the promotion of unlimited applications of green hydrogen and be judicious in promoting use of Nevada's precious water.

MARION WILLIAMS (Western Resource Advocates):
Western Resource Advocates (WRA) is a regional nonprofit organization fighting climate change and its impact on the environment, economy and people in the western U.S. We oppose S.B. 451. The primary reason why WRA opposes this bill is because of the use of the federal definition of clean hydrogen. The federal definition of clean hydrogen allows for the use of production from diverse energy sources, which may include fossil fuels. This bill also frames clean hydrogen as a tool that will cut greenhouse gas emissions without acknowledging that this definition of hydrogen may contribute to greenhouse gas emissions in the State, prolonging our reliance on fossil fuels.

We are equally concerned that Nevada agencies promote the use of hydrogen without including language stating that they will equally consider other forms of energy that may be more cost-effective and better at cutting greenhouse gas emissions. It would be more effective to propose language that requires the agencies to evaluate all options available to reduce greenhouse gas emissions, including the cost of different options.

We also find the language promoting clean hydrogen for many zero-emission vehicles to be a bit problematic. Battery electric vehicles today are cheaper, more readily available and have fueling infrastructure that is available in the State. While fuel cell technology holds promise for certain transportation applications in the future, there are zero hydrogen fuel cell vehicles and zero hydrogen refueling stations in Nevada. Battery electric vehicles are readily available for light-, medium- and heavy-duty vehicle applications with over 33,000 vehicles deployed and over 1,000 charging stations across the State.

Hydrogen-powered transportation may hold some promise in the future but should not be prioritized over battery electric technology. For these reasons, WRA opposes S.B. 451.

GABRIELA OLMEDO (Advanced Energy United):
We are a business association working to make the energy we use clean, affordable and reliable. We represent over 100 companies in the diverse advanced energy industry. We oppose S.B. 451. While Advanced Energy United

supports the use of hydrogen as part of a 100 percent clean energy economy, especially for hard-to-decarbonize sectors, we are not supportive of a blanket directive to promote hydrogen for all applications as is put forward in this bill. Clean hydrogen applications must be rigorously compared with other solutions that can meet the same need and should not be prioritized in areas where there are other affordable, proven solutions such as light-duty transportation.

This bill would create an undue preference to promote hydrogen wherever possible. It is not yet clear how expensive and scarce this resource will be. Its use should prioritize applications where other commercially viable clean energy alternatives are lacking, such as industrial use. This topic would benefit from very careful consideration of how to best apply this resource in Nevada. We support the production of and use of hydrogen consistent with our mission to power our economy with 100 percent clean energy. The definition in this bill allows for hydrogen production that is not clean.

While we do not support this bill at this time, we look forward to a clean energy future in which we put hydrogen solutions to their best and most valuable use. This requires prioritizing applications supported by robust analysis considered across all alternatives to arrive at the best solution for an affordable and resilient clean energy future.

KELLY TROMBLEY (Ceres):
Ceres is a nonprofit sustainability organization working with influential companies and investors to build a more sustainable global economy. I appreciate the opportunity to testify about several significant concerns. The companies and investors in the Ceres network see climate change as a business risk and reducing carbon emissions as an economic opportunity to make progress on these commitments. Businesses need access to clean renewable energy. We are concerned about the definition of clean hydrogen and this bill includes other sources besides green hydrogen.

The process to produce hydrogen is expensive and ultimately results in significant carbon emissions. Production, storage and transportation must be carefully considered before investing significant resources into its development and implementation without limitation. As this bill indicates, Nevada has abundant clean energy resources such as solar, wind and geothermal disposal. It makes economic sense to accelerate transportation electrification and energy efficiency resources now so that Nevada is poised to lead green hydrogen

technology. We must ensure that we are investing in the most viable and effective clean energy solutions. We urge the Committee to consider the implications that this bill would have on Nevada's clean energy commitments in the economy at large, and oppose this bill.

