MINUTES OF THE
SENATE SELECT COMMITTEE ON ECONOMIC GROWTH AND EMPLOYMENT

Seventy-sixth Session
April 18, 2011

The Senate Select Committee on Economic Growth and Employment was called to order by Chair Ruben J. Kihuen at 2:03 p.m. on Monday, April 18, 2011, in Room 2134 of the Legislative Building, Carson City, 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 Ruben J. Kihuen, Chair
Senator John J. Lee, Vice Chair
Senator Valerie Wiener
Senator Mark A. Manendo
Senator Don Gustavson
Senator Greg Brower

COMMITTEE MEMBERS ABSENT:

Senator Ben Kieckhefer (Excused)

STAFF MEMBERS PRESENT:

Kelly Gregory, Policy Analyst
Bryan Fernley-Gonzalez, Counsel
Debra Carmichael, Committee Secretary

OTHERS PRESENT:

Rose McKinney-James, Energy Works, LLC
Rocky Fernandez, Communications Director, Clean Energy Project
Jim Baak, Director of Policy, The Vote Solar Initiative
Judy Stokey, Executive, Government and External Affairs, NV Energy
Jack McGinley, Director, Regulatory and Legislative Strategies, NV Energy

ROSE MCKINNEY-JAMES (Energy Works LLC):
The Solar Energy Industry Association indicates that 878 megawatts (MW) of photovoltaic (PV) and 78 MW of concentrating solar power were installed in the United States in 2010. That collectively is enough power for 200,000 homes. In addition, a survey by The Solar Foundation, which is funded by the Energy Foundation, found that the solar industry employed more than 93,000 Americans in 2010 and has plans to add over 25,000 jobs in 2011. Installed wind capacity in 2010 was 5,115 MW, which was reported through the American Wind Energy Association. While the growth in wind capacity was slower than the previous two years, total installed capacity in the United States is currently 40,180 MW. This is a substantial amount of power. According to Bloomberg New Energy Finance, new investment in clean energy reached $243 billion in 2010. That is up from $186.5 billion in 2009.

This is an effort to help frame the significant opportunity we have with respect to investment. Nevada is uniquely positioned around the opportunity to take full advantage.

ROCKY FERNANDEZ (Communications Director, Clean Energy Project):
The Clean Energy Project is a nonprofit, nonpartisan, clean advocacy organization. We are technology neutral and interested in moving the clean energy economy forward.

The analysis (Exhibit C) was prepared by the Clean Energy Project using McKinsey's US Low Carbon Economics Tool, which is a neutral analytic set of interlinked models that estimates potential economic implications of various policies defined by the Clean Energy Project.

Nevada is already on a path to a clean energy future thanks to the renewable portfolio standard which requires 25 percent of our energy to be renewable by 2025. We are not alone in moving the clean energy economy forward. The question is, do we go for a "C" average or go for the "A"? The Clean Energy Project published this report in order to find out what would be possible if we went beyond our 2025 renewable standard and took full advantage of all the sun shining down and the heat bubbling up from below to remake our energy

infrastructure. Nevada has an opportunity to save over $300 million per year by 2025 due to decreased energy imports and increased electricity exports if the State more aggressively pursued its clean energy resources. If Nevada were to become an energy exporter, it could create over 9,000 clean energy jobs by 2025.

Nevada imports over 90 percent of our fuel for energy generation. That means over $1.7 billion is sent out of the State to import fuel to burn here.

Nevada has a high density of geothermal potential which could meet 30 percent to 60 percent of Nevada demand. It is very cheap power, about 5 cents per kilowatt-hour (kWh), and it is a proven and mature technology.

Nevada has not only the best rooftop real estate for PV solar panels but also the best areas for solar thermal energy including the big solar arrays in the desert.

There is a huge potential for energy efficiency in Nevada that can reduce our energy base load by about 33 percent in a very inexpensive way. Energy efficiency costs 3 cents a kWh, which is about half the price of coal energy. It also creates the highest number of jobs both short- and long-term. There are many buildings to retrofit, and 15 years from now the advances in technology will save energy even in today's most efficient buildings.

Based off the assumptions of the model, job creation is quite good. For example, a new 100 MW solar PV plant would create 1,040 jobs, 240 in construction and 900 indirect jobs. These are people up and down the supply chain and the service jobs that are involved in feeding construction workers. It takes 100 MW of geothermal to create 830 jobs up front and 90 jobs permanently. These are the two biggest drivers of jobs, which happen to be Nevada's best resources.

