

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

**July 26-27, 2018
Sacred Wind Communications
875 U.S. Highway 491 North
Ya-ta-hey**

The second meeting of the Science, Technology and Telecommunications Committee (STTC) was called to order by Senator Michael Padilla, chair, on July 26, 2018 at 9:26 a.m. at Sacred Wind Communications (SWC) in Ya-ta-hey.

Present

Sen. Michael Padilla, Chair
Rep. Candie G. Sweetser, Vice Chair
Sen. William F. Burt
Rep. Kelly K. Fajardo (7/26)
Rep. Debra M. Sariñana (7/26)
Rep. Monica Youngblood (7/26)

Absent

Rep. Daymon Ely
Rep. Jason C. Harper
Sen. Mark Moores
Sen. Bill B. O'Neill
Rep. Gregg Schmedes
Sen. William P. Soules
Rep. Linda M. Trujillo

Advisory Members

Sen. Richard C. Martinez (7/26)
Rep. Debbie A. Rodella (7/26)

Sen. Craig W. Brandt
Sen. Jacob R. Candelaria
Sen. Carlos R. Cisneros
Rep. Stephanie Garcia Richard
Sen. Ron Griggs
Rep. Bill McCamley
Sen. Mary Kay Papen
Sen. William H. Payne
Sen. Nancy Rodriguez
Rep. Nick L. Salazar
Sen. Bill Tallman
Rep. Carl Trujillo
Sen. Peter Wirth

Guest Legislator

Rep. Patricia A. Lundstrom (7/27)

(Attendance dates are noted for members not present for 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.

Thursday, July 26**Welcome**

Senator Padilla welcomed the committee and guests to the second meeting of the STTC for the 2018 interim and invited committee members and staff to introduce themselves.

SWC Broadband Development Strategies for Rural New Mexico

John Badal, chief executive officer (CEO), SWC, welcomed the committee to its headquarters in Ya-ta-hey and updated the committee on industry developments and current initiatives of the company. Mr. Badal provided the committee with dissected fiber-optic cables to demonstrate the evolution of this technology — from 48 strands that could carry a maximum of 2.4 gigabytes (GB) to the technological capabilities of today, with each of the 96 strands per cable supporting 100 GB. He highlighted that the major obstacle SWC faces in expanding broadband is regulatory, citing a year-long permitting process to allow the company to lay just six miles of fiber in Albuquerque and often a two-year-long process to lay cable on tribal lands.

Shaun Cooper, executive director of information technology (IT), SWC, then told the committee about the recent successes and challenges of the company. In the past two years, SWC has added an additional 70 miles of fiber to expand and improve service to Navajo homes and other rural areas. SWC's service area now encompasses 3,200 square miles across San Juan, McKinley, Rio Arriba, Cibola and Bernalillo counties, and it can now offer speeds up to 100 megabits (mbps) to the majority of rural customers, making it the first company in the country to reach a bandwidth of 100 mbps over fixed wire. SWC has also extended its fiber network to 24 schools in its service area to provide one gigabit per second and to another school through fixed wireless, 100 mbps to 200 mbps. He noted some characteristics of the sprawling service territory, with an average of two households per square mile, a high poverty rate, high youth and elderly populations, low employment and high out-migration, especially on reservations, that create challenges for expanding coverage.

As a local company, Mr. Badal stated, SWC is more adaptable and daring with new technology than the federally regulated companies such as CenturyLink, Frontier Communications and Windstream Communications that currently serve most of rural New

Mexico. SWC utilizes a mix of fiber-optic, copper and fixed wireless technology to best serve each community, because one size does not fit all. It began using fixed wireless technology in 2008 because it realized that extending its fiber-optic network to every home is not cost- or service-efficient. Most of the big companies initially considered the technology a last resort, but in the past two years, companies such as Google and AT&T have similarly recognized the benefits of fixed wireless technology in providing service to rural areas.

