

**MINUTES OF THE
SENATE SELECT COMMITTEE ON ECONOMIC GROWTH AND EMPLOYMENT**

**Seventy-sixth Session
March 21, 2011**

The Senate Select Committee on Economic Growth and Employment was called to order by Chair Ruben J. Kihuen at 1:11 p.m. on Monday, March 21, 2011, in Room 2134 of the Legislative Building, Carson City, Nevada. The meeting was videoconferenced to the Grant Sawyer State Office Building, Room 4412, 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 Ruben J. Kihuen, Chair
Senator John J. Lee, Vice Chair
Senator Valerie Wiener
Senator Mark A. Manendo
Senator Don Gustavson
Senator Ben Kieckhefer
Senator Greg Brower

STAFF MEMBERS PRESENT:

Kelly Gregory, Policy Analyst
Leslie Sexton, Committee Secretary

OTHERS PRESENT:

Rich Hamilton, President, Clean Energy Center LLC
Luke Andrew Busby, Clean Energy Center LLC
John Candelaria, Senior Associate, Aspen Environmental Group
Alyson Bettelman, CPA, Project Manager, Applied Analysis

CHAIR KIHUEN:

Today we have presentations on renewable energy. We are limited to one hour of committee time today because the Senate Floor session is due to reconvene at 2 p.m. We will start with our speaker in Carson City.

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RICH HAMILTON (President, Clean Energy Center LLC):

I formed this company in 2008 in the midst of an economic downturn. Despite that fact, we have grown from 2 employees to 12 employees. We expect to grow dramatically in the coming years. I will talk about wind energy today. Renewable energy is not one technology over another. The important factor is what is best for a particular client. Renewable energy can help our State.

A summary of my remarks has been submitted for your reference ([Exhibit C](#)). I have also provided you with a U.S. Department of Energy report ([Exhibit D](#)) on energy efficiency and renewable energy in Nevada.

We have three issues relating to renewable energy to discuss with you today. The first issue is net metering. A summary of our legislative recommendations in this regard is on page 2 of [Exhibit C](#). The second issue relates to prohibitions on restrictions by local governments on renewable energy systems. Our recommendations are on page 3 of [Exhibit C](#). The third issue is the Wind Energy Demonstration Program. Our recommendations for improvements in that program are listed on page 3 of [Exhibit C](#).

SENATOR WIENER:

Have your recommendations been integrated into legislation for the current Legislative Session?

LUKE ANDREW BUSBY (Clean Energy Center LLC):

The net metering and wind demonstration recommendations are included in Assembly Bill (A.B.) 386, which was introduced by Assemblyman James Ohrenschall earlier today. Assemblyman David Bobzien will be introducing Bill Draft Request (BDR) 58-849 in which the local government provisions will be included.

ASSEMBLY BILL 386: Makes various changes relating to systems for obtaining solar energy and systems for obtaining wind energy. (BDR 22-880)

BILL DRAFT REQUEST 58-849: Makes various changes to renewable energy incentive programs. (Later introduced as [Assembly Bill 416](#).)

CHAIR KIHUEN:

You may want to follow up with the Assemblymen to make sure that the bill and the BDR are filed by midnight tonight.

SENATOR LEE:

I am looking at the map ([Exhibit E](#)), and I note that most of the stronger winds seem to be on the fortieth parallel. Where do you finally reach the point where it does not make sense to install wind turbines?

MR. HAMILTON:

Wind technology for utility-scale projects has been continually improving. We are now able to develop projects that were not marketable a few years ago. We can now install turbines to run in 13 to 14 mile-per-hour winds. That optimum velocity will decrease as the turbine technology becomes increasingly efficient. Larger rotor diameter, more wing in the wind, captures more energy. General Electric makes a turbine that, when it was first introduced, had a 77-meter diameter rotor. It now has a 100-meter diameter rotor. [Exhibit E](#) is a new map supplied by the National Renewable Energy Laboratory. It shows that at 80 meters, or 262 feet, above the ground, we have much more energy in Nevada than we previously thought. Towers at 100 meters above ground and 120 meters above ground are emerging now that will capture even more energy. Right now, the minimum floor where one can be economically viable is 7 meters above ground. Expect to see that diminish over time because technology is improving.

SENATOR LEE:

There is a proposal for a wind farm in Pioche. Are there any plans for wind farms closer to Clark County? Is the best wind in the southern part of the State in Pioche?

MR. HAMILTON:

It is quite windy by Searchlight. There are projects there.

Incentives for installing wind turbines are important to make installations affordable. We have only one wind turbine at our company because incentives have expired. We want to keep our workers employed. Incentives make that possible.

We computed returns on investments for homeowners on a one-turbine project. The two graphs on pages 5 and 6 of [Exhibit C](#) show the difference in return on investment (ROI) with incentives versus without incentives. With incentives, the homeowner has a return in ten years. Without incentives, the return is 20 years. Those incentives drive the market.