The business-as-usual model places Nevada on a good path to a clean energy future. It requires 25 percent renewables by 2025 and encourages energy efficiency in transmission.

The export scenario looked at a goal of meeting a 25 percent renewable standard and generating an additional 3,000 gigawatt-hours of energy as well

as removing the energy efficiency carveout. We do that because keeping the energy efficiency carveout in the Renewable Portfolio Standard (RPS) limits the amount of energy efficiency due to lack of financial incentives the utility can receive right now. The scenario also examined adding an additional 400 miles of transmission lines to carry the extra energy here and out of state.

It is often said that renewables raise rates for ratepayers. When looking at a clean energy economy with energy efficiency and renewables, our model disproves this in the short and long term. We are on a path for lower monthly bills, not a ton of money but still less than what we are paying right now.

In the export scenario, we can nearly triple the savings by 2025. Even including the cost of investments, such as transmission lines, we still see household energy costs go down. This is why energy efficiency must be a part of a full package of policies to be fully beneficial. We are on a good path either way, but it could be better.

The gross domestic product goes up in either scenario but significantly more under the export scenario. Jobs will be created, but in 2025 the number decreases if we do not pursue a scenario where we sell to other states and merely meet the 25 percent requirement.

The export scenario delivers significant additional value to Nevada's economy. That means more money coming into the State. We also save more by not exporting money to import natural gas. The export scenario is captured by creating a western regional planning process. A regional planning process would enhance clean technology economic development, support high quality of life levels through planning of finite natural resources like water and land, allow cost allocation to be fairly distributed over all beneficiaries and decrease risks for renewable energy development that will attract significant private investments.

SENATOR LEE:
Can you tell me about the federal government agreeing to fund the exploration required for geothermal projects developed on some federally owned lands?

MR. FERNANDEZ:
They have set up several programs to incentivize. The loan guarantee program is another project that is in place through the U.S. Department of Energy to help get these launched.

SENATOR LEE:
I am asking about the exploration on federal land that is talked about on page 19, Exhibit C.

MS. MCKINNEY-JAMES:
I cannot speak specifically about that. I will research it for you. I know that the Secretary of the U.S. Department of the Interior, Ken Salazar, has been here on two occasions to speak to a variety of initiatives the Department is pursuing on a federal level. That is consistent with this reference, but just to be sure I will get back to you.

JIM BAAK (Director of Policy, The Vote Solar Initiative):
The Vote Solar Initiative is a nonprofit, nonpartisan, grassroots organization that is funded to fight climate change and bring solar energy into the mainstream by creating economic opportunities around solar energy. We are funded primarily through energy foundations to achieve these goals. We have been working since 2002 at mainly the state level, but some at the federal level to affect policies and to support solar energy and the sustainable development of the solar energy industry. We have been active in 15 states, and we have 50,000-plus members around the Country. We have been active in Nevada since 2008.

The report (Exhibit D) that I will talk about today examines the job creation and economic impacts potential for a 400 MW distributed generation (DG) program, which is rooftop solar as compared to large-scale, centralized solar. During the 74th Session of the Legislature, I presented an economic study report using the same model for 2,000 MW large-scale solar for Nevada. This report focuses strictly on the DG program.

In my handout, “Economic and Job Creation Benefits of the Nevada Solar Jobs Now Proposal of 2011” (Exhibit E), on page 4 are examples of existing

distributed generation projects on rooftops and ground-mounted solar installations in Nevada.

The report used the National Renewable Energy Laboratory's Jobs and Economic Development Impacts model, which is the most credible and only publicly available model.

The distributed generation program creates an ongoing stream of job creation and economic benefits to the State. Every project, whether 2 kW or 500 kW, requires employment of electricians, builders, contractors, engineers, financiers, lawyers, marketers and salespeople. Since projects are evenly spread over 20 years, the need for this employment is constant. Contrast that with large-scale solar projects that can take two to three years to be constructed and have a big influx on construction workers. Once the construction has ended, they move onto the next project. There are more ongoing operations and maintenance jobs under a centralized concentrating solar thermal plant, less so under a large-scale photovoltaic. On the distributed generations side, there will be ongoing maintenance but at a smaller scale. Typically, once the PV panels are installed, they work without much intervention. An inverter has to be replaced on a 10- to 15-year basis. On larger commercial installations, particularly where there is a performance-based incentive requirement, there may be required cleaning of panels in order to maximize the output. Other than that, these panels perform without human intervention. I speak from experience, as I have a system on my rooftop that has been running for a couple of years, and I have not had any issues with it.