Mr. Badal stated that 25 percent of rural areas in New Mexico do not have access to broadband, but these are within service areas of larger companies. He mentioned that SWC has applied for the Federal Communications Commission (FCC) "reverse auction", which would provide funds and allow SWC to extend broadband service to these underserved locations. He estimated that it would take five years and cost at least \$100 million to fully cover the state through a mix of technology. He suggested developing a broadband plan through public-private partnerships between cities and providers, collaborating with construction projects for dig-once access to lay cables, funding and offering tax incentives for providers to expand to more rural areas and simplifying right-of-way access for broadband providers.

In response to questions from committee members, Mr. Badal stated that there are very few telecommunications companies in the country that are as well-equipped to adopt new technologies and provide personal IT support as SWC. Most companies have one IT staff member, while SWC has five IT specialists, with one specifically dedicated to the internal computer system. He said that every rural telephone company receives federal money to implement voice support, which has provided incentive for the proliferation of broadband, but funding has decreased over the past three years. In reference to the \$133 million available in the FCC reverse auction, it will be allocated evenly over 10 years to allow for the expansion of infrastructure and operations in underserved communities. Satellite companies are also competing in the auction, and they have an advantage because their costs are lower. Responding to a question about cost, Mr. Badal said that SWC's goal is to remain competitive with urban rates, and it currently offers monthly rates of \$50.00 for 15 mbps bandwidth and \$79.00 for 100 mbps, with no price difference from 100 mbps to 200 mbps. Mr. Badal stated that it has laid over 100 miles of fiber that goes through one company for the southern route and another for the northern route.

In response to specific tax incentives for broadband expansion, Mr. Badal suggested a sales tax incentive for larger companies and a tax exemption for local companies that are willing to invest in infrastructure for rural areas, as well as looking at partnerships with towns willing to impose a municipal infrastructure gross receipts tax. In 2018, legislation was introduced that was intended to encourage small companies, but Mr. Badal said that it would be better to regulate companies based on their ability to control the market rather than on the size of the company, as he considers SWC to be the most regulated telecommunications company in New Mexico. He also emphasized the importance of establishing a statewide broadband plan that considers industry input and requires state funds to be matched by the companies. He emphasized the need for executive support, legislative funding and a streamlined permitting process.

Department of Information Technology (DOIT): Overview of Projects

Darryl Ackley, secretary, DOIT, provided the committee with an overview of completed and current projects. He said that the department will assign a team to facilitate the transition between the outgoing and incoming administrations and that the DOIT portal is up to date for the past three years; the current year is in progress. He noted that funding received from the 2018 legislative session was the best yet, allowing the department to address cybersecurity and transparency issues. Over the past seven years, the DOIT has received \$65 million for investment in more towers and infrastructure to expand networks for public safety. In fiscal year 2018, the department undertook 75 projects totaling over \$420 million. He reminded the committee that the DOIT portal provides a top-10 projects list that is updated monthly based on agency reporting, as well as an overall project portfolio overview that outlines the cost and status of all planned, current and completed projects. He highlighted the top-10 projects for the committee, among which were the Motor Vehicle Division of the Taxation and Revenue Department (TRD) modernization project and the Women, Infants, and Children Program system update.

Secretary Ackley referred to the current portal as monolithic and said that he is looking to implement a more modular, comprehensive approach that would allow data sharing among agencies, which would avoid redundancy in project requests. He also mentioned that the department has been able to reduce the state's telecommunications expenses by implementing voice-over-internet-protocol technology, reducing duplicate lines and improving vendor negotiations, resulting in \$1.6 million in annual savings to the state.

Responding to questions from the committee, Secretary Ackley addressed the discrepancy of the state's emergency alert system (EAS) under different telecommunications providers. He said that the 911 program was moved from the Department of Finance and Administration to the DOIT about three months ago to streamline communication and coordination among agencies and emergency responders by having a single point of contact. This transition still needs to be formalized by legislation, Secretary Ackley said, but the move will improve statewide victim notification and will allow for collaboration among stakeholders. He noted that the DOIT will need more funding to implement the Next Generation 911 technology, and he recommended that public broadband be utilized for the state EAS.

