

**MINUTES OF THE  
SENATE COMMITTEE ON COMMERCE, LABOR AND ENERGY  
SUBCOMMITTEE ON ENERGY**

**Seventy-ninth Session  
March 31, 2017**

The Subcommittee of the Senate Committee on Commerce, Labor and Energy was called to order by Chair Pat Spearman at 1:11 p.m. on Friday, March 31, 2017, in Room 2144 of the Legislative Building, Carson City, Nevada. The meeting was videoconferenced to Room 4404B 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.

**SUBCOMMITTEE MEMBERS PRESENT:**

Senator Pat Spearman, Chair  
Senator James A. Settlemeyer  
Senator Patricia Farley

**STAFF MEMBERS PRESENT:**

Marji Paslov Thomas, Policy Analyst  
Bryan Fernley, Counsel  
Daniel Putney, Committee Secretary

**OTHERS PRESENT:**

Jeffrey Schub, Executive Director, Coalition for Green Capital  
Kyle Davis, Nevada Conservation League  
Jennifer Taylor, Executive Director, Clean Energy Project Nevada  
Susan L. Fisher, Southern Nevada Home Builders Association  
David Gibson, Founder, Powered by Sunshine  
Tom Polikalas, Southwest Energy Efficiency Project  
Larry K. Fosgate, Clean Energy Project Nevada  
Kathy Lauckner  
Cassandra Rice  
Ralph E. Williamson, Faith Organizing Alliance  
Demi Falcon, Nevada Conservation League  
Margel Dinino  
Erika Castro, Progressive Leadership Alliance of Nevada

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Alejandra Romero, Chispa Nevada  
Verna Mandez  
Louise Helton, Founder, 1 Sun Solar  
Judy Stokey, NV Energy  
Angela Dykema, Director, Office of Energy, Office of the Governor  
George E. Burns, Commissioner, Financial Institutions Division, Department of  
Business and Industry  
Samuel McMullen, Nevada Bankers Association  
Fred Voltz  
Dwayne McClinton, Hyperion Advisors  
Johnny Casana, Pattern Development  
Jackie Kimble, American Jobs Project

CHAIR SPEARMAN:  
I will open the hearing on Senate Bill (S.B.) 407.

**SENATE BILL 407**: Creates the Nevada Green Bank Program. (BDR 58-1133)

JEFFREY SCHUB (Executive Director, Coalition for Green Capital):  
I provided the Subcommittee with a proposed amendment ([Exhibit C](#)).

I will read from my presentation titled "Nevada Green Bank — SB 407" ([Exhibit D](#)).

The Coalition for Green Capital is a nonprofit based in Washington, D.C., that works with governments around the U.S. to help them understand and establish green bank lending institutions.

The Nevada Green Bank Program would be designed to provide financing to deploy clean energy technologies across a range of sectors, such as residential, commercial, industrial, municipal, university, school and hospital markets. The Green Bank would establish mechanisms for total transparency on the terms of financing it offers. However, S.B. 407 does not identify an initial funding source from the State budget; there is no specific allocation in this bill. Nevada's Green Bank would be similar in form to many other 501(c)(3) loan funds dedicated to specific purposes like energy.

The name of the Green Bank is something that could be discussed further, but the Coalition does not see a name change as a problem.

SENATOR FARLEY:

Could you give some examples of this type of program working in other states?

MR. SCHUB:

In the U.S., the oldest and longest running green bank is in Connecticut, which has been running for five years. It has used over \$175 million of its own capital and has leveraged about \$800 million of private capital for a total of \$1 billion in clean energy deployment in the state. Most of this money has gone into either energy efficiency or rooftop solar, but there is a range of other technologies. Connecticut's green bank is fully capitalized with public state dollars, which have been invested in the bank and are fully preserved because the bank is offering financing. All of the money the green bank has invested remains because the bank is repaid on its financing.

New York's green bank has reached a similar level of total investment. This green bank has allowed for about \$1 billion of investment in clean energy deployment in the state with about \$200 million of the bank's own money.

Rhode Island has what it calls the Rhode Island Infrastructure Bank, which recently completed an innovative transaction to finance energy efficiency upgrades for municipal buildings in small towns across the state. The Infrastructure Bank used a combination of techniques to provide technical assistance and auditing for municipalities so that they could scope out and design financeable projects. The Infrastructure Bank financed these individual municipal projects through an aggregation structure.

California has an organization called the California Clean Energy Fund.

The first local green bank in the U.S. is being built in Montgomery County, Maryland. It will receive about \$20 million from a recent utility merger that occurred in the region.

Last week, the mayor of Washington, D.C., announced she will be introducing legislation to create a green bank in the District.

The Coalition is working in a number of other states, such as Missouri and Colorado, to explore the concept of a green bank.

Beyond the U.S., the United Kingdom and Australia have national green banks, both of which are multibillion-dollar institutions that have leveraged billions of dollars on top of their own capital.

SENATOR FARLEY:

Sometimes it can be difficult to receive a return on investment (ROI) for energy efficiency improvements made on homes and buildings. If someone stays in the home, that person would receive the ROI, but when he or she goes to sell, it could be more difficult to sell because of the lien on the home. In the other states where green banks are successful, are the commercial and residential real estate markets and the buyers becoming more educated in regard to these buildings retaining their value of the investment?

