

**MINUTES
of the
SECOND MEETING
of the
SCIENCE, TECHNOLOGY AND TELECOMMUNICATIONS COMMITTEE**

**July 10-11, 2017
Clovis Civic Center
801 Schepps Blvd.
Clovis**

The second meeting of the Science, Technology and Telecommunications Committee (STTC) was called to order by Senator Michael Padilla, vice chair, on July 10, 2017 at 10:20 a.m. at the Clovis Civic Center conference room in Clovis.

Present

Sen. Michael Padilla, Vice Chair
Sen. William F. Burt
Rep. Daymon Ely (7/10)
Rep. Kelly K. Fajardo
Rep. Debra M. Sariñana
Rep. James E. Smith
Sen. William P. Soules
Rep. Monica Youngblood

Absent

Rep. Candie G. Sweetser, Chair
Rep. Jason C. Harper
Sen. Mark Moores
Sen. Bill B. O'Neill
Rep. Linda M. Trujillo

Advisory Members

Sen. Craig W. Brandt
Rep. Stephanie Garcia Richard
Sen. Ron Griggs (7/11)
Sen. Richard C. Martinez
Rep. Bill McCamley
Rep. Debbie A. Rodella
Sen. Nancy Rodriguez

Sen. Jacob R. Candelaria
Sen. Mary Kay Papen
Sen. William H. Payne
Rep. Nick L. Salazar
Sen. Bill Tallman
Rep. Carl Trujillo
Sen. Peter Wirth

Guest Legislators

Rep. Tim D. Lewis (7/11)
Sen. Pat Woods

(Attendance dates are noted for members who did not attend the entire meeting.)

Staff

Mark Edwards, Legislative Council Service (LCS)
Ralph Vincent, LCS
Sara Wiedmaier, LCS

Guests

The guest list is in the meeting file.

Handouts

Handouts and other written testimony are in the meeting file.

Monday, July 10**Introductions and Welcome to Clovis**

Senator Padilla welcomed the committee to the second meeting of the STTC for the 2017 interim. Members of the committee and staff were invited to introduce themselves. Mayor David Lansford then welcomed the committee to Clovis and thanked the members for their visit. He discussed how city leaders have evaluated science and technology efforts and the relationship to population growth in the area. Senator Padilla also recognized former Representative Anna M. Crook.

Summary of 2017 Legislation

Mr. Edwards noted that the 2016 interim STTC did not endorse any legislation for the 2017 legislative session, but there were several bills of interest to the committee. Representative Smith and Senator Daniel A. Ivey-Soto sponsored House Bill (HB) 113 for the Department of Information Technology to coordinate the development of a statewide broadband network. This legislation was passed and chaptered. Representative Smith and Senator Padilla sponsored Senate Bill (SB) 24 to include broadband technology infrastructure in the Infrastructure Development Zone Act. This legislation was passed and is included in a current court case on the issue of whether a governor may veto legislation without providing an accompanying explanatory message while the legislature is still in session. Senator Padilla sponsored SB 53 to provide for Public Regulation Commission (PRC) jurisdiction over incumbent local exchange carriers and their investment in telecommunications and broadband infrastructure. This legislation was passed and chaptered. Representative Smith and Senator Carlos R. Cisneros sponsored HB 231 to terminate the Information Technology Commission. This legislation was passed and chaptered.

Sagamore Wind Project

Bernarr R. Treat, manager, state government affairs, Xcel Energy, provided an overview of Xcel Energy and its wind projects. Xcel Energy began a \$3 billion expansion in 2011 that will continue through 2021. This investment includes 1,500 miles of new transmission lines and 35 additional substations in New Mexico and the Texas Panhandle. Xcel Energy is integrating renewable energy projects with its base of fossil fuel generation. More than 22 percent of the energy delivered in Texas and New Mexico by Xcel Energy is carbon-free. One of its new projects is the Sagamore Wind Project located in Roosevelt County, southeast of Portales. Brooke Trammell, Xcel Energy, and Julia Kimberly, Invenergy, which is a partner of Xcel Energy, described the Sagamore Wind Project as a 522-megawatt provider with an operational date in 2020. The project will provide 300 construction jobs and 20 to 30 operations jobs at completion and will serve just under 200,000 homes. These companies are taking advantage of

the federal renewable electricity production tax credit, which provides a rebate of 2.3 cents per kilowatt-hour for eligible wind generation projects.