SENATOR SPEARMAN:
During the 2017 Legislative Session, I was Chair of the Subcommittee on Energy. At that time, I recognized the need for preparing for the arrival of green energy, including hydrogen, due in part to having been recommended by U.S. Senator Harry Reid to visit the NREL in Colorado.

That visit educated me on how hydrogen had been in development with fuel cell vehicles for the past 25 years, and that was in 2016. I cannot emphasize enough that hydrogen has been in development for a long time. The purpose of S.B. 451 is to reach our goal of 50 percent by the year 2030.

Filmmaker James Redford put together a documentary on renewable energy, and the last few frames of the film are of me discussing solar use here in Nevada and that now is the time to start discontinuing the use of fossil fuels. This is not an attack on electrification, I am merely promoting the use of additional green energy.

There is potential to utilize geothermal energy here in Nevada, but we have not gone anywhere with that resource. I brought forward a bill in 2017 to add geothermal resources as an energy source but it never passed the Assembly Floor. At that time, the U.S. Department of Energy was going to award a state the Frontier Observatory for Research in Geothermal Energy initiative, but Utah was awarded the project, and they lack the geothermal resources that Nevada has.

MS. BEKEMOHAMMODI:
Hydrogen is thought of as being explosive, but it is safer than several other fuels. This has to do with chemical properties that are dangerous. We see runaway chemical reactions with hybrid BEVs, which are difficult to extinguish. Hydrogen is the lightest element on the periodic table. It diffuses quickly. Hydrogen has existed and thrives in heavy-duty and large-scale applications.

Nevada is ground zero for the expansion of renewable energy and that includes hydrogen. Las Vegas will be hosting a convention in July on how to design,

build, finance and operate profitable green hydrogen projects in the U.S. With S.B. 451, we are trying to move forward and capitalize on the money that is available now to assist us in these green energy projects.

CHAIR HARRIS:
I have five letters (Exhibit J) in support of S.B. 451, and I have two letters (Exhibit K) in opposition of S.B. 451.

We will close the hearing on S.B. 451 and open the hearing on A.B. 144.

ASSEMBLY BILL 144 (1st Reprint): Revises provisions governing the sale of certain lighting products. (BDR 58-621)

ASSEMBLYWOMAN SELENA LA RUE HATCH (Assembly District No. 25):
I am here to present A.B. 144 on fluorescent lamps, mercury and keeping our consumers safe. I have a presentation (Exhibit L) on phasing out these bulbs. I want to make sure we explained the term lamp as we use it throughout the bill because it is not necessarily a standing lamp or light fixture as we imagine.

BRIAN FADIE (State Policy Manager, Appliance Standards Awareness Project):
I would like to define the term lamp. Refer to page 2 of Exhibit L.

ASSEMBLYWOMAN LA RUE HATCH:
I imagine most people do not know that there is a specific way that you have to dispose of mercury lamps. The lamp burns out, people put it in the trash and that is a serious health issue. It is important to note the environmental and health harms of these lamps, page 3, Exhibit L. Also, you can see Protect Health and Lower Energy fact sheets (Exhibit M) that were submitted.

The other part of fluorescent lamps is that they cost more money to operate and they cost more in our carbon footprint, page 4, Exhibit L, page 2, Exhibit M.

The Appliance Standards Awareness Project Saving estimates (Exhibit N) show just how much cost savings are possible.

MR. FADIE:
We conducted market research that helped underpin this policy idea. We estimate in the year 2030, should this bill pass, the Statewide utility bill savings would be about $19 million per year.

ASSEMBLYWOMAN LA RUE HATCH:
Refer to page 5 of Exhibit L for bill timelines.

Our goal, with A.B. 144 is to phase out household and industrial use of these lamps and protect our consumers.

MR. FADIE:
We estimate that this year in Nevada, about 1.8 million fluorescent light bulbs will be shipped into the State. Each one of those contains mercury. Each one of those represents a potential health hazard if it breaks in a school, office, or in any other setting. This is a means to put a stop to that inflow of mercury waste while saving energy and saving on utility bills.