On page 2, Exhibit D, is a graph that shows a projection of new jobs by the solar market from installing 400 MW of solar for residential and commercial installations. The average number of jobs per year is around 1,059, and they are related to the sales, installation, and ongoing operation and maintenance for the DG program. This does not include any manufacturing jobs. Below the graph on page 2 are the projected economic benefits of 400 MW DG solar. It shows the lifetime earnings, lifetime economic output and the lifetime sales tax collected by the State. The lifetime earnings are the wages and salaries of all the people employed over the life of the project. The lifetime economic output is a measure

of how much money is generated in the local economy as a result of this industry being developed and ongoing in the State. The lifetime sales tax collected by the State is self-explanatory.

Over 25 percent of the jobs created would be in the construction and installation industries. At least 50 percent of the jobs would be in the module and supply chain industries, and less than 25 percent of the jobs would be induced jobs. Induced jobs are a result of the employees with new jobs who are spending money in the local economy.

There is a typographical error, Exhibit E, in the report on page 8, under projected economic earning and output. The line reflecting average annual earning should be $62.4 million, not the $31.3 million shown.

The goal of 400 MW of rooftop solar by 2020 and the criteria in developing this proposal was to create a program with less than a 2 percent retail rate impact for the average NV Energy residential customer and less than 2 percent of NV Energy's total revenues. This is a performance-based incentive where one is paid based on the output of the system. That has more benefits for the amount of money spent in this program and more cost-effective means of distributing this type of incentive revenue. This looks at a deficiency in the current program which currently only applies to residential and small commercial and eliminates a big segment of the DG market. This will open the program to the commercial and industrial industries that are already paying into the solar generation program but are not allowed to benefit from it.

An analysis was performed by Crossborder Energy which looked at potential ratepayer impacts. The analysts found it varies across each year because the performance-based incentive payments go up as there are more people joining the program. As the program ends in 2020, those payments go out and the quantity of people in the early years drop off. The peak, in terms of rate impact as a percentage of total customer bill, is 1.79 percent of the total ratepayer bill. We wanted a program that was less than 2 percent of the ratepayer bill. The average residential customer monthly bill impact varies from about 26 cents per customer, per month to a high of $2.23 for 2020 with the maximum number of customers participating in this program.

JUDY STOKEY (Government and External Affairs, NV Energy):
The strategies for meeting Nevada's energy needs are shown in my handout (Exhibit F), page 2. Energy efficiency and conservation is the No. 1 strategy. Renewable energy initiatives are No. 2, and investment in clean dispatchable generating plants and transmission infrastructure is No. 3. These three strategies are important to the company, and it is our job to balance the development of renewables with the cost to our customers with these strategies.

Page 3, Exhibit F, shows we are required to have 15 percent of our generations from renewables currently. By 2025, our requirement will be 25 percent from renewables. Our energy conservation will go up slightly by 2025.

Page 4 shows the renewable generating capacity is based on contracts executed by February 2, 2011. The SolarGenerations rebate program started last Session. There was a commitment made for $255 million in rebates that our customers would pay until 2021, and they pay to help put the PV DG on homes. Currently, that is 5 percent of the bill in the north and 1 percent to 2 percent in the south. Our load is flat and not growing. The requirement for the renewables to be growing is going to be expensive for our customers in this economy.

The status of our solar renewable generating capacity is shown on page 5 and is based on the contract executed February 2, 2011.

JACK MCGINLEY (Director, Regulatory and Legislative Strategies, NV Energy):
Geothermal has been our mainstay since 1986. Sierra Pacific Power Company did quite a bit in the geothermal area in the late 1980s and 1990s. We have some large- and small-scale solar.

Page 7, Exhibit F, lists our currently producing and under-development projects. Primarily all the geothermal is located in the north and the solar is in the south. Out of the 44 projects listed, we have 1,240 MW. Our current total peak for both utilities is about 7,500 MW, which is a large percentage of renewable projects the company has underway.

We have 17 geothermal plants in service with over 300 MW. Geothermal is a reliable resource. Three plants with 120 MW were completed in 2009. There is

an additional 125 MW contracted and in development and hundreds of MW in exploration.

Nevada's wind potential is modest and difficult to permit. It is also difficult to build because of the remote sites and very rough terrain.