The committee then entered into a general discussion. Responding to a question from the committee, Ms. Trammell:

- stated that the federal tax rebate for renewable energy is currently 2.3 cents per kilowatt-hour for approved projects that have been started by 2016. Thereafter, the rebate will be reduced by 20 percent per year. She also said the rebate is provided to the taxpayer;
- voiced a concern about the speed of the PRC's regulatory approval process because companies are under construction deadlines to take advantage of the full federal rebates; and
- said that the Sagamore Wind Project will encompass over 180,000 acres in Roosevelt County and will provide energy to just under 200,000 homes when complete. The average household uses 1,000 kilowatt-hours per month.

Asked about the qualifications of the available workforce for the wind energy industry, Ms. Trammell noted that the challenge is to find qualified employees for all aspects of the industry, from accounting to engineering. She said the preference is to hire and train locally because those employees tend to be more rooted in the community and stay with a company longer. (See the handouts in the committee file for further information.)

Blowing in the Wind — Energy Production

Lorelee Hunt, manager of project development, Pattern Energy Group, and Ben Givens, facility manager, Broadview Wind, which is a partner within the Pattern Energy Group, described the Broadview Wind facility, which is located in Curry County, New Mexico, and Deaf Smith County, Texas. Wind turbine facilities deliver more than 340 megawatts of energy to Southern California Edison through the existing Western Interconnect LLC transmission lines. The project includes 141 turbines in two projects that commenced operations on March 31. Pattern Energy Group invested \$92 million, with an expected overall economic impact to New Mexico of \$979.8 million. The average number of construction workers for the projects was 350, and there are 18 permanent jobs for the duration of the project.

Responding to questions from committee members, Ms. Hunt and Mr. Givens said that Pattern Energy Group works through the Federal Aviation Administration's formal process for approving wind turbines to minimize the risks associated with low-level flight patterns. Committee members encouraged Pattern Energy Group to engage directly with local military base commanders with regard to the flight needs of their bases. With regard to risks to migratory birds, Ms. Hunt said that studies over the last decade show that wind turbines have minimized the impacts on migratory birds.

The committee entered into a general discussion of the in-state benefits of wind generation for power used out of state and whether such energy transmission could be taxed. Ms. Hunt said that the benefits to the state include the construction jobs while the projects are

being built plus the service technician jobs that remain in the state. After construction, there will be 18 jobs in Broadview and 100 in Corona. Additionally, landowners receive royalties for every turbine that is located on their property. She indicated that state taxes on interstate energy transmission may be difficult to implement. (See the handouts in the committee file for further information.)

Plateau Telecommunications

David Robinson, chief executive officer, and Vince Tyson, both of Plateau Telecommunications, discussed their company and initiatives in their service area. Plateau Telecommunications is a cooperative that provides telephone and broadband services over an area of 25,000 square miles. It provides DSL (digital subscriber line) service to 95 percent of its service area and is rated number six in the country for service speed. Plateau Telecommunications has covered an extensive amount of its area with fiber optics and is planning an additional 600 miles of fiber installation next year. Mr. Robinson also mentioned SB 308 from the 2017 regular session, which was sponsored by Senator Padilla, to increase the flexibility of the PRC to make changes to the State Rural Universal Service Fund, particularly in support of broadband initiatives.

Wind Energy Technology Curricula

Dr. Thomas W. Newsom, president, and Andy Swapp, program director, Wind Energy Technology Program, Mesalands Community College (Mesalands), discussed the Wind Energy Training Program and the North American Wind Research and Training Center at Mesalands, which has been in operation since 2008. The program trains wind turbine service technicians. For the 2016-2017 school year, Mesalands issued 14 occupational certificates, six one-year occupational certifications and 10 associate of applied science degrees. Mesalands also provided climb safety certifications for 432 students in Granite Services International's new-hire training program.

In the ensuing committee discussion, Dr. Newsom and Mr. Swapp emphasized that Mesalands' training program offers an opportunity for the entire state to have local residents trained in wind energy. They stated that training local residents would likely increase the ability of local companies to retain their workers over the long term. In response to a question about outreach to New Mexico high schools, Dr. Newsom said he would welcome the opportunity to work with committee members to connect Mesalands with their local schools. (See the handouts in the committee file for further information.)

Tour of de Maio Farms — The 21st Century Farm: Fiber-Optic-Based Farm Management

Committee members were taken on a tour of de Maio Farms to view the automation technology involved in operating a farm. The farm produces beef, processing up to 38,000 head of cattle annually. The farm uses a sophisticated computer system and high-speed transmission to closely track all operations, including silage production and livestock health, and to operate tractors and other equipment remotely through GPS data.