Secretary Ackley responded as to the status of the Children, Youth and Families Department (CYFD) replacement project that transitions the current child welfare reporting system to the Comprehensive Child Welfare Information System (CCWIS). Secretary Ackley said that the DOIT is using federal funding for an analysis of the new system and implementation of an in-house system. He estimates that it will cost \$500 million to fully transition the state to the CCWIS. He stated that New Mexico is in the process of applying for federal funds from the U.S. Department of Health and Human Services in order to facilitate the transition.

In regard to interagency collaboration between law enforcement and the CYFD, Secretary Ackley noted an executive order issued three years ago that required public safety entities to

work with the CYFD to train law enforcement officers on the CYFD's child welfare reporting system to meet federal requirements for the sharing of confidential sensitive information. He said that this system becomes available to officers after training and approval, and he noted that more funding may be needed to expand this training to all officers.

In response to further questions, Secretary Ackley said that of the \$177 million budgeted for IT investment, around 88 percent is going to out-of-state vendors, typically for licensing, hardware and software. He cited the competition between the state and the national laboratories for in-state IT talent as a reason for the large out-of-state vendor preference.

Uranium Cleanup: Jobs and Economic Opportunities

Susan Gordon, coordinator, Multicultural Alliance for a Safe Environment, updated the committee on the status of uranium mines and clean-up projects across the state. Ms. Gordon stated that there are 259 abandoned uranium mines in New Mexico and more than 500 on Navajo Nation land. As an example, Ms. Gordon cited the Red Water Pond Road Community, which is located near three federal Environmental Protection Agency (EPA) Superfund sites, including the Church Rock uranium mill spill of 1979 — the largest nuclear spill in U.S. history, Ms. Gordon said. This spill released over 90 million gallons of nuclear waste into the Rio Puerco, which flowed downstream through Gallup and nine Navajo chapters. Residents and workers in these communities were not warned about the health and safety implications, she said, and she noted that there still have not been any health studies conducted related to this spill. She stated that the EPA has submitted a proposal to the federal Nuclear Regulatory Commission that would allow the transportation of 30,000 truckloads of contaminated earth to the nearby United Nuclear Corporation (UNC) uranium mill tailings disposal facility by 2022, but the proposal does not address ground water contamination. The EPA has collected \$1.7 billion in settlements to address cleanup of 219 of 523 sites on Navajo Nation land.

Noting that the EPA provides resources for small businesses, Ms. Gordon suggested that state research universities, such as New Mexico State University (NMSU) and the New Mexico Institute of Mining and Technology, partner with local businesses to implement more research-based solutions. The EPA also provides free training and employment opportunities in communities affected by Superfund sites through an environmental remediation job readiness program, the Superfund Job Training Initiative.

Ms. Gordon addressed the challenge of the "brain drain" in New Mexico, noting that the state is facing one of the highest rates of out-migration in the country, with an estimated 42,000 more residents leaving the state than entering the state between 2011 and 2016. Often, those leaving are young, college-educated residents, she said. Ms. Gordon noted that current ecological disasters could create job opportunities for New Mexico graduates in technology fields such as hydrology and engineering. She stated that it will likely be 10 years before cleanup starts and that the Multicultural Alliance for a Safe Environment intends to introduce another bill this legislative session, similar to House Bill 208 from the 2018 session, that would appropriate funds

for a study of the education and training programs needed to address cleanup of the abandoned mines.

In response to questions from the committee, Ms. Gordon stated that through \$94 million in grants from the EPA, New Mexicans will be employed to construct a road for the transportation of contaminated soil from the Church Rock uranium mine spill site to the UNC disposal facility. She expressed concern that in the 10 years before cleanup starts, more waste may seep into the ground water, as much of the contamination is 20 feet below the surface. She confirmed that during the current assessment phase, officials will be looking to mitigate further long-term problems. She also mentioned that Governor Susana Martinez vetoed a request for \$200,000 in the General Appropriation Act of 2018 for the University of New Mexico (UNM) to study uranium clean-up training programs on the Navajo Nation, so her organization plans to introduce that request again in separate legislation.