Fluorescents are no longer manufactured in the U.S. The U.S. transitioned to overseas manufacturing years ago. No jobs would be impacted by the bill. Other states are now ending the sales of these fluorescents, such as California, which passed this same policy last year. We do not want Nevada to be a dumping ground for these mercury-containing products.

ASSEMBLYWOMAN LA RUE HATCH:
I would like to point out that while there are no fluorescent lamp manufacturers in the U.S., there are light-emitting diode (LED) manufacturers in Nevada. By making the switch, we are supporting Nevada businesses.

SENATOR HANSEN:
The lamps have a potential danger to workers. If they break, we have mercury exposure, something we are quite concerned about. Why do they allow these for the marijuana industry? Do those workers not deserve equal protection?

MR. FADIE:
We looked at the lighting market, and we wanted to make sure that for the fluorescents that we are phasing out, there were LEDs available in all the different sizes of lightbulbs and that they were cost-effective for consumers. We were not able to conclude that the LEDs were as widely available and cost effective for those specific uses.

The bill limits itself to what is called general-purpose white light fluorescents. That is where LEDs are being produced across all the different sizes and styles.

SENATOR HANSEN:
Are you saying the type of lights that this industry is using now, there are no replacements that would match? It sounds to me you are doing an unusual carve out for one specific industry. That does not make any sense to me.

We have $1.8 million of these fluorescents being shipped into Nevada. There is apparently still a substantial consumer demand. I have been in the Legislature seven sessions now. We do not outlaw lightbulbs. It is a very unusual thing to come to the Legislature and insist that we make something, that has a pretty decent market, and pass a law to do what normally would occur naturally through a market process. If these are as bad and as dangerous, inefficient, and more expensive than the ones you are proposing, why would we not let the marketplace do what it normally would do? That would allow them to be phased out with time.

ASSEMBLYWOMAN LA RUE HATCH:
I am going to point out that there have been many products over the years that we thought were okay and are not anymore. I believe that it is our job to protect our constituents where necessary. I would imagine that when constituents go to Home Depot, when they buy something, they are going to trust that we vetted those products. I think that it is our job to ensure that safe products are on the shelves.

SENATOR HANSEN:
I agree with that but what you have not done is present any data backing up those health concerns. Are there Nevadans who worked as sanitation workers, for example, who have been exposed to mercury in the dumps for years that have substantial health risks? Perhaps there are people who have lost their jobs or lives?

ASSEMBLYWOMAN LA RUE HATCH:
I have had those conversations with those workers and individuals who have been exposed and they did express that it was a problem.

SENATOR HANSEN:
Great. Any data you can provide, I would love to see it.

MR. FADIE:
See page 1 of Exhibit M for specifics regarding the threat of mercury exposure. In addition, another study, not here in Nevada, documented workers at a landfill facility being over-exposed to mercury in their workspaces.

SENATOR HANSEN:
I would like to see those studies. I am very uncomfortable passing a law to outlaw a product that still has a demand. Obviously, there are all sorts of areas where you guys are saying we are not going to use them here. Allowing the marijuana industry to continue to use them under the feeble excuse that there are not some different styles that might fit their lamps has some real holes in it.

Normally as products become obsolete, they go off the market; you do not outlaw them. I have a hard time believing that 50 billion of those light bulbs that have been used in the last who knows how many years are a significant health risk.

JESSICA ADAIR (Ceres):
Ceres is a nonprofit sustainability organization working with the Country's most influential companies and investors to build a more sustainable global economy. Efficiency standards work by removing the least efficient options from the marketplace. Lighting accounts for a significant portion of business and global energy consumption. Increasing access to energy-efficient lighting technologies like LEDs, consumers can drastically reduce energy demand, decrease electricity costs and mitigate the strain on our electrical grids for consumers.

This means more money that can be saved or spent on local goods and services. For businesses, energy savings allow for reinvestment in their facilities and workforce. Assembly Bill 144 is a good investment driving $24 million annual savings on utility bills alone. This bill is also good for our climate; LED light bulbs cut climate pollution, reduce climate-changing emissions and other environmental impacts associated with the production, distribution and use of fluorescent light bulbs. For these reasons, we have joined many of the organizations supporting A.B. 144. See our letter (Exhibit O) of testimony in support of A.B. 144.