Nevada is a good state for solar resources. The Mojave Desert is the United States' prime solar resource. At the end of 2009, Nevada was the No. 1 state in solar kW per capita. There is no data yet for 2010. One of the major solar thermal plants is Acciona's Nevada Solar One. It uses a parabolic trough to circulate heated oil. The Crescent Dunes project is under development in Tonopah. It will store energy using molten salt to extend operating hours beyond sunset.

The PV project at Nellis Air Force Base is 14 MW and is the trailblazer of the solar PV plant concept. There are 150 MW of additional projects on the way. The issue around PV energy from a utility's perspective is the impact it has on the grid. Photovoltaic is an intermittent resource, just like wind power. When the wind blows, power will be produced. When it does not blow, no power will be generated. Solar is the same way as there is variation if it is cloudy or a storm is blowing in. From the utility's perspective, that concerns us. We have reliability limits on how much PV we will allow in our system. Currently, that is 200 MW. We have 180 MW already signed up, so there is not a lot of headroom to go. We have some studies underway with the U.S. Department of Energy that are looking into broadening that amount of solar. But those studies will not be completed until July.

There are project uncertainties, like the financing in the aftermath of the Wall Street meltdown, expiration of federal incentives, permitting, especially under the National Environmental Policy Act, risk of inadequate resources at a given site, and transmission and electric system operations.

Some of the unique solar challenges are that solar has a very large footprint relative to its energy production; solar costs more per kW-hour than other renewable technologies; and other sources of generating capacity must fill the need between late afternoon and morning. Intermittency from passing clouds requires other generation sources on the grid that are able to quickly throttle up and down. Judy Stokey touched on the fact that our loads are flat right now

due to Nevada's economy. They are flat for the foreseeable future and, in fact, they have declined a little. We have adequate power plants sitting idle.

SENATOR WIENER:
Page 11, Exhibit F, there is a reference about storing energy. One of my concerns is when we do not have the direct access to the sun is how it gets stored for use. Can you explain the molten salt technology?

MR. MCGINLEY:
It is very difficult for the power business to store energy as it cannot be stored efficiently and it costs a lot to store it. The Crescent Dunes plant will have an oversized collector field and big vats that contain molten carbonate salt that will be heated up. When molten carbonate salt is cold, it is a solid; when it heats up, it is a liquid. Power will be produced in a normal way, but more will be produced during the day. The salt will be heated up so when nighttime comes, the heat will be extracted out of the salt. It is important because technology like this allows the extension of solar resources into the evening. The only difficulty with this is—not a lot of this has been done.

CHAIR KIHUEN:
Where is the Acciona Solar Power Plant located?

MR. MCGINLEY:
It is located outside of Boulder City.

MS. STOKEY:
There are a lot of positives going on in the renewable industry. The prices for PV are decreasing and there are numerous plants under construction.

MR. MCGINLEY:
We are required to have 5 percent of our RPS, but we have 10 percent to 12 percent solar because it has really come down in price.

SENATOR WIENER:
Is there marketing waiting for us to deliver?

MS. STOKEY:
We have been approached by California. I am not sure about other states. The problem we are having is the transmission, which is a hurdle we are trying to fix

legislatively and at the federal level. We need to build the transmission to get it exported.

MS. MCKINNEY-JAMES:
The Western Governors' Association has been meeting for a long time to discuss the possibility of Western states exchanging resources. California is a target because it has a more aggressive portfolio standard. We are also looking at opportunities in neighboring states that also have progressive ideas around renewables. There are ongoing discussions about figuring out transmission paths and which technologies make the most sense. Issues related to export—to the benefit of our ratepayers—are issues we collectively feel strongly about.

CHAIR KIHUEN:
Seeing no public comment, the meeting is adjourned at 2:49 p.m.

RESPECTFULLY SUBMITTED:

_____
Debra Carmichael,
Committee Secretary

APPROVED BY:

_____
Senator Ruben J. Kihuen, Chair

DATE: _____

EXHIBITS			
Bill	**Exhibit**	**Witness / Agency**	**Description**
	A		Agenda
	B		Attendance Roster
	C	Rocky Fernandez	Clean Energy Project
	D	Jim Baak	Economic and Job Creation Benefits of the Nevada Solar Jobs Now Proposal of 2011- Report
	E	Jim Baak	Economic and Job Creation Benefits of the Nevada Solar Jobs Now Proposal of 2011 – PowerPoint presentation
	F	Judy Stokey	NV Energy's Renewable Energy Program