Development of a Solo-Work Business Sector in Cibola County

Eileen Yarborough, executive director, Cibola Communities Economic Development Foundation (CCEDF), discussed the background, current developments and future goals for the solo-worker program in Cibola County. Ms. Yarborough stated that the solo-worker pilot program was created after House Bill 177 was signed into law in 2016, affording opportunities for New Mexicans to pursue solo-worker jobs that generate revenue from out-of-state sources. During the pilot program, the CCEDF, in partnership with Digital Works, which is an employee training and placement service for technology and customer-support jobs, had 95 applicants, 35 of whom started the training, 25 of whom finished the training and 12 of whom were placed in jobs. The program is intended to support rural communities that normally do not have much access to employment opportunities. The program accomplishes this by providing jobs that can be performed from home or from a co-working space, such as the Grants SoloWorks Center at NMSU-Grants.

Ms. Yarborough told the committee about the obstacles the program has encountered as it has grown, and she discussed the solutions thus far initiated to overcome those obstacles. Through the pilot program, the CCEDF discovered that not everyone is a fit for customer service positions, and many of its trainees have lost motivation in these jobs. She said that the CCEDF is looking to expand job types and reverse-engineer its intake process by first evaluating a candidate's skills and work preferences and then placing the candidate in the appropriate training or certification program. The pilot program currently offers programs through companies such as Digital Works, Saylor Academy and Hubspot, all of which offer mostly customer service, marketing and business skills. Ms. Yarborough said that the CCEDF is looking to incorporate translation and interpretation certifications, such as teaching English to speakers of other languages. She stated that entry-level employees make \$10.00 to \$12.00 per hour with the potential to earn up to \$23.00 per hour with more training.

Ms. Yarborough stated that broadband and connectivity are major focuses for the CCEDF in expanding the program to more rural areas where businesses and educational institutions

currently lack infrastructure. She said that to scale up its program, the CCEDF will need to extend access to workforce training and education through integration of more online resources, which will require investment in telecommunications infrastructure in rural communities. Ms. Yarborough also informed the committee that the CCEDF hired a new program director this year for the SoloWorks Cibola Center. She noted that some strategic partners include the CCEDF, NMSU-Grants, the Community Economics Lab, the Economic Development Department (EDD) and the U.S. Department of Agriculture, which collectively provide research, training, advisement, funding and workspace for the program trainees. She noted that the current goal is to offer 10 classes and achieve 30 economic-base jobs every year. She also updated the committee on past funding and current grant applications and awards for 2018, including \$38,500 from the EDD SoloWorker grant.

Responding to questions from the committee, Ms. Yarborough stated that:

- there are myriad issues that contribute to the discouraging 17 percent retention rate of applicants to the program, such as the wide range in age and work experience of applicants and the goal of the program to be more than just a job incubator by providing applicants with a full spectrum of support — from therapy to skills assessments — prior to training;
- the program does not currently require exit interviews, but she is interested in implementing them in order to learn from trainees how to improve services;
- the minimum wage required to encourage people to move from social assistance to employment is between \$13.00 and \$15.00 per hour;
- an important component of the program is teaching soft skills such as communication, manners and professionalism. The program is currently working on building up a "professional attire closet";
- annual cost projections based on the current number of job placements are approximately \$3,500 per job;
- the program received a planning grant from the New Mexico Finance Authority (NMFA) in 2016;
- the program will need to find a permanent location for a nonprofit incubator training space because its agreement with NMSU-Grants is coming to an end;
- to expand to other rural areas and scale up the program, Ms. Yarborough estimates that it will cost between \$200,000 and \$250,000, and the program will need larger working spaces with good connectivity and a site director at a base salary of \$40,000; and
- certification programs range from one month to one year, from customer service to medical coding and billing.