MR. SCHUB:

You are referring to something called Property Assessed Clean Energy (PACE) financing. This is a clean energy financing mechanism whereby an energy improvement loan for a building is repaid through a property tax lien on the building. This financing mechanism is very specific and is not one proposed or addressed in S.B. 407. Separately, there is ongoing debate in legislation around PACE in Nevada. I will leave this issue to the PACE experts to address. In this bill, the Green Bank is not empowered to provide any financing that would result in a lien on a property. A complication regarding a lien would not be directly created by S.B. 407. The Green Bank would primarily provide unsecured loans that would be repaid purely on the savings from the clean energy project in question. There is a lot of room for the creation of innovative financing mechanisms to ensure that when real estate is sold, the value of the energy upgrade on the property is properly assessed and included in the purchase, and to ensure the new owner picks up the remaining share of the costs and benefits of such financing. Other tools such as on-bill financing could be used, but these tools are not directly addressed in S.B. 407.

SENATOR SETTELMAYER:

I realize Connecticut has had a green bank for some time and that California has not always had the best success ratio in comparison to some of the other

states. In this particular bill, where is the money for the Green Bank going to come from?

MR. SCHUB:

The Coalition has found that there is a rapidly increasing interest from mission-driven investors and philanthropists in making investments directly into and with green banks, so we believe that is a reliable source of funds Nevada's Green Bank could tap into. The Coalition has also found that there are opportunities involving the Green Bank simply being a deployment mechanism to use existing State dollars intended to go in a clean energy direction. For example, we are working in Pennsylvania on a green bank that would similarly sit adjacent to the government as a nonprofit and would similarly not be directly funded by the government. There is already an agency in Pennsylvania's state government that has tens of millions of dollars allocated for solar lending. This money has not been used, so we are envisioning designing a delivery mechanism to the market that would specifically tap into Pennsylvania's pool of capital and be appended onto that funding source. This is a way of using state resources without having to reallocate funds.

There are also federal sources of funding, specifically for rural communities, that green banks are actively exploring how to tap into.

The first thing Nevada's Green Bank would have to do is fundraise. It is not as simple to succeed when the State government is not directly funding the Green Bank, but we are confident that unilateral, upfront funding from the State is not critical for the success of such an organization.

CHAIR SPEARMAN:

There is a growing demographic of green consumers and investors who will only invest their money in projects and programs that are free of fossil fuels. There are many opportunities in terms of getting people to invest in clean energy in Nevada. Nevada's Green Bank Study from last year found that close to 30,000 jobs would be created, and our State's gross domestic product would increase by \$2 billion to \$3 billion. The Green Bank is a way to bridge the gap for people who want to either pursue the entire energy efficiency envelope or purchase a home with renewable energy components.

Earlier today, I heard about real estate licensing in the Senate Committee on Commerce, Labor and Energy. I am hoping that as a result of having the Green Bank in Nevada, we would have realtors who look at programs that teach their members how to sell and market energy efficient properties. I also hope to have proficient appraisers. Right now, there might be two houses side by side with the only difference being that the garage is flipped. An appraiser might look at the two homes and say they are worth the same, but the home on the right is energy efficient and uses renewable resources. Unless a realtor has sufficiently studied how to market an energy efficient property, and unless an appraiser has taken a course teaching how to appraise an energy efficient property, properties could be deemed to be worth the same even though one might have energy efficient components. Looking at a home's life cycle analysis, energy efficient components can save homeowners money.

There is a lot of potential to grow the renewable and clean energy industry in Nevada. However, as indicated in the Green Bank Study, the financing mechanism is currently not in place to encourage such growth.

MR. SCHUB:

There is enormous market potential for clean energy in Nevada. Having financing at scale that is accessible and turnkey for those who want to benefit from clean energy is a critical piece to such market potential. This is the purpose of the Green Bank.

CHAIR SPEARMAN:

There is a section of the Green Bank Study that discusses the advantages Nevada has with respect to construction skill sets and what that could mean for our economy. Could you address this section?

MR. SCHUB:

Clean energy is inherently local. By that, I mean there is no way to make a home or commercial building more efficient, put solar on a roof or build a geothermal project without boots on the ground. People need to actually do it. Investing in clean energy means directly investing in jobs. Nevada would be incredibly well positioned to grow its clean energy industry based on this kind of investment because there is no way to do so other than training and developing the talent in the State needed to create these projects.

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CHAIR SPEARMAN:  
According to the Green Bank Study:

With the right kinds of vehicle fleets, this arrangement can create cost-savings for the municipality, as the amount paid for the EV [electric vehicle] fleet is less than the total cost of owning and maintaining the vehicles directly.

This is where the Green Bank could play a role in expanding the viability of the clean energy solution. The Green Bank not only could help administer this kind of program but also could support financing. Last week in this Subcommittee, we discussed how to begin to build an infrastructure supporting electric vehicles and hydrogen-powered hybrids. Green banking is not only about homes; it is about the whole renewable and clean energy industry. Clean energy legislation like S.B. 407 signals to green investors that a good place to invest is Nevada. We have solar, geothermal, wind and hydro energy sources. These energy sources are underutilized, and the only way to increase the adoption rate of them is to ensure we have a financing mechanism in place that consumers can access.

SENATOR SETTELMAYER:  
According to section 22, "The Board may charge and collect such fees and charges as the Board may establish from time to time for its making of mortgage loans for clean energy improvements." These fees are charged on loans going through the Green Bank, so are they only tailored to the Green Bank itself?

MR. SCHUB:  
Section 22 has been removed in the proposed amendment. The amendment has stripped out the language relating to mortgages.

CHAIR SPEARMAN:  
When we look back on this day 10 to 15 years from now, we will say this was another time in history when Nevada began to put in place the platform to propel the State forward to reach its full potential as a worldwide energy leader.

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SENATOR SETTELMAYER:

Unless we experience a large earthquake anytime soon, do we really need ocean and tidal energy in Nevada?

