MINUTES
of the
THIRD MEETING
of the
SCIENCE, TECHNOLOGY AND TELECOMMUNICATIONS COMMITTEE

August 18, 2010
Room 322, State Capitol

The third meeting of the Science, Technology and Telecommunications Committee was called to order by Senator Stephen H. Fischmann, chair, on Wednesday, August 18, 2010, at 9:07 a.m. in Room 322 at the State Capitol.

Present
Sen. Stephen H. Fischmann, Chair
Rep. Janice E. Arnold-Jones
Rep. Jane E. Powdrell-Culbert
Rep. Debbie A. Rodella
Rep. Nick L. Salazar
Rep. Luciano "Lucky" Varela

Absent
Rep. Roberto "Bobby" J. Gonzales, Vice Chair
Sen. Vernon D. Asbill
Sen. Kent L. Cravens
Sen. Dede Feldman
Sen. Phil A. Griego
Sen. Linda M. Lopez
Rep. Richard D. Vigil

Advisory Members
Sen. Carlos R. Cisneros
Rep. Karen E. Giannini
Sen. Richard C. Martinez
Rep. Kathy A. McCoy
Sen. William H. Payne
Rep. Danice Picraux
Rep. Jeannette O. Wallace
Sen. Mark Boitano
Rep. Ben Lujan
Sen. John M. Sapien
Rep. Don L. Tripp

Staff
Gordon Meeks, Legislative Council Service (LCS)
Ralph Vincent, LCS
Jeret Fleetwood, LCS

Guests
The guest list is in the meeting file.

Handouts
All handouts and written testimony are in the meeting file.

<u>Wednesday, August 18</u>

Committee members introduced themselves.

Public Regulation Commission (PRC) Topics

Michael Rivera, PRC chief of staff, introduced PRC Commissioners Jason Marks, Theresa Becenti-Aguilar, David King, Sandy Jones and Jerome Block and Roy Stephenson, Utilities Division director. Mr. Stephenson told the committee that the Public Utility Act is not as simple as it once was because there are now different approaches to ratemaking and cost adjustments that did not exist when the act was enacted. He said that new issues related to electric power fuels must be contemplated in ratesetting and approval that were not part of the process before. He referred to examples, such as solar energy intermittancy, that may cause voltage irregularities. Regarding solar and wind energy alternatives, a million-dollar word is storage. The question to utility companies and the PRC then becomes, "How do we price storage and who supplies it?". He said storage may be addressed with flywheels, thermal storage, batteries or gravity-feed hydroelectric. Mr. Stephenson said that utilities themselves, which the PRC regulates, may not be the providers of these kinds of renewable energy services; rather, a third party may now be providing electricity and storage. He said that many economic issues arise with these changes. The retail end is the same: the utility still delivers electric power and collects revenue to pay for its costs. He also stressed that electricity demand varies and reserve capacity is required in order to provide services.

The committee discussion began by focusing on what happens if there is a default by a third-party provider. The utility is required by law and rule to deliver electric power in exchange for having a monopoly in its service area. The utility has to protect itself in its contract with third-party providers, and the PRC will review the prudency of the utility in entering into its contracts and may limit a utility in its discretion.

Committee members asked why a "map" of areas where no electricity is available was not provided, as was previously requested. The Torreon Chapter of the Navajo Nation has no electricity service, and other areas of the Navajo Nation were cited as examples. The PRC staff responded by clarifying that on the Navajo Nation, the Navajo utility is the provider and the PRC does not have jurisdiction on sovereign tribal land. The PRC has a consumer protection service to help consumers address problems with service, but the PRC has no means of polling the public to identify service gaps. The committee then discussed legislative appropriations to extend electric lines to unserved, remote areas. A meeting was planned with rural electric cooperatives to identify areas without service and to discuss problems of providing service.

A question of safety was then raised about electric service delivery, which is under several federal agencies. The PRC has never, to Mr. Stephenson's memory, been asked to address safety issues because there have been none. He said there is 99.9% reliability of electric services in New Mexico. The electric cooperatives have other problems because of lines through the mountains, and there is a body of regulation that addresses reliability and safety. There is a $100,000 per day fine for interruption of services.

Committee members raised the issue of utilities being nationalized through transmission changes. It was stated that New Mexico must be involved to protect its ratepayers from paying the costs of delivery of service to California or other customers in other states.

Other questions included if utilities are required to have a certain amount of reserve power for servicing growth in demand as it occurs. It was answered that large users may have a "capacity component" to their utility bills.