MS. DYKEMA:
I have submitted my written testimony (Exhibit P) in support of A.B. 144.

WARREN HARDY (Nevada Conservation League):
My testimony is very similar to what was just provided. I will tell you that my first job was working for my dad. We called ourselves tire busters as I repaired tires. My father was in the automotive business, and I worked my way up to be a front-end and brake mechanic. I remember as a young man using pneumatic air guns to blow out the dust from brakes.

We subsequently learned that there was a massive amount of asbestos in the dust. Now at age 59, when I go for my annual checkups and get my chest x-ray, it is frightening to see what that asbestos has done to my lungs. Once the government became aware of the danger asbestos posed to one's health, it intervened and outlawed asbestos brake pads. There are times when the government needs to intervene.

BARI LEVINSON (Sierra Club Toiyabe Chapter):
We support A.B. 144. This bill bans the sale of compact fluorescent lights (CFLs). This type of light bulb was an upgrade over the energy inefficient incandescent option of the past. Since then, better technologies have become available and CFLs have been proven to have significant drawbacks that outweigh any potential benefits.

First, CFLs, contain materials including mercury that affect human health and the environment if not disposed of properly. Many people do not dispose of CFLs properly leading to harmful emissions and pollution.

Second, CFLs have been shown to be less efficient than originally claimed. While they do use less energy than traditional incandescent bulbs, the lifespans are often shorter than originally advertised and significantly less so than other technologies. This means that CFLs need to be replaced more frequently leading to more waste and increased environmental impact.

Third, there are now better alternatives available on the market that are not only more energy efficient, but also safer and longer lasting. For example, LEDs use even less energy than CFLs and do not contain toxic materials. They also have a much longer lifespan. For these reasons, we believe that banning the sale of CFLs is a step in the right direction towards a more sustainable future. It will encourage consumers to choose safer and more efficient alternatives, while also reducing the amount of toxic waste in our environment.

JERMAREON WILLIAMS (Western Resource Advocates):
I have submitted my written testimony in support (Exhibit Q) of A.B. 144.

DYLAN KEITH (Vegas Chamber):
We would like to thank the sponsor for considering the amendment and we are now in the neutral position.

MS. CHISM:
We support A.B. 144. This bill aligns well with our lighting energy efficiency goals. We supported this bill on the Assembly side and appreciate the opportunity to express our support.

ASSEMBLYWOMAN LA RUE HATCH:
I think that the testimony and support clarifies what this bill is about. It is about saving our consumers money. It is about reducing our emissions. It is about protecting our constituents.

CHAIR HARRIS:
We will close the hearing on A.B. 144 and open the hearing on A.B. 57.

ASSEMBLY BILL 57 (1st Reprint): Revises various provisions relating to motor vehicles. (BDR 9-274)

SEAN SEVER (Deputy Administrator, Division of Research and Project Management, Nevada Department of Motor Vehicles):
The Nevada Department of Motor Vehicles (DMV) has recognized the need for and is presenting A.B. 57 to prevent lien claimant fraud, change when an annual report is due and eliminate honorary consular license plates. Through the regulations process, the DMV Compliance Enforcement Division has worked with the industry on proposed language that would clarify and reflect Legislative intent and DMV policy.

The first part of the bill covers lien sale fraud. Fraud occurs when lien claimants, who obtain vehicles through parking violations, mechanic liens, tows and police impound, profit through a lien sale to themselves for significantly less than the vehicle is valued. Once they obtain the title, they sell these vehicles to the public at market value, achieving a high profit and thereby depriving the legal owner and lienholder of both the vehicle and any equity value over the lien amounts pursuant to *Nevada Revised Statutes* (NRS) 108.310, subsection 4.

Currently, NRS 487.557 requires the DMV to submit an annual report to the Legislature concerning garages, garage operators and body shops yearly by January 1. The end of the reporting date is December 31, and because January 1 is a holiday, the report is always late. The second portion of this bill addresses changing the reporting date to February 1, ensuring that the DMV complies with legislation and that all data is collected.