MR. SCHUB:

That is a good point.

KYLE DAVIS (Nevada Conservation League):

The Nevada Conservation League supports S.B. 407 as amended. As a member of the Governor's New Energy Industry Task Force, I had the opportunity to hear a presentation on the Green Bank Study from last year. It is an exciting opportunity for our State to fill the gap when it comes to clean energy financing, especially for homeowners and average Nevada residents. Mr. Schub has done a good job of outlining what the Green Bank is and the benefits we may see from it. I encourage us to explore this opportunity so that we can have another effective tool to get more people options to access the green energy economy.

JENNIFER TAYLOR (Executive Director, Clean Energy Project Nevada):

We support S.B. 407. The Clean Energy Project (CEP) is a nonprofit, nonpartisan organization that educates civic, community and business leaders on forward-looking energy policies like S.B. 407 and policies that will strengthen our State's economy and protect its environment. We are the business voice of clean energy and represent 500 Nevada businesses that support policies to grow our renewable energy resources and to strengthen energy efficiency programs. I sat on the New Energy Industry Task Force's Technical Advisory Committee on Clean Energy Sources and had the opportunity to hear the presentation regarding the Green Bank Study. Senate Bill 407 is a fantastic opportunity for Nevada to provide members of our community with additional access to clean energy advances. This bill also gives Nevada an opportunity to lead on innovative policies.

As it stands, there is a lack of affordable financing available to facilitate investment in numerous energy efficiency and renewable energy opportunities in Nevada. A lot of financial institutions do not offer products that finance energy efficiency installations or larger energy efficiency improvements at small residences and businesses like those the CEP represents.



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As we look at what is going on nationally, the Green Bank would allow Nevada the opportunity to shape its own energy profile and energy future, as there is a lot of uncertainty at the federal level that could increase risks and costs of capital with a diminished federal partnership role. Senate Bill 407 provides opportunities for jobs and investments in our local economy.

SUSAN L. FISHER (Southern Nevada Home Builders Association):

We support S.B. 407. We appreciate Senator Farley asking the question about priority liens. We know this has been a sticking point with PACE legislation, and we appreciate Mr. Schub adding clarification.

CHAIR SPEARMAN:

In my doctoral research, I talked to builders all across the U.S. They said they are committed to using sustainable development, but right now, these builders are taking losses on homes because they put in extra money so that the homes are energy efficient and will save the owners money. The builders cannot get financing for energy efficient additions, and the losses can become quite great. However, those who are committed to energy efficiency are committed to the cause. Builders in Nevada are committed to making sure the homes they build are clean and have the capacity to use renewable energy.

MS. FISHER:

The majority of builders in the State, not just southern Nevada, are forward-thinking. They are thinking about both the people buying the homes and what is best for Nevada.

DAVID GIBSON (Founder, Powered by Sunshine):

Creating the Green Bank is the most important piece of legislation to enable and advance the clean energy industry in Nevada. This will make efficiency and clean energy more affordable and accessible for Nevada businesses and residents of all demographics. Powered by Sunshine supports S.B. 407 as amended by Mr. Schub.

I have transitioned my home in Reno to net zero energy. I have made significant investments in efficiency, solar hot water, solar photovoltaics and a ground source heat pump that provides both heating and cooling for my home. The most challenging part of making these improvements was lining up the financing. Overall, I am saving \$5,000 each year on my home, and the ROI is

8.5 years. Over a standard 30-year mortgage, that would be \$150,000 in savings. However, most lenders do not understand efficiency or renewable energy. If I had not had equity in my home to secure the various loans, I was looking at unsecured loans with interest rates of 8 percent to 12 percent. If I had not had a high credit score and a decent salary, I would not have qualified for the loans. For many lenders, investing in efficiency or clean energy projects that have a guaranteed ROI is treated the same way as buying a boat or a recreational vehicle, neither of which provides any savings over time. The Green Bank would help to provide clarity, understanding and certainty around these types of loans, making it safer and easier for existing lenders to participate in the clean energy market.

Connecticut's green bank is the best example of statewide clean energy financing in the U.S.; Connecticut established its green bank in 2011 and has been a national leader since the bank's inception. I have provided the Subcommittee with resources containing the Connecticut statutes that create and define its green bank ([Exhibit E](#)) and the 2015 Annual Report for the bank ([Exhibit F](#)). There are many notable achievements in the annual report, but I would like to highlight one thing. Connecticut's investment of \$95 million attracted \$361 million in private investment to the state. That is a lot of private investment we could be attracting to Nevada.

To address Senator Settelmeyer's concern, we need to allocate funds. Connecticut did so by assessing a mill charge on all of its electric customers. Our State currently does this through the Public Utilities Commission of Nevada (PUCN). If the Green Bank were to be funded up front, it seems reasonable that a portion of the funds the PUCN is assessing would be assigned to the Green Bank, with the remainder staying with the current utility energy efficiency programs. That could be an option in terms of finding upfront funding.

I encourage you all to follow Connecticut's example and create the Green Bank to improve financing for clean energy projects across Nevada.

TOM POLIKALAS (Southwest Energy Efficiency Project):

The Southwest Energy Efficiency Project works to advocate for energy efficient technologies in six states, including Nevada. There is a need for access to affordable capital to accelerate market penetration of environmentally friendly technologies. I have worked for two organizations that provided such access,

both of which were owned by consumers. My first experience was with an electric cooperative in Colorado. The cooperative financed ground source heat pumps, which have a good payback over their life cycles but are very expensive up front. By providing upfront capital through the utility, there was the opportunity of increasing the cooperative's market share of ground source heat pumps by three or four times over the national average. The key was affordable financing. The heat pumps ended up providing savings to consumers. The savings on propane and other fossil fuels enabled consumers to both amortize their loans and have surpluses.