Recess

Following the tour, the committee recessed at 4:35 p.m.

Tuesday, July 11

Senator Padilla reconvened the committee at 9:32 a.m.

New Oil Field Technology

Kelly Tooker, director of oil and gas technology, New Mexico Junior College, presented an overview of well-drilling and completion activities as an introduction to the life cycle of a well. Mr. Tooker described the process of hydraulic fracturing (fracking) and discussed the water usage from fracking. The average horizontal well used an average of 100,000 barrels of water per fracking job in 2014. Water used in fracking comes from a variety of sources, and it may be fresh water, brackish water or water that is derived from an oil drilling operation, referred to as "produced water". Because of the concern about seismic activity possibly caused by fracking, Mr. Tooker also discussed the seismicity in New Mexico. He pointed out that there had been 1,111 earthquakes in New Mexico between 1869 and 1975 — a period ending more than 20 years before fracking technology was introduced.

Joe Lee, regional technical manager, Cudd Energy Services, discussed the drilling technology used to maximize oil recovery while reducing the costs. Mr. Lee first described current prevalent technology tools: well logging to map a well, core sampling, cutting analysis, mud logging and chromatographs. He described a newer technology using quadrupole mass spectrometers that has been applied to numerous horizontal and vertical drilling applications. The typical cost per well for this technology is about \$10,000 and involves a mass spectrometer operated from an on-site trailer with communications back to the main office. The spectrometer allows a complete mapping of the well location for rock hardness and hydrocarbon content for industry classifications C1 through C10. Known as a "Drill2Frac" application, this method identifies and maps the geomechanical properties of a substrata of rock to create a complete map showing the optimal trajectory for drilling and fracking.

Responding to questions from committee members, the panelists said that the geologic structure of New Mexico's oil fields differs from that of Oklahoma and greatly reduces the chance of seismic activity created by disposal of fracking water. In Oklahoma, water was disposed into rock formations as deep as 15,000 feet, but the formations were susceptible to stress movements. The presenters said that these same types of formations do not exist in New Mexico. Regarding the water sources used by the industry in New Mexico, they said that there are a number of nonpotable ground water sources, and they noted in particular an extensive brackish water source in the Jal area that is about 1,200 feet deep. They concluded with some facts about employment created by drilling operations. One drilling rig represents about 135 jobs through completion of the well. Salaries range from \$40,000 to \$65,000 for entry-level base workers, but with typical overtime, these workers can easily earn up to \$75,000 in annual salary. Specialist salaries for geologists and other scientists may range from \$150,000 to \$250,000 annually. (See the handouts in the committee file for further information.)

Cannon Air Force Base Mission Brief: Specialized Airpower and Its Technological Dependencies

Major Michael C. Guerrero, United States Air Force, Cannon Air Force Base (Cannon), discussed the mission of the 27th Special Operations Wing at Cannon. The operation includes about 4,800 military personnel, 650 U.S. Department of Defense (DOD) civilians and 552 contractors. The DOD invested \$1.29 billion in Cannon and the Melrose Air Force Range as a foundation for the 27th Special Operations Wing. The base has two \$20 million data centers with 127 miles of fiber optics and copper providing 25 gigabytes per second of bandwidth. Additionally, it has 11 distinct networks with 8,000 computers and 500 network devices.

Committee members asked if Cannon has had any training or education issues when recruiting its civilian workforce and if the base has been working with local higher education institutions. Major Guerrero was not aware of workforce issues or current initiatives for programs or special recruiting in local high schools. The committee engaged in a discussion of the base realignment and closure (BRAC) process. A committee member explained that there are no planned changes in base authorizations for 2018, and the next possible BRAC would be in 2020. With the amount of investment that the United States Air Force has made in moving the 27th Special Operations Wing to Cannon and the development of the Melrose Air Force Range, it is believed that the likelihood of a change at Cannon is minimal. Committee members also asked about potential effects of wind farms on the low-level flight missions, but no current issues were identified. Responding to a question about the latency in communications when a military aircraft is being flown from a remote device, Major Guerrero said that the Reaper aircraft missions can be controlled from anywhere, with direct links to the aircraft.

Adjournment

There being no further business before the committee, the second meeting of the STTC for the 2017 interim adjourned at 11:29 a.m.