Navajo Technical University (NTU) Curriculum and Student Opportunities

Casmir I. Agbaraji, Ph.D., dean of undergraduate studies, NTU, and Daniel Vandever, communications director, NTU, provided the committee with an overview of the university. Originally established in 1979 as the Navajo Skills Center, the institute sought to address long-

term poverty and unemployment on the reservation by providing courses in carpentry, technology, welding and culinary arts. While the mission is still the same, the university has expanded over the years to include associate, baccalaureate and graduate degree programs, and of the 52 total programs offered, 44 percent are in the fields of science, technology, engineering and mathematics (STEM). Dr. Agbaraji stated that the university serves more than 100 tribes, with the goal of supporting the Navajo community in the preservation of language, culture, traditions and environment through sustainable economic development.

Dr. Agbaraji noted that over the past seven years, NTU has seen a lot of growth in STEM fields of study, despite that roughly two-thirds of the population still demonstrates low proficiency in mathematics, reading and science. Currently, STEM programs account for about one-fifth of total NTU enrollment, with about 35 percent females and 65 percent males. He listed many of the STEM programs offered through the university as well as the specific technology being applied in the classroom, such as 3D printing. He mentioned that its Veterinary Technology Program received accreditation from the American Veterinary Medical Association in 2017, and he said that NTU is currently awaiting accreditation for its industrial and electrical engineering programs. Also in 2017, NTU added biology to its course catalog, with the hopes of expanding into pre-medical programs. In partnership with the EPA, Mr. Vandever said that NTU is in the process of establishing the Navajo Center for the Environment, which would work on initiatives such as uranium mine cleanup, recapture of methane seepage and improving energy efficiency on campus. Dr. Agbaraji highlighted NTU's many partners that are helping to expand STEM programs, including the National Aeronautics and Space Administration, Boeing, UNM and Northern Arizona University.

Another important aspect of NTU is youth outreach, according to Mr. Vandever, with the goal of informing and encouraging Native American high school students to pursue STEM degrees. In 2015, NTU partnered with high schools in New Mexico and Arizona, enrolling 444 students in dual-credit programs. The majority of students enrolled came from high schools in McKinley County, Mr. Vandever said. These programs have many benefits for students, he noted, from facilitating an easier transition from high school to college to earning college credits at no tuition cost. He also mentioned initiatives to engage students in STEM even before high school, such as a 3D printing summer camp that was funded through a National Science Foundation grant and a product challenge to design a toy for Navajo youth through NMSU's Camp Innoventure. Dr. Agbaraji reiterated that NTU is focused on more than just education, stating that it is imperative to engage youth early on and to consider economic development strategies as well.

In response to questions from committee members, Dr. Agbaraji and Mr. Vandever stated that:

- NTU collaborates with the Higher Education Department (HED) on statewide articulation agreements but receives funding through capital outlay, not the HED;
- the average age of students is 29, which has increased as a result of creating branch

- programs so that courses can be offered closer to home or be made accessible by bus;
- last semester, NTU had the highest number of credits earned by high school students enrolled in dual-credit programs, with the majority of those credits in mathematics and English courses; and
- NTU works with the Albuquerque Public School District to expand and develop new pathways for Native American students in Albuquerque, and NTU has also started outreach efforts in Los Alamos.

Recess

Following a tour, the committee recessed at 3:45 p.m.

Friday, July 27

Senator Padilla reconvened the meeting at 9:05 a.m. at SWC in Ya-ta-hey.