My second experience was with the Valley Electric Association here in Nevada. The Valley Electric Association finances solar water heaters with no-money-down loans that have zero percent interest. The market penetration of solar water heating in southern Nevada, because of affordable financing, is much higher than in other areas of the U.S. I am delighted this bill has been taken up to accelerate Nevada's economic development.

LARRY K. FOSGATE (Clean Energy Project Nevada):  
I will read from my prepared testimony in support of this bill ([Exhibit G](#)).

CHAIR SPEARMAN:  
You are addressing components that were in the original bill, not the amended version. Have you seen Mr. Schub's proposed amendment?

MR. FOSGATE:  
No.

CHAIR SPEARMAN:  
Many of your concerns were addressed with the amendment.

MR. FOSGATE:  
I will continue reading from [Exhibit G](#).

KATHY LAUCKNER:  
For the past 25 years, I have worked through the University of Nevada, Las Vegas (UNLV), and with a program through the Environmental Protection Agency to have our National Safe and Healthy Housing Coalition work across the Nation to refurbish our communities and to make our homes safer for

low-income residents. It is a shame we do not already have the Green Bank because we could add its financing to the millions of federal dollars we have already received in Nevada. When we rehabilitate homes, we make them more energy efficient and take out lead paint, asbestos and mold. If the Green Bank were here to finance the National Safe and Healthy Housing Coalition, we would have been able to create community solar banks and rooftop solar to make these homes more progressive. I hope the Green Bank comes to fruition sooner rather than later and that the partnerships continue. The National Safe and Healthy Housing Coalition's funding did not get into the budgets coming from Washington, D.C., so we still have potential.

CASSANDRA RICE:

I own a small business in Henderson called Gymcats. I appreciate S.B. 407 being brought forward so that other businesses can make energy efficiency improvements like we have at Gymcats, which we were able to do because we were financially able to fund these projects ourselves. Anything that can be done to help energy efficiency is good for business. Over ten years, we have put in insulated walls, an insulated roof, insulated garage doors, light-emitting diode lights and solar panels. We have seen the benefits in our business. We have doubled both the number of our staff members and the payroll, which is good for the economy as a whole. Anything the Legislature can do to help make energy efficiency improvements easier for businesses and residents will help the economy. It is a win-win for the entire community.

RALPH E. WILLIAMSON (Faith Organizing Alliance):

The Faith Organizing Alliance is a local nonprofit organization that helps promote and educate individuals within our low-income, African-American communities. We support S.B. 407. It makes sense to allow opportunities for individuals in low-income communities to have access to affordable clean energy resources, which would be financed through the Green Bank. We hope this legislation will help Nevada become a national clean energy leader and will allow all of us to benefit from and have access to solar energy, reduced energy costs and increased home values.

DEMI FALCON (Nevada Conservation League):

Clean energy and energy efficiency improvements can save people a lot of money and reduce pollution. However, homeowners often have trouble accessing adequate financing for making these improvements. As we work on

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bills to establish better energy efficiency programs and to bring back rooftop solar, we need green banks to ensure all Nevadans have access to the clean energy economy. I urge the Subcommittee to support S.B. 407.

MARGEL DININO:

I will read from my prepared testimony in support of this bill ([Exhibit H](#)).

I have worked in real estate for over 17 years. I have been a fan of solar energy for some time. There has been a struggle with financing energy efficiency improvements, and the bumps in the economy have let us see this struggle.

ERIKA CASTRO (Progressive Leadership Alliance of Nevada):

We support S.B. 407. The Green Bank is a step forward to environmental and economic justice for communities that lack support in accessing clean and affordable energy. In many cases, financial challenges are the reason Nevadans cannot access renewable energy. I would like to invest in solar energy for my home, but as a student who pays tuition out of pocket, that is not feasible. With the Green Bank, we could ensure all Nevadans have access to clean and affordable energy. In the last year, we have seen many rooftop solar companies leave our State because consumers are not able to afford solar energy due to recent changes. By supporting S.B. 407, we can accelerate the clean energy sector and create new green jobs that Nevadans need. Nevada has the potential to be one of the leading states in renewable energy. Passing S.B. 407 is a step in the right direction.

ALEJANDRA ROMERO (Chispa Nevada):

When I go out to my community in Las Vegas, it seems that people are almost surprised when I mention to them it is a myth that low-income communities are not interested in clean energy. When it comes to clean energy, the last time I checked, it is now available. I would love to see investments in clean energy in my community. It is astounding people in my community feel the same way I do. They feel there is clean energy ready to be invested in low-income communities of color, but there is an issue of access. Senate Bill 407 addresses this access issue. The Green Bank would provide innovative financing to our communities for clean energy projects. I would love for you all to put our families and communities first. I am calling upon you today to create financing methods to give low-income families and groups, my neighbors, your families,

our churches, and our community organizations access to technology and renewable resources.

VERNA MANDEZ:

Renewable energy in Nevada creates good jobs and protects our health. I grew up in a low-income community, and often the bill that was left behind was the electric bill because people cannot eat electricity. It is a myth that low-income communities do not care about renewable energy—we do. We simply cannot afford it. Nothing excites me more than the idea of being able to finance renewable energy options in my home. The Green Bank would allow me to go solar and cut down my carbon footprint. If this bill passed, I would be the first person to let my community members know they could afford to go solar, and they could afford to use renewable energy in their homes. As Latinos, we have a special relationship with the earth and our surroundings. We enjoy recycling, we turn off our electricity to save money and electricity, we love the outdoors and we want better jobs. I support this, my mom supports this, my dad supports this and my community will most certainly support this.