Referring to page 7 of [Exhibit C](#), you will see that large-scale installations of 1,000 megawatts (MW) provide 400 long-term jobs and have an economic impact of over \$1 billion. If wind energy supplied 20 percent of Nevada's energy needs, that would have an \$8.5 billion impact on the State's economy and would provide 3,000 long-term jobs. Such a goal would provide approximately 20,000 construction jobs.

Page 8 of [Exhibit C](#) refers to mining and megawatts. Wind farming is similar to mining of minerals. We go where the resource is. The location may not always be agreeable to all. This is probably in rural Nevada, including Tonopah, Gabbs, Searchlight or Ely. That is where the jobs will be. Renewable energy spreads the economic development throughout the State.

SENATOR KIECKHEFER:

Referring back to the graphs on pages 5 and 6 of [Exhibit C](#), does it cost \$80,000 to install a single turbine on a residence?

MR. HAMILTON:

That cost is based on a 20-kilowatt (KW) wind turbine. That is not a home-sized turbine. That is a commercial or a ranch-sized turbine. An individual would spend approximately \$20,000 for a 2.5-KW unit. The incentive would rebate approximately one-third of that, and when homeowners file their federal income tax returns, they would claim another one-third as investment tax credits. The whole cost is borne by the homeowners at installation. It is still approximately a ten-year ROI.

SENATOR WIENER:

Is wind energy used in real time, or can it be stored?

MR. HAMILTON:

Any energy can be stored in batteries, but the cost of batteries increases the investment significantly, especially for the infrastructure in utility-sized facilities. Nevada has such a high reliance on natural gas that wind energy, for utility-sized installations, hedges us against our primary reliance on one fuel source. It allows us to stabilize our fuel costs. We are better off not storing the energy from wind due to the cost of batteries.

I will be involved in a pumped hydro storage study at the Desert Research Institute where we will take wind energy and hydroelectric energy and run

models to see how we can best firm up the variability in the wind with pumped hydro.

MR. HAMILTON:

To wrap up, I emphasize the concept of mining megawatts. We do not use our precious metals wholly within the state. We can export our wind energy as well. We need to get the energy to out-of-state markets. Wind is a constant commodity. We must improve our transmission lines. Wind power can stabilize our economy.

SENATOR KIECKHEFER:

What is the estimated cost to build to 1,000 MW from where we are now?

MR. HAMILTON:

We are at 250 KW now. We have no utility-scale wind projects within Nevada right now. The cost is highly variable, somewhat over \$2 million per MW. The variables include location, construction costs, natural gas costs, coal costs and the cost of steel at construction time. When you build a wind project, you do not have fuel costs after construction. You have operating costs.

SENATOR GUSTAVSON:

What is the accident rate and the failure rate on wind turbines?

MR. HAMILTON:

Large, commercial wind turbines have 98 percent availability. When the wind is blowing, they are ready to make power 98 percent of the time. They are made by reputable world-class companies and are highly reliable.

JOHN CANDELARIA (Senior Associate, Aspen Environmental Group):

My presentation is about the need for increased transmission capacity to foster growth in Nevada's renewable energy center. I have submitted a presentation handout ([Exhibit F](#)).

Page 2 of [Exhibit F](#) briefly describes Aspen Environmental Group. My presentation will cover four areas. First, I will identify the market or potential markets that drive, or will drive, the demand for Nevada's renewable energy. Second, I will identify key factors for development of a renewable energy export industry in Nevada. Third, I will identify existing and proposed transmission access options in Nevada. Fourth, I will provide recommendations for developing

increased transmission capacity to foster growth in Nevada's renewable energy sector.

The Nevada market for renewable energy is driven by Nevada's Renewable Portfolio Standard (RPS). The out-of-state demand will come primarily from California. Other Western states, like Nevada, will use their own resources to meet their own RPS and sell their excess resources to other states, primarily California.

The demand in Nevada is small, even with the aggressive RPS requirements passed in the 75th Legislative Session. To put this in perspective, if we were to take one transmission line out to a resource area, that transmission line would need to have approximately 600 MW of capacity just to deliver all of the resources we need for Nevada until 2029. That will likely not happen because resources can be connected to existing transmission lines.

California's demand is speculative. We have been waiting for many years for California to pass legislation requiring a 33 percent RPS. Senate Bill X1 2, pending in the California Legislature, looks promising. Transmission projects totaling over 18,000 MW of capacity are under development to access the El Dorado Valley, just south of Las Vegas. That is only one access point into California.

The table on page 6 of [Exhibit F](#) shows Nevada RPS requirements through 2029.

Page 7 of [Exhibit F](#) shows estimates for Nevada's renewable resource potential from California's Renewable Energy Transmission Initiative Phase 2B Report. The numbers are based only on resources located in Renewable Energy zones; therefore, actual potential is likely more than amounts listed.