The relationship between the PRC and the New Mexico Renewable Energy Transmission Authority (RETA) was described. RETA bonds are exempt from rules of the PRC. PRC jurisdictional questions were expanded to explore regulatory authority over the Tri-State Generation and Transmission Association (the interstate cooperative generator and transmission company that is exempt by statute from PRC regulation). Tri-State has increased rates to members, and unfair treatment of New Mexico cooperatives has been alleged by one New Mexico cooperative. A comment was made about changing the state law governing Tri-State. The law currently requires an agreement among three member cooperatives to challenge Tri-State's governance or rates. A comment was made that Tri-State is improving and becoming more responsive to New Mexico's concerns. New laws on cooperatives might provide for more transparency of electric cooperatives, but the state probably cannot regulate their rates because they are member-owned and federally franchised.

The federal government has preempted regulation of all wholesale power transactions. The first obligation of the PRC is to make sure that New Mexico residents are connected. The statutes limit the PRC's authority over location of and siting of transmission lines that are not connected to utility systems that serve New Mexico, and some transmission line developers may come to the legislature asking for eminent domain in return for PRC authority to regulate location and siting of transmission lines.

Committee members discussed environmental regulators and interaction with PRC jurisdiction and limits on cost recovery of environmental compliance investments through rate adjustments. For example, the PRC has no control over coal-fired power plants in the Four Corners area because these plants are on Navajo Nation land. The Department of Environment and the Environmental Improvement Board, not the PRC, have environmental regulatory authority over emissions of power plants off Navajo Nation land. A request was made to have the Department of Environment present the status of the haze rules required of Public Service of New Mexico coal-fired plants.

Mr. Stephenson said that a certificate of convenience is required for approval of utility construction and rate cases to recover costs. The challenge for the PRC is to find a cost-effective way to deliver the power without reducing reliability.

The committee explored whether there is a conflict of interest as a result of a utility's cost of adjudicating an issue in front of the PRC being included in the rates paid by consumers. Carol Riser, attorney for the PRC, said that Colorado law gives that state's utility regulator staff the authority to audit the utility's books. A question of the adequacy of PRC staff and their statutory authority to audit a utility's books was raised, which led to a discussion of the dynamics of rate cases reviewed by the PRC. The most contentious issue in rate cases is the allowable return on equity (profit).

Telemedicine

Dr. Sanjeev Arora, professor of medicine, Department of Internal Medicine, University of New Mexico (UNM) Health Sciences Center, and director, Project ECHO, explained that the mission of Project ECHO is to develop the capacity to safely and effectively treat chronic, common and complex diseases in rural and underserved areas and to monitor outcomes. He said that the program is supported by the Department of Health, the Agency for Health Research

and Quality, the New Mexico Legislature and the Robert Wood Johnson Foundation. He illustrated the project's services by elaborating on hepatitis C care services. It is estimated that there are 170 million carriers of hepatitis C worldwide. In New Mexico, Dr. Arora testified, it is estimated that more than 28,000 are affected and less than 5% have been treated. Without treatment, 8,000 patients will develop cirrhosis between 2010 and 2015, with several thousand deaths. He said that there are 2,300 prisoners diagnosed in the corrections system with the illness and none have been treated. New Mexico has the highest rate of chronic liver disease and cirrhosis deaths in the nation. He said the good news is that this illness is highly treatable and curable in 45% to 81% of the cases. Dr. Arora painted a picture of New Mexico's health care dilemma: 121,356 square miles with a population of 1.83 million; 32 of 33 New Mexico counties medically underserved; 22% of the population with no health insurance; and a poverty rate of 18%, compared to the national rate of 12%. He said that the program has conducted 400 hepatitis C telehealth clinics, and more than 4,000 patients have entered the hepatitis C disease management program. Five thousand one hundred continuing medical education hours have been issued to Project ECHO clinicians for hepatitis C, and 237 hours of hepatitis C training have been conducted at rural sites. Other complex illnesses may be treated successfully through programs like Project ECHO. For example, community-based care for cardiac risk factor reduction is more effective than enhanced primary care, he said. Project ECHO supports community health workers, who can be effective because they are based in the community; understand the local culture; appreciate the economic limitations of the patient; know the community; often know the family; can engage other social resources for the patient; and spend more time with the patient. He gave a strong endorsement for community health workers.