LOUISE HELTON (Founder, 1 Sun Solar):

As a member of the U.S. Green Building Council, I helped put together the Green Bank Academy in the late summer of 2014 to introduce the concept of a green bank to the people in the Las Vegas Valley and across the State. We taught them what a green bank was, and was not, because some people were confused about the terminology. We were able to provide good education on the topic. People were excited about it. The Academy was set up to appeal to business people because we saw a green bank as a critical opportunity to improve opportunities for local businesses, to create jobs and to benefit all Nevadans. After we hosted the Academy, we were excited to learn there was a bill last Session to conduct the Green Bank Study. Everything the study pointed out was nothing but good news. We enthusiastically support S.B. 407. The original group that supported the Green Bank Study included the Associated General Contractors of America, the U.S. Green Building Council, the American Institute of Architects, the Building Owners and Managers Association and the Commercial Real Estate Development Association. This is a large, broad-based group of business people who see a green bank as a win for business, jobs and all Nevadans. We look forward to your support.

CHAIR SPEARMAN:

Janette Dean, an alumna of the University of Nevada, Reno, submitted testimony in support of this bill ([Exhibit I](#)). Anne Macquarie, on behalf of the Toiyabe Chapter of the Sierra Club, also submitted testimony in support of this bill ([Exhibit J](#)).

JUDY STOKEY (NV Energy):

We are neutral on S.B. 407. We love energy efficiency, but we are concerned about the funding. Our customers already pay about \$55 million annually on their power bills for our energy efficiency programs. We also have \$255 million that our customers are paying for rooftop solar. We want to determine whether the funding comes from another source. We do not want to put the funding on our power bills.

CHAIR SPEARMAN:

What we are looking at is private investment and public infrastructure. We are working hard to make sure this bill is successful, and that is why we put together the amendment.

Ms. STOKEY:

When I saw the information from Connecticut, I was concerned because the green bank there receives its funding from customers' power bills.

ANGELA DYKEMA (Director, Office of Energy, Office of the Governor):

We are not taking a position on this bill. The Governor's Office of Energy supports innovative ways of encouraging clean energy deployment and associated job creation, whether that be through renewable energy production or energy efficiency measures. We recognize there is an interest among our stakeholders in encouraging clean energy financing opportunities in Nevada. Over the past few years, our Office has made efforts to convene stakeholder groups to discuss the potential for concepts like a green bank in this State. We worked closely with Mr. Schub last year to help the Interim Legislative Committee on Energy develop a comprehensive study on the market for such an entity in the State and to better understand how such a program would be legally structured, funded and operated.

We had quite a few concerns with this bill as originally introduced, but I feel much better about the amended version discussed today. We are on a better

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track. I echo the concerns regarding the source and amount of funding. Because green banks are a relatively new concept nationwide, with fewer than half a dozen states that actually have such programs, we want to make sure that if this is something our stakeholders indeed want to see, it is set up right, will function efficiently and will serve a true public need.

I want to reiterate the difference between PACE financing and green banks because there was some discussion about that. In regard to PACE financing, it is a method of clean energy financing that is completely separate from the concept of a green bank. A green bank could offer PACE financing, but a green bank is not necessary for a PACE program.

We look forward to working with you further on this bill.

GEORGE E. BURNS (Commissioner, Financial Institutions Division, Department of Business and Industry):

I will read from my prepared testimony in neutral to this bill ([Exhibit K](#)). I have suggested possible amendment language to S.B. 407.

CHAIR SPEARMAN:

If you could send us some language, I am amenable to including that as an amendment.

MR. BURNS:

I have submitted that language.

In regard to the use of the term "bank," it is prohibited by statute. The term can only be used by an institution that accepts deposits. I hope we can come up with a name that is as good.

CHAIR SPEARMAN:

Last Session, we struggled with what to call the Green Bank. I figured that if we included the term, people could at least search for it on Google. There is another name out there, but we have to figure it out.

SAMUEL McMULLEN (Nevada Bankers Association):

It was good that you used the term because you got our attention. We hope there is a better marketing title for this program.



We are neutral to S.B. 407 because our people have not had a chance to review it, but they will be happy about the proposed amendment. This bill offers a great set of concepts. We do not have a problem with clean energy. We are happy to do what we can to help. I was of the opinion this bill did not do anything to or with banks.

We are concerned about PACE financing. We are not the Office of Energy's favorite people because we do not support PACE financing. In looking at other states with this type of financing, however, there are things that have allowed existing loans to say whether or not priorities would be adjusted through a legally recorded document.

Our people will take a look at this bill. We are not trying to stand in the way of the concepts brought forth.

CHAIR SPEARMAN:

Some of the testifiers mentioned how the Green Bank would open up opportunities for individuals who do not have the money for energy efficiency measures. Clean energy has been done on the backs of low-income and moderate-income individuals because they cannot access it at the same level. This bill seems to be the solution. To reiterate what Ms. Dykema said, this bill is separate from PACE financing. I encourage everyone to look at the number of companies that have green portfolios. People investing in these companies will only invest in portfolios that do not contain oil or fossil fuels. Companies such as Starbucks, Microsoft and Amazon have begun to move investment assets to green portfolios because they want to reduce their carbon footprints. For many of these companies, their corporate social responsibility portfolios require them to do so. In a lot of ways, Nevada is leading the way in terms of clean energy.

