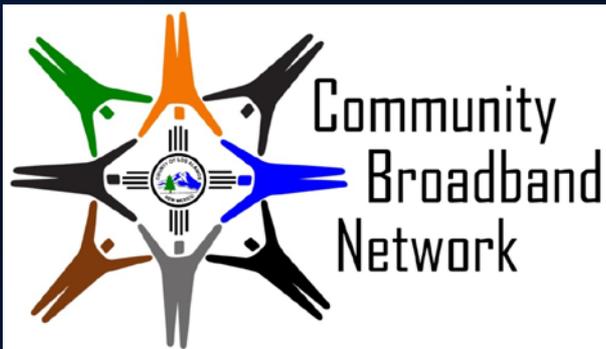


# Legislative Science, Technology and Telecommunications Committee