Continental Divide Electric Cooperative (CDEC)

Robert Castillo, P.E., CEO and general manager, CDEC, and Cesar Martin, manager, Information Technology and Broadband Initiative, CDEC, shared some history of the cooperative and gave a presentation to the committee on the CDEC's transition into broadband service. Established in 1946, the CDEC opened its first headquarters in Gallup and has since served 24,000 retail customers and the City of Gallup, a wholesale customer, generating \$65 million in revenue. Acknowledgment of the rapid change in technology in recent years and of the need to bring the CDEC into the twenty-first century led to the CDEC's decision to upgrade to a supervisory control and data acquisition system (SCADA). Upgrading to a SCADA entails connecting the CDEC's substations to its current headquarters in Grants using fiber-optic cable. According to Mr. Castillo, this fiber-optic investment will optimize electrical distribution by improving communication between substations and the control center and will provide consumers with better reliability and improved response times to outages and sudden shifts in demand. He stated that it is currently in the first phase of implementing the SCADA, with about 60 percent of its service area in Grants now connected.

The decision to diversify the cooperative to include telecommunications stemmed from the fact that plans were already in place to install fiber-optic infrastructure. Available CenturyLink broadband service came at a high cost, and demand from CDEC members to branch into broadband was high, Mr. Martin stated. He emphasized that broadband service will be provided to members on an opt-in basis, and he is confident that the CDEC will be able to offer competitive pricing and bandwidth to residential and small business customers through its Red Bolt Broadband. Mr. Castillo mentioned some of the CDEC's integral partners in the project to expand fiber-optic broadband communication in Grants and beyond, such as Kit Carson Electric Cooperative, Pulse Broadband, the National Rural Telecommunications Council, the NMFA and the national branch of the cooperative, Touchstone Energy Cooperatives. Mr. Castillo also noted plans to construct new administration facilities, possibly at the Grants Industrial Park.

Responding to questions from the committee, Mr. Castillo stated that, initially, the CDEC will install fiber-optic cable just to the substations and then branch off of those lines to take broadband directly to consumers' homes. He gave a rough time line, stating that the City of Grants will be connected by the end of the year, and the CDEC will start to build out to the substation in the Village of Milan in January of next year. Shortly after that, he said, the project will expand to Bluewater Village and San Rafael. He said that despite hesitation by board members to make the move to telecommunications, members voted in favor of a bylaw amendment in 2016 to allow the CDEC to provide broadband and telecommunication services.

Mr. Martin verified that the CDEC will be able to provide symmetrical service, which means equal upload and download speeds, as is common with fiber-optic infrastructure. He explained that total bandwidth is divided between upload and download capabilities and that, typically, more bandwidth is allotted to downloading, but with the proliferation of cloud technology, upload speeds are becoming more important. He stated that the CDEC's broadband initiative has created three new jobs at the cooperative, and it plans to hire more employees as required by the CDEC's loan from the state.

When asked about subsidies and revenue, Mr. Castillo said that member payments are not considered to be subsidies because members own part of the company. The CDEC expects to operate at a loss for the first couple of years because capital expenses and operating costs are exceeding revenues and the revenue stream will service the debt. He stated that to meet its financial goal, a 35 percent subscription rate by members is necessary.

House Memorial (HM) 72 (2017) — Economic Development Planning with the Prewitt Industrial Cluster

Evan Williams, deputy director, Northwest New Mexico Council of Governments (NWNMCOG); Ms. Yarborough; and Michael Sage, deputy director, Greater Gallup Economic Development Corporation (GGEDC), discussed the implications of HM 72 on economic development in the Prewitt Industrial Cluster, located in the northwest region of the state. In recognition of the substantial economic impact of the Escalante Generating Station (Escalante) on the Cibola County and McKinley County communities, HM 72 passed to address the impending transition from coal to other energy alternatives. Nationally, coal production is decreasing while natural gas and renewable energy production are increasing. In New Mexico, coal mining and production are decreasing at even faster rates, which is adversely affecting communities and causing high rates of job loss and out-migration in Cibola and McKinley counties, whose economies are heavily dependent on coal, Mr. Williams explained.