FRED VOLTZ:

I have concerns about gaps in this bill's provisions that need correction before this bill advances. First, it seems there is no form of financial statement, which could have been an exhibit, for the program carried out ten years into the future. We need to have some sort of an idea of the scope of this program and what will happen with it to evaluate it prudently. Second, there is no cap on the amount of bonds that might be approved by the Board of Directors of the Green Bank. As with the \$255 million for the 235 megawatts of renewable generation, an upper dollar cap on the total program scope needs to be inserted into this

bill. Third, will there be a legislatively set cap on administrative costs in relation to the program's funding? There are lots of things this program needs to do operationally, and we do not have any idea whether the administrative costs are going to eclipse the amount of loans or be some fraction of them. It also seems prudent to not have the Board of Directors but the Legislature decide whether the interest that is going to be charged to borrowers is at a fixed or variable rate. That is going to substantially change the economics of the program. Another question: What is the projected annual net cost of the program's administrative costs and subsidized interest rates for the Treasurer if other funding prospects do not come through? We have the idea that there might be private investment, but there is no firm commitment at this point. Also, will the insurance proposed on the mortgages be directly paid by borrowers or paid out of the program's funding? What will happen if any mortgage insurance, however it is paid, is inadequate to cover the principal balance in accrued interest of a defaulted mortgage? If the Green Bank is in second or third lien position with the mortgage it holds, how secure is the loan?

CHAIR SPEARMAN:  
Have you seen the proposed amendment?

MR. VOLTZ:  
No.

CHAIR SPEARMAN:  
Most of the things you are bringing up have been settled in the amendment.

MR. VOLTZ:  
The lien position is important. The Legislature should set a maximum total loan-to-value ratio that establishes adequate protections for repayment, particularly after what happened with the Community Reinvestment Act of 1977. This Act saw lenders take significant losses when the federal government's policy objective was to have everyone be a homeowner with little or no money down. As a condition for making a loan, the property owner should be required to invest personal, not just borrowed, money to make these improvements so that the homeowner has a vested interest in the success of the project. Additionally, is there any sense from financial institutions as to what their costs would be in making these loans and whether they would be adequately reimbursed for those costs?

CHAIR SPEARMAN:

You should look at the proposed amendment. As you heard Mr. Schub say, these are unsecured loans. The Green Bank would be a nonprofit 501(c)(3). We are looking at private funding. Everything you have mentioned so far has been addressed with the amendment. Take a look at the amendment and then reconcile the amendment with your concerns.

MR. VOLTZ:

If the loans are unsecured, there is no security to get the money back. The loans need to be secured by the property being improved. It is fine that the program would be a 501(c)(3).

I have a concern not addressed by the amendment. The composition of the Board of Directors needs significant reworking. Appointing people from three counties around the State through county commissions and the gubernatorial appointment process does not add the necessary expertise for making decisions. There should be someone from the Office of the State Treasurer on the Board of Directors if there will be any bonds issued, especially if the private sources of funding do not materialize. That is a problem, and we have no commitments. There should be one person from a financial institution or the Nevada Bankers Association who grasps underwriting standards, loan servicing and marketing. There should also be one person from a consumer-focused organization, such as the Better Business Bureau or AARP, to ensure consumers are properly protected in the loan-making process. The Bureau of Consumer Protection could also be involved if it had the resources to do so.

SENATOR FARLEY:

Do you talk to the bill sponsors before our Subcommittee meetings? I am waiting for you to support an energy bill this Session. I would like for you to work some of your issues out with the bill sponsors before our Subcommittee meetings.

MR. VOLTZ:

I read the bills as they are posted online. My concern is that we seem to be pushing forward on a renewable energy objective. Globally, there are many bills related to renewable energy. Unfortunately, we have not seen an estimation of the total costs of making this State 100 percent renewable.

SENATOR FARLEY:

I have not met with you once. I continue to work with the PUCN, Senator Spearman and some Assembly members. Coming to every meeting with your objections but not meeting with us prior does not help. I invite you to talk to me to see if we are able to do more, we can answer some of your concerns or we can make the bill in question better. We draft amendments prior to our meetings. Is there an energy bill this Session you are going to be excited about?

MR. VOLTZ:

In terms of renewable energy, I have not seen it yet. We have been talking publicly about all of the benefits that would result, and there are many people who are enthusiastic about renewable energy, but we have not looked at the total costs and the impacts they would have on existing ratepayers. I have grave concerns that a cost analysis has not been done by somebody in State government so that we know what we are dealing with.

SENATOR FARLEY:

Bring those concerns to me, and I will see if I can find answers. If you believe there is something going in the wrong direction, I will work with Senator Spearman to address those issues.

CHAIR SPEARMAN:

According to section 7 of the proposed amendment:

Funding sources for the Green Bank may include:

- (a) Any money received by the Green Bank for the purposes of this act by any and all public and private sources, including charitable gifts, donations, federal funds, legislative appropriations, and other private sources;
- (b) Proceeds of bonds issued by the Green Bank; and
- (c) Payments on principal of and interest on any financial products provided by the Green Bank.

Toward the beginning of this bill, you can see that one of the things that will happen, should this bill pass, is that the process by which the Green Bank does business as a whole will be developed at that time. We still have some things to work out, but I can assure you we are not getting ready to be fiscally

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irresponsible. There are private investors who look for opportunities like the Green Bank that they can put their money into.

I will close the hearing on S.B. 407. We have a couple of presentations today.

DWAYNE MCCLINTON (Hyperion Advisors):

I commend you for your efforts to make Nevada No. 1 in clean energy. Johnny Casana of Pattern Development will give a presentation about wind energy.

JOHNNY CASANA (Pattern Development):

I will read from my presentation titled "State of Wind Energy" ([Exhibit L](#)).