Unfortunately, we have a limited ability to deliver energy from renewable resources in Nevada to loads in Nevada and outside of Nevada. In the south, most of the developers want to get to the El Dorado Valley. The El Dorado Valley is the big valley south of Las Vegas that looks like a transmission forest. The developers who are south of Las Vegas have ready access to that area. If they can connect to a substation there, they can deliver their energy to California or to Nevada. North and west of Las Vegas the situation is different. There is limited transmission capacity to get from north of

Las Vegas to south of Las Vegas. In the north, the situation is even worse. We have little transmission capacity to get out of Nevada to other states.

There is a map of southern Nevada on page 9 of [Exhibit F](#). The longest-dashed line running west to east is a cut plane. Below this line we have access to the substations. If there are resources above the line, there is limited ability to connect to them south of the line. This is a bottleneck for renewable energy development in Nevada. There is a map of northern Nevada on page 10 of [Exhibit F](#). In the western part of the State you can see the Alturas transmission line that runs north and another transmission line that runs west. Those two transmission lines do not provide much access to the outside markets because the transmission systems they must connect to have limited capacity. The transmission access situation for most Nevada renewable energy developers is not good. Nevada's best and most competitive excess resources do not have transmission access to out-of-state markets.

On page 12 of [Exhibit F](#), we have listed five key factors for development of transmission access for export. There must be an out-of-state demand. Our renewable resources and their transmission must be cost-competitive with resources outside of Nevada. Our resources must have transmission access to the market. State policy and actions must support the renewable resource export industry. Someone must coordinate the development of resources getting to markets. Exporting renewable resources from Nevada is complicated for the reasons outlined on page 13 of [Exhibit F](#). For this reason, it is essential that someone be in charge of coordinating the process and encouraging cooperation between competing developers and the governmental agencies.

Several entities that can develop transmission capabilities are listed on page 14 of [Exhibit F](#). They have projects planned within the State. Five transmission projects that have proposed transmission lines running through Nevada are listed on page 15 of [Exhibit F](#). Only one of them has a possibility of allowing Nevada resources some access. The map on page 16 of [Exhibit F](#) shows the routes of those lines.

Three of my recommendations for developing transmission capacity to foster growth in Nevada's renewable energy sector are on page 17 of [Exhibit F](#). These recommendations are the result of discussions with transmission developers and renewable energy developers on behalf of the State Office of Energy. Mr. Hamilton was also a participant in these discussions.

First, there needs to be a clear State energy policy supported at the highest level of government that promotes export of renewable resources. I cannot emphasize this enough. This must include state-to-state communication. The State needs to develop a transmission access development strategy to support export of renewable resources. This strategy should address coordination of stakeholders, state-to-state communication and cooperation, and marketing. Utilities transmission developers, cooperatives and renewable energy developers need to cooperate with each other. We need to hurry. We have other out-of-state renewable energy developers who are looking at the same markets we are.

CHAIR KIHUEN:

What can this Legislature do to follow up on your third recommendation to bring stakeholders together?

MR. CANDELARIA:

I do not have any solid answers to that question. Two and one-half years ago, energy and transmission developers were not yet communicating with each other. That has begun to change. I suggest that someone at the Office of Energy coordinate some process that would get these people together to start thinking about transmission projects that would actually work.

CHAIR KIHUEN:

I want to continue to work with you on that. There is no reason we should not all be working together for the good of our State.

SENATOR KIECKHEFER:

Ex-Governor Jim Gibbons did put together a committee that reviewed energy zones and transmission access. Is that information being incorporated into these discussions?

MR. CANDELARIA:

That was the Renewable Energy Transmission Access Advisory Committee (RETAAC). A section of the Committee's Phase II Report discussed transmission for export. Some of that has helped. We are still not getting past the point where we can develop anything.

ALYSON BETTELMAN, CPA (Project Manager, Applied Analysis):

I have submitted my testimony in written form ([Exhibit G](#)).

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SENATOR LEE:

You mentioned that General Electric Corporation recently unveiled technology that allows nuclear reactors to burn their own waste without producing emissions, which will nearly eliminate the need for large-scale storage sites such as Yucca Mountain. Can that new technology be used on existing spent fuel rods?

MS. BETTELMAN:

I do not know the technical details. I can find out and send you the research.

CHAIR KIHUEN:

The floor is now open for public comment. Seeing none, the meeting is adjourned at 2:02 p.m.

RESPECTFULLY SUBMITTED:

Leslie Sexton,
Committee Secretary

APPROVED BY:

Senator Ruben J. Kihuen, Chair

DATE: _____

<u>EXHIBITS</u>			
Bill	Exhibit	Witness / Agency	Description
	A		Agenda
	B		Attendance Roster
	C	Rich Hamilton	Renewable Energy Presentation
	D	Rich Hamilton	U.S. Department of Energy Report
	E	Rich Hamilton	Map of Nevada Annual Average Wind Speed at 80 m
	F	John Candelaria	The Need for Transmission Capacity to Foster Growth in Nevada's Renewable Energy Sector
	G	Alyson Bettelman	Testimony