HM 72 requests the EDD, the Workforce Solutions Department and the Energy, Minerals and Natural Resources Department to provide a report to the legislature on how best to diversify the economy in the transition from extractive industries. Mr. Williams suggested that the departments turn the assets of the area into proactive solutions and that they look to more public-private partnerships and research-based jobs. He said that the state can learn from the closure of the San Juan Generating Station (San Juan) and adopt best practices to preempt some of the

negative impacts on Cibola and McKinley counties. The Prewitt Industrial Cluster currently encompasses three major industrial companies: Escalante, the McKinley Paper Company and the El Segundo Mine operated by Peabody Energy. The Prewitt Industrial Cluster had a total of nearly 600 jobs in 2016, but it is down to 486 jobs as of 2018. Escalante employs 119 people at an average annual salary of \$76,000 and provides \$1.4 million in annual property taxes to the state. Additionally, these companies have codependent relationships — Escalante buys coal from the El Segundo Mine and sells steam, water and electricity to the McKinley Paper Company. The closing of Escalante will affect the entire industrial cluster, Mr. Williams said.

Mr. Williams addressed federal investments through the Partnerships for Opportunity and Workforce and Economic Revitalization (POWER) Initiative for workforce development in communities that are negatively affected by the decline in the coal economy. Two POWER Initiative grants were awarded to northwest New Mexico organizations: the NWNMCOG received \$327,300 to conduct an economic assessment of the Four Corners region and provide recommendations on strategy; and San Juan College received \$1.4 million to modify equipment and training programs to facilitate the transition of dislocated workers into new energy occupations. Mr. Williams discussed the intent behind HM 72, which is to sustain Escalante, diversify the economy, capitalize on existing workforce skills and infrastructure assets and establish regional public-private partnerships. He said that members of the HM 72 working group, including the CDEC, CCEDF, GGEDC and the NWNMCOG, are charged with strategic planning for the region. He noted that both Cibola and McKinley counties were awarded NMFA planning grants for \$50,000.

Ms. Yarborough discussed upcoming plans for the working group, noting that the group is currently in the initial assessments and reports phase. From August to November, the group will be developing final reports and a draft site plan, with final reports due in December in preparation for the 2019 legislative session. She stated that the group contracted with Foote Consulting Group (FCG), a national site selection, economic development and workforce consulting group that has created 5,000 jobs and \$1 billion in capital investment through various site-selection projects. Ms. Yarborough cited supply chains, preliminary targets and workforce factors as the main considerations for site selection. FCG evaluated key potential suppliers and the regional supply gap to suggest areas for business creation or expansion. The industry sectors with the most growth between 2017 and 2018 were manufacturing and software, IT and call and data centers.

Mr. Sage then provided the committee with an overview of the economic development assessment created by FCG. He stated that there are six components to the assessment: sites and buildings; transportation; utilities and infrastructure; taxes; incentives; and quality of life. The Milan Industrial Park and the Gallup Energy Logistics Park have been identified as primary or "ready-to-go" sites, Mr. Sage reported, while the Cibola Industrial Park, Solid Waste Site, Thoreau Site and Escalante have been identified as secondary sites. Mr. Sage stated that a major strength for northwest New Mexico is transportation logistics because there is easy access to major markets in Albuquerque, Denver and Phoenix; there is direct access to Interstate 40

markets in Los Angeles and Dallas; there is easy access to rail connections through BNSF Railway; and there is improved access to Farmington via U.S. Highway 491. The assessment stated that although there are some strengths in the tax and incentive policies to bring new businesses to the state, marketing and promotion of these policies need to improve. Mr. Sage noted that New Mexico does have a competitive advantage over the other Four Corners states because of the low cost of living. Recommendations by FCG included regional collaboration; more strategic outreach to Denver and Phoenix; improving marketing to potential site selectors; modernizing the industrial center website; and pursuing the top-five target industries recommended for growth.

Responding to questions from the committee, the panelists stated that:

- Escalante, built in the 1980s, is a relatively new station, is expected to operate until 2050 and has pollution control infrastructure that San Juan lacks; there are no plans at this point to convert Escalante to a natural gas plant; and
- there are no modern industrial buildings in the area, and roads and other facilities are also in need of maintenance and upgrades; New Mexico should look to public-private partnerships for financing; and the working group has reached out to the Legislative Finance Committee for assistance in forming these partnerships.