The concept of wind energy has not changed much, but the technology has changed a lot.

Wind is the cheapest energy source in terms of levelized energy cost. Wind beats natural gas, nuclear, solar, hydro and coal by a lot. Page 6 of [Exhibit L](#) shows Lazard's 2016 levelized energy cost numbers.

Page 7 of [Exhibit L](#) shows a 66 percent cost reduction in wind energy since 2009. Five or six years ago, wind had a lot of system value, value from a carbon perspective and social capital, but it was still a fairly expensive technology. We are an engineering society, so when we engineer machines over and over again, each iteration gets better.

Rotor diameters have gotten larger over time. Back in the 1980s and 1990s when wind was more of an experimental or boutique technology, it was very expensive and mainly propped up by exploratory programs. About 15 years ago, the prices started to decline, and the towers started to get much larger. When the tower and rotor diameter are larger, the output of energy increases. Doubling the size, there is an eightfold increase in energy output from the same tower. This means much more power for the same capital cost. Gearboxes and inverters themselves have become much more energy efficient. Integration with the grid has become much more energy efficient. Turbines built since 2004 have smart inverters built into them, so today's turbines do not have the same sort of intermittent starts and stops that were seen in turbines from the 1980s and 1990s.

In the renewable energy community, wind is old. We like to be old, stable and predictable. We are not the shiny new object in terms of renewable energy. We have advanced to the point where we are as commercially viable as we are going to be.

In 2015, we secured a five-year deal to phase down our federal tax credit. This is the longest amount of certainty the wind industry has ever had in terms of how long the tax credit would be around, and it is a final tax credit. The tax credit will not be pursued or given out again. Page 10 of [Exhibit L](#) shows the federal tax credits since 1999.

Less than a year ago, the Internal Revenue Service gave clarification regarding how to phase down the federal tax credit. We have the ability until 2020 to access 100 percent of the production tax credit value. This cuts the price of delivered wind energy by about 1/2 or 2/3 depending on the region. This is an amazing opportunity where states and utilities can save ratepayers a tremendous amount of money if wind energy is procured in the next two or three years. A study in California showed that procuring in 2019 versus 2022 could save ratepayers about \$30 million. There is a finite yet diminishing amount of prequalified projects from 2016 that can still access the federal tax credit until 2020. After 2020, the tax credit will be gone.

The use of wind energy significantly reduces water use because there is no cooling required like there is in thermal generation. Carbon dioxide displacement is one of the major benefits of wind energy.

The wind generation profile in the middle of the U.S., which the West is electrically connected to, matches extremely well with its solar generation profile. Page 13 of [Exhibit L](#) shows this matchup. Resources vary geographically from location to location, but a wind farm ready to be built carries with it a great deal of certainty in regard to its wind profile. The broader the footprint and the higher the diversity of resources and load centers, the easier it is to pair wind in the morning with wind in the evening and to have solar in the middle of the day. There can be a diverse portfolio of generation that eliminates the conventional need for baseload. This new concept is a question of management rather than a question of generation or technology. If we had wind and solar as cheap and commercially viable as they are now in the 1940s, 1950s and 1960s, much more of our system would be built with these kinds of renewable

technologies because they are great, are cheap and have long-term fixed pricing.

I was recently asked where wind energy is being used in the U.S. Page 14 of [Exhibit L](#) shows that wind is used everywhere except the South. The Midwest leads in terms of delivered energy because it is in the middle of the wind belt. The states in the Midwest are connected to large multistate grids. Our grid is technically one machine, stretching from about Colorado to California. We have different corners of management in the West that are responsible for making sure the lights do not go out and that there is not too much or too little power at any one time. The Midwest, however, has one management authority. The region has a great amount of diversity in generation and load, which offsets the need for ramps, gas and storage. Storage is extremely expensive—it is 8 or 12 times the cost of working with neighboring states. We have seen how successful this sort of collaboration has been in Europe.

About two or three years ago, Texas overtook California as the leader in installed capacity. Ten years ago, California had twice as much wind as Texas, but today, Texas has twice as much as California. Texas is a place where there is commercial viability. These data can be seen on page 15 of [Exhibit L](#). Contrary to what I hear, wind and solar are not boutique industries; they are good business.

In terms of new electric output in 2015, wind was the leader by far. This can be seen on page 16 of [Exhibit L](#).

The U.S. Bureau of Labor Statistics identified the wind energy technician as the fastest growing occupation in the U.S. Wind energy technicians do not need college degrees and usually work in rural places where economic development matters a lot. The wind energy technician is a high-paying job with long-term viability because wind farms operate for 20 to 30 years.

Towers are now tall enough to access wind that is higher up. The higher up one goes, the more wind there is. Eight or nine years ago, the towers were a lot smaller. That is one of the reasons why there has not been a lot of wind development in Nevada. The wind was not as good with the technology at the time. With tall towers and broad rotor diameters, there is more wind to be

accessed. As we think about our energy future and where zero-fuel, cost-competitive power fits into that future, we should bring wind to the table.

CHAIR SPEARMAN:

One of the concerns with wind deals with the environment, especially birds. N R Agarwal Industries Limited has discussed different types of technology that would mitigate the bird problem. Could you speak to that?

MR. CASANA:

The wind industry cares about environmental concerns. Environmental concerns are why many wind industry professionals got into this industry to begin with. Wind is new, and because it is new, there is room to correct errors that were not corrected earlier. We have done a lot of work with federal and state authorities in identifying where there are net species impacts and how such impacts can be mitigated. There are a lot of things that can be done about feathering turbines and turning them off and on at different times of the day. There can be conservation research to help make sure there is a net species benefit even if there is a take on an individual level. These are the sorts of things we have been working with authorities on to try to resolve. Wind energy is not different than any other form of energy in terms of having an impact on the environment. However, the carbon displacement from wind energy is major. The largest threat to migratory birds is carbon in the atmosphere. Decarbonizing the electric sector is the fastest and cheapest way to decarbonize society more broadly. We take environmental concerns seriously, and they are certainly part of the conversation.