Members of the committee asked about involvement of veterans and the Department of Veterans Affairs system in Project ECHO services and participation of New Mexico in a federal demonstration program to be expanded nationwide. The Project ECHO budget of $1.5 million was reduced to $250,000 in FY 2011, and Dr. Arora was asked how this affected the program.

He was also asked about the preventive medicine impact of Project ECHO; how much more there is to do (298 programs); compensation for participating doctors in negotiations with Molina Healthcare; cost of continuing medical education credits through Project ECHO; diseases that may fit in the program, which include AIDS/HIV; a list of communities that are served by Project ECHO; staff size for Project ECHO programs (36); and tracking general community health programs.

Marc Malkoff, M.D., professor of neurosurgery and neurology, and medical director, Stroke Program, UNM, told the committee the only way to provide adequate stroke response is locally. Stroke victims are not getting transported to stroke care centers. Statistics indicate that tissue plasminogen activator treatments for stroke are efficacious for telemedicine. He said New Mexico has a shortage of neurologists and acute-care beds, so UNM is trying to set up a telemedicine response. The ability to have two-way communications with the patient is essential. It would be easy to convert every hospital in the state into a stroke care center through telemedicine, he testified. Equipment is inexpensive, and the physician cost would be $1.2 million. Medicare is an obstacle, as is credentialing and resistance to change. Public education is the most important element to improve the recognition of stroke symptoms.

The committee asked Dr. Malkoff about Christus St. Vincent Regional Medical Center's trauma system capacity, prevention by lifestyle education in public schools and the role of heart

associations in preventive health care. The committee was interested in the relationship of Project ECHO with school nurses. A memorial was discussed to request Medicare administrators to cooperate with Project ECHO. Telemedicine is cost-effective because it works with existing health care programs. Dr. Malkoff said that stroke prevention is identical to heart disease prevention.

The committee asked what legislators can do to help progress in stroke care, which Dr. Malkoff answered by saying that legislators can mandate stroke care in hospitals. This was followed by detailed questions and discussion about the efficacy of surgery.

Electric Grid Renewable Energy Integration

Abraham Ellis, Renewable Energy Grid Integration Program, Sandia National Laboratories, showed the committee a chart indicating that New Mexico is ranked twentieth in the nation among states with wind energy potential. Texas is number one, with 22 times the amount of wind capacity as New Mexico. He said New Mexico ranks higher in its solar potential but is still not among the top 10 states in new grid-tied solar electric installations in 2009. Based on 2009 data, the United States relies on fossil fuel for 69% of its electric energy, with only 4% of electricity generated from renewable sources. Nearly 45% of electricity comes from coal-fired power plants, 24% from natural gas, 20% from nuclear energy and 7% from hydroelectric facilities. He said there are technical challenges to the integration of renewable energy generators, but the renewable energy generators are only limited by costs and risks. Because voltage must be maintained within set service limits, high levels of solar photovoltaic deployment could cause excessive voltage increases that would have to be moderated to maintain system integrity. The principal dilemma over integration of renewable energy generation is its variability, which is why additional generation from renewable sources must be balanced by conventional generation sources in order to balance the voltage over the distribution and transmission systems. Alternatives include upgrading the conductor circuits, disconnecting or reducing solar output when voltage is too high or using energy storage systems. Mr. Ellis said that photovoltaic variability and uncertainty can make it more difficult and costly to operate those generators and a large amount of solar generation could trip the system due to elevated voltage levels. Also, the displacement of conventional generation might cause system instability. The same issues can be said to apply to wind because of its variability, but wind generation might offset solar generation to some extent because wind may be higher when solar is less. Geographic diversity, weather forecasting, increased flexibility of conventional generation and load response mechanisms (smart grid) could all help the integration of renewable energy systems. He concluded by reiterating that there are no absolute limits but that integration will require technical improvements to energy systems and will add costs.

The committee members asked about simultaneous wind and solar generation and how extra voltage is controlled when it is not being distributed to customers when demand is low, such as at night.

Some discussion focused on how other countries with less solar potential, such as Germany, manage to integrate solar generators into their grids and what types of storage systems are used in the solar demonstration program in Ota, Japan. The explanation of storage technologies brought up the subject of load management and demand response capabilities, which require a "smarter" grid. Mr. Ellis answered that the missing links are smart grid communications capabilities of individual residential appliances. He said that work is

continuing at Sandia on such innovations as solar thermal generation, sterling engines, blade design for wind generators, energy storage, smart grid technologies, cybersecurity and a combination of solar energy and air to create liquid energy. Advances in storage technologies for small-scale energy consumers would be helpful.