There was a suggestion from a committee member that the working group look into a public-private partnership between the county and the BNSF's Central New Mexico Rail Park in Los Lunas. Another member cited a similar economic growth project in Somerset, Kentucky, in which a solar farm was built at an industrial park, making electricity available to any incoming business.

Learning Through Fun — Super Summer STEM Camp (SSSC)

Krista McWilliams, engineering manager, LOGOS Resources, LLC, described the summer camp that she started in 2015 in her backyard in Farmington. She stated that her goal is to combine learning and fun to expose children early on in the Four Corners region to STEM and to teach hands-on learning and curious problem solving, twenty-first century skills, teambuilding, critical thinking and communication skills. The SSSC is not intended to feel like summer school, Ms. McWilliams said, so there are no tests or homework. Instead, Ms. McWilliams said, she approaches teaching in a way that entices children to want to learn. The camp lasts for seven weeks over the summer, and enrollment is offered on a week-by-week basis for children ages six to 11. Ms. McWilliams discussed the evolution of the program from 10 students for one week of STEM activities in her own backyard to an average of 30 to 32 students every week for seven weeks at the San Juan College (SJC) campus.

Ms. McWilliams provided the committee with details about the camp. Every morning, camp begins at 9:00 a.m. with a pep rally. Early drop-off and late pick-up options allow parents flexibility around their work schedules. The children are put in groups with team leaders, who are students at SJC, with a 5:1 student-to-team leader ratio. The groups work at several stations

and modules, such as robotics, explosions and outdoor activities, which are led by scientists and field specialists. She stated that camp leaders encourage failure and strive to teach children that even engineers make mistakes and, more importantly, learn from those mistakes to improve.

Addressing barriers to New Mexico students pursuing STEM careers, Ms. McWilliams also referenced her personal experience and challenges as a New Mexican and a woman entering the STEM field. She noted that, like herself, many New Mexicans are first-generation college students and have not met many people in STEM fields. Often, some students feel that they are not smart enough and do not even consider college as an option. Recognizing the importance of positive role models and encouragement of children, she shared that she felt discouraged by her father in her pursuit of higher education, but, luckily, she was encouraged by her high school mathematics teacher to continue. She expressed her goal of changing future generations by encouraging New Mexico's children to pursue college. She stated that once one person in a family graduates from college, it becomes easier for subsequent generations to follow that model.

Ms. McWilliams acknowledged that despite the number of careers in STEM fields increasing across the state and country, New Mexico is not graduating enough students with STEM degrees to fill available jobs. She stated that STEM professionals typically make twice the average national salary, and her goal is to get New Mexico children to fill these future roles. By exposing children to STEM at a younger age and in the setting of a summer camp on a college campus, children will gain a positive experience with STEM, develop comfort in a college setting and perhaps even pursue a STEM degree in the future.

Responding to questions from the committee, Ms. McWilliams stated that the SSSC employs teachers from the community who are passionate about their fields in STEM, noting that the passion is contagious. She expressed interest in expanding the camp throughout the state but said that she would need local champions to assist in that expansion. In regard to funding, Ms. McWilliams said that the SSSC is able to purchase the majority of materials needed through a grant from the Bayless Foundation and that teacher and team leader salaries are covered through the weekly tuition cost of \$159 per student. Although the tuition rate is on par with or lower than daycare rates, her goal is to reach more indigent students through sponsorship, noting that one teacher from the camp offered to sponsor a student in next year's SSSC. She said that students have the option to eat at the SJC cafeteria or bring their own food for lunch. She also noted that the SSSC currently offers coding courses in scratch and robotics coding.

There was a request by a committee member for Ms. McWilliams to give a presentation on her STEM summer camp at an upcoming meeting of the Legislative Education Study Committee.

Adjournment

There being no further business before the committee, the second meeting of the STTC for the 2018 interim adjourned at 11:35 a.m.