In the third portion of this bill, the DMV proposes to eliminate the language in NRS 482 that allows the issuance of honorary consular plates, which will bring Nevada into compliance with recent changes to federal guidelines. Federal rulemaking came out recently that requires states to stop issuing these plates. The federal government will now issue them.

SENATOR SPEARMAN:
Walk me through what happens when the car is towed. How does that result in the person making money off of it?

J.D. DECKER (Compliance Enforcement Division, Nevada Department of Motor Vehicles):
There are various conditions that must be met. When a non-consent tow results in the legal owner and/or lienholder finance company not responding to a notice to come and pick up the towed vehicle and pay the tow and storage fees, the law provides that the garage tow operator/repair shop can reimburse themselves through processing a lien sale to basically wring the value out of the vehicle in order to pay the tow and storage.

If I have a $20,000 vehicle and I am owed $10,000 in tow and storage fees, I can make money by lien selling the vehicle to myself for $10,000 and then selling it to the general public at market value, say $20,000. Now I have profited above and beyond the tow and storage fees that I was owed originally by selling the car to myself.

Our bill is to ensure that the vehicle is sold at auction to the general public at fair market value and that the tow operator is paid what is due and any excess proceeds go back to the legal owner and the lienholder. Not all proceeds would go to the tow operator.

MR. ENOS:
The Nevada Trucking Association supports A.B. 57. There are three ways tow operators make money. The first is on the actual towing of a vehicle. They then may make money on the storage of the vehicle. Lastly, if the owner does not show up to get their vehicle out of storage, they make money by selling the vehicle through the lien process.

If somebody does not show up to pay those two fees, they can make money on selling that vehicle through the lien process. This bill requires you to have a public auction. I am going to tell you this is not a widespread problem. It is probably 4 out of every 100 impounded vehicles.

MR. MACKAY:
The Nevada Franchised Auto Dealers Association supports A.B. 57.

Reminder of page intentionally left blank: signature page to follow.

CHAIR HARRIS:
Having nothing further to come before the Senate Committee on Growth and Infrastructure, we are adjourned at 5:44 p.m.

RESPECTFULLY SUBMITTED:

_____
Vicky Lind,
Committee Secretary

APPROVED BY:

_____
Senator Dallas Harris, Chair

DATE: _____

EXHIBIT SUMMARY				
Bill	**Exhibit Letter**	**Introduced on Minute Report Page No.**	**Witness / Entity**	**Description**
	A	1		Agenda
	B	1		Attendance Roster
A.B. 56	C	3	Rod Schilling / Nevada Department of Transportation	NDOT Presentation, Hard Shoulder Running
A.B. 56	D	4	Ashley Kennedy / Clark County	Proposed Amendment
S.B. 451	E	4	Steven T. Polikalas/United States Hydrogen Alliance	Proposed Amendment
S.B. 451	F	5	Roxanna Bekemohammadi / United States Hydrogen Alliance	Support Letter
S.B. 451	G	10	Sydney Krueger / Krueger Transport LLC	Written Testimony
S.B. 451	H	12	Christi Cabrera-Georgeson / Nevada Conservation League	Opposition Letter
S.B. 451	I	12	Christi Cabrera-Georgeson / Nevada Conservation League	Nevada Hydrogen Fact Sheet

S.B. 451	J	18	Senator Dallas Harris	Support Letters
S.B. 451	K	18	Senator Dallas Harris	Opposition Letters
A.B. 144	L	18	Assemblywoman Selena La Rue Hatch	Presentation
A.B. 144	M	18	Assemblywoman Selena La Rue Hatch	Nevada Can Protect Health
A.B. 144	N	18	Assemblywoman Selena La Rue Hatch	Appliance Standards Awareness Project
A.B. 144	O	21	Jessica Adair / Ceres	Support Letter
A.B. 144	P	22	Angie Dykema / Southwest Energy Efficiency Project	Support Letter
A.B. 144	Q	23	Jermareon Williams / Western Resource Advocates	Support Letter