CHAIR SPEARMAN:

Jackie Kimble from the American Jobs Project will provide a summary of the Project's report on Nevada and will show us how our State can take advantage of some of the biggest market opportunities in our area: the advanced energy sector, solar energy and batteries.

JACKIE KIMBLE (American Jobs Project):

I will read from my presentation titled "Nevada Jobs Project: A Guide to Creating Advanced Energy Jobs" ([Exhibit M](#)).

The Nevada Jobs Project provides a research-based guide to creating skilled, high-paying advanced energy jobs. We found that Nevada is well positioned to



become a global leader in solar energy and battery technology. The State can support thousands of skilled middle-class jobs.

With smart, forward-thinking policies that promote economic cluster development, Nevada can take advantage of the biggest market opportunity of our time: clean energy.

CHAIR SPEARMAN:

Even though we are talking about energy, it seems there are some peripheral industries that benefit as well. Has there been any research to show what clean energy means for the construction industry? Many of the jobs in construction are dependent on projects, but as long as the energy market is expanding, temporary construction jobs will continue to exist.

MS. KIMBLE:

The construction sector has high-paying jobs. Additionally, we recommend looking at the manufacturing sector, which also has high-paying jobs and would not have the project-based time limitation you mentioned. By expanding clean energy policies, there will be more of a runway so that project-based jobs can be planned further in advance and have more predictable cycles.

I will continue reading from [Exhibit M](#).

SENATOR FARLEY:

Do you know of states that can model the overall economic impact? We have heard a lot of good information in this Subcommittee, but a lot of people have raised concerns. Can you provide an example of people who have gone before us and have reaped the benefits?

MS. KIMBLE:

You are all probably familiar with economic clusters from different industries, such as Silicon Valley in California and the Research Triangle Park in North Carolina. The way businesses are working now with requiring more highly skilled workers than ever before, clusters are the way of the future and will be the way businesses select where in the world they want to be located. In terms of having a robust clean energy cluster, most states are not that far ahead of Nevada. This gives Nevada the opportunity, if the State moves now, to be the leader in clean energy.

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SENATOR FARLEY:

We have heard a lot of concerns from people about things we simply do not know about. If we knew the end goal, we would pick our paths differently. Energy is a natural and organic product of Nevada; we should be investing in energy because we have all of the resources to make ourselves a clean energy leader. If there are articles you could send us, I would appreciate reading them.

MS. KIMBLE:

Could you give a more specific example of the kind of thing you are looking for? Is there a certain policy you are wondering about the effects of, or are you asking about a holistic strategy? There are many cities around the world that serve as examples.

SENATOR FARLEY:

I am wondering about a holistic strategy. We are taking an educated risk in moving forward with clean energy. Part of an educated risk is based on other people taking the same risk. I would appreciate any information you could give me.

CHAIR SPEARMAN:

I knew we were on the right track with clean energy. When talking about something like this, one has to delve into it and access research that has already been done. I have been looking at some research from Mr. Polikalas that shows there would be a minimum of 28,000 new jobs in Nevada.

MS. KIMBLE:

The projections in my presentation predate the Nevada Jobs Project's report. If I had more time, I would have produced updated estimates for the Subcommittee. The 28,000 new jobs from Mr. Polikalas' research looks at the industry as a whole and does not subtract existing jobs. Considering solar manufacturing, the number of jobs supported by the industry could increase. There could be thousands of additional jobs on top of the 28,000.

CHAIR SPEARMAN:

We are about to lead the world in energy strategy and policy. We are on our way, and I could not be happier. Through the Subcommittee meetings, I have tried to look at all types of renewable energy because I do not want us to focus narrowly on solar. Our State has other opportunities for energy development.

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CHAIR SPEARMAN:  
I adjourn the meeting at 3:13 p.m.

RESPECTFULLY SUBMITTED:

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Daniel Putney,  
Committee Secretary

APPROVED BY:

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Senator Pat Spearman, Chair

DATE: \_\_\_\_\_

<b>EXHIBIT SUMMARY</b>				
<b>Bill</b>	<b>Exhibit / # of pages</b>		<b>Witness / Entity</b>	<b>Description</b>
	A	1		Agenda
	B	7		Attendance Roster
S.B. 407	C	5	Jeffrey Schub / Coalition for Green Capital	Proposed Amendment
S.B. 407	D	3	Jeffrey Schub / Coalition for Green Capital	Nevada Green Bank
S.B. 407	E	10	David Gibson / Powered by Sunshine	Connecticut Green Bank Statutes
S.B. 407	F	16	David Gibson / Powered by Sunshine	Connecticut Green Bank 2015 Annual Report
S.B. 407	G	2	Larry K. Fosgate / Clean Energy Project	Written Testimony
S.B. 407	H	1	Margel Dinino	Written Testimony
S.B. 407	I	3	Chair Spearman	Written Testimony of Janette Dean
S.B. 407	J	1	Chair Spearman	Written Testimony of Anne Macquarie of the Sierra Club, Toiyabe Chapter
S.B. 407	K	2	George E. Burns / Financial Institutions Division, Department of Business and Industry	Written Testimony
	L	18	Johnny Casana / Pattern Development	Presentation
	M	16	Jackie Kimble / American Jobs Project	Presentation