A question was asked about geographical distribution for compressed air storage in underground pore space, which brought up references to last year's pore space bill.

Los Alamos National Laboratory (LANL) — State of the Lab: Overview, Research and Development and Renewable Energy Highlights

Duncan McBranch, deputy principal associate director, Science, Technology and Engineering, LANL, summarized LANL's budget: $2.17 billion, of which the majority (53%) is weapons-related. He told the committee that LANL is the oldest, most complex and second-largest Department of Energy weapons site and is working hard to transform into a more efficient site. LANL includes 40 square miles, 1,280 buildings with nine million gross square feet and 11 nuclear facilities. He said that 40% of LANL is more than 40 years old and that 30% of the staff work in poor or failing space. There is $450 million of deferred maintenance backlog. There are 268 miles of roads on LANL property, 100 of which are paved. He said there has been one million square feet of footprint reduction of post-World War II production facilities. LANL is a collection of unique facilities that addresses critical stockpile stewardship challenges; includes supercomputing capabilities; allows researchers to study weapons performance; provides nanotechnology research programs; and draws international scientists to study materials. LANL's core function is to sustain the safety, security and effectiveness of the nation's nuclear deterrent through stockpile stewardship. LANL designs warheads, which constitute more than 60% of the nation's deterrent and the majority of the on-alert deterrent. This stockpile is managed through surveillance and life extension. Confidence without nuclear testing is based on a more fundamental science and engineering understanding.

Mr. McBranch said that LANL is involved in research and development of energy in three areas: energy demand, nuclear energy and concepts and materials for clean energy. Subsets of these areas include programs in:

- efficient extraction of energy content from fuel;
- nonproliferation;
- energy storage, generation and transmission;
- predictive models for climate;
- infrastructure impact safeguards;
- effective waste management;
- revolutionary alternatives to petroleum;
- clean fossil energy analysis;
- prediction of abrupt change at multiple scales (regional to global); and
- global security and policy implications.

LANL is operated by Los Alamos National Security, LLC, for the Department of Energy and the National Nuclear Security Administration.

Mr. McBranch summarized one of the specific projects, the Japanese partnership with Los Alamos County in photovoltaic integration and interconnection testing. The goal is to

demonstrate that utility-scale photovoltaic systems can be integrated in a cost-effective manner into small-sized to mid-sized communities with minimal impact on the transmission grid by controlling different mixes of existing and new balancing resources to mitigate fluctuating photovoltaic generation. This project will involve the installation of 150 smart meters on homes and at LANL. It will provide the ability to forecast changes in solar irradiance. Energy storage with a combination of batteries and pumped water will be tested, as will electrical load shedding from LANL facilities, which will provide renewable energy to LANL.

Committee members were interested in why France is ahead of the U.S. in nuclear fuel processing and management. The answer was that France has a different political culture and there are concerns about the economic viability of New Mexico uranium deposits. On that subject, the Hyperion Design at LANL for a modular reactor was discussed.

The committee was also interested in the funding source for renewable energy research at LANL and the ownership and disposition of patents and intellectual property of LANL partnerships.

Several questions were asked regarding the demographics of post-doctoral students at LANL who are New Mexico natives.

The minutes of the July meeting were approved with changes.

Fast Forward New Mexico

Susan Oberlander, state librarian, George Jaramillo, director of the Taos library, and Lynette Schurdevin, library administrator of the Thomas Branigan Memorial Library in Las Cruces, told the committee that usage of libraries and increased demands for internet access and services, including classes on computer use, are putting stress on library resources statewide. They provided the committee with a leaflet on Fast Forward New Mexico, a three-year grant-funded program involving 16 libraries statewide to bring internet training, information and awareness to library users. The goal is to promote computer and internet literacy in rural areas and among minority underserved populations. They cited increased needs for computer literacy, such as requirements by many employers for job applications and by Medicaid for registrations to be submitted online. Also, many students come to libraries to access the libraries WiFi systems. They said that as these kinds of demands are increasing for library services, library budgets are being cut by both local and state governments.

The committee asked about online training opportunities, computer education classes being offered at libraries and libraries cooperating with the Workforce Solutions Department. Comments were made about outdated library resources in New Mexico and the crucial contribution of libraries to poor communities. Also, potential alternative sources of funding were discussed, including the state's limitations on use of money for operational expenses.

There being no further business, the committee adjourned at 4:30 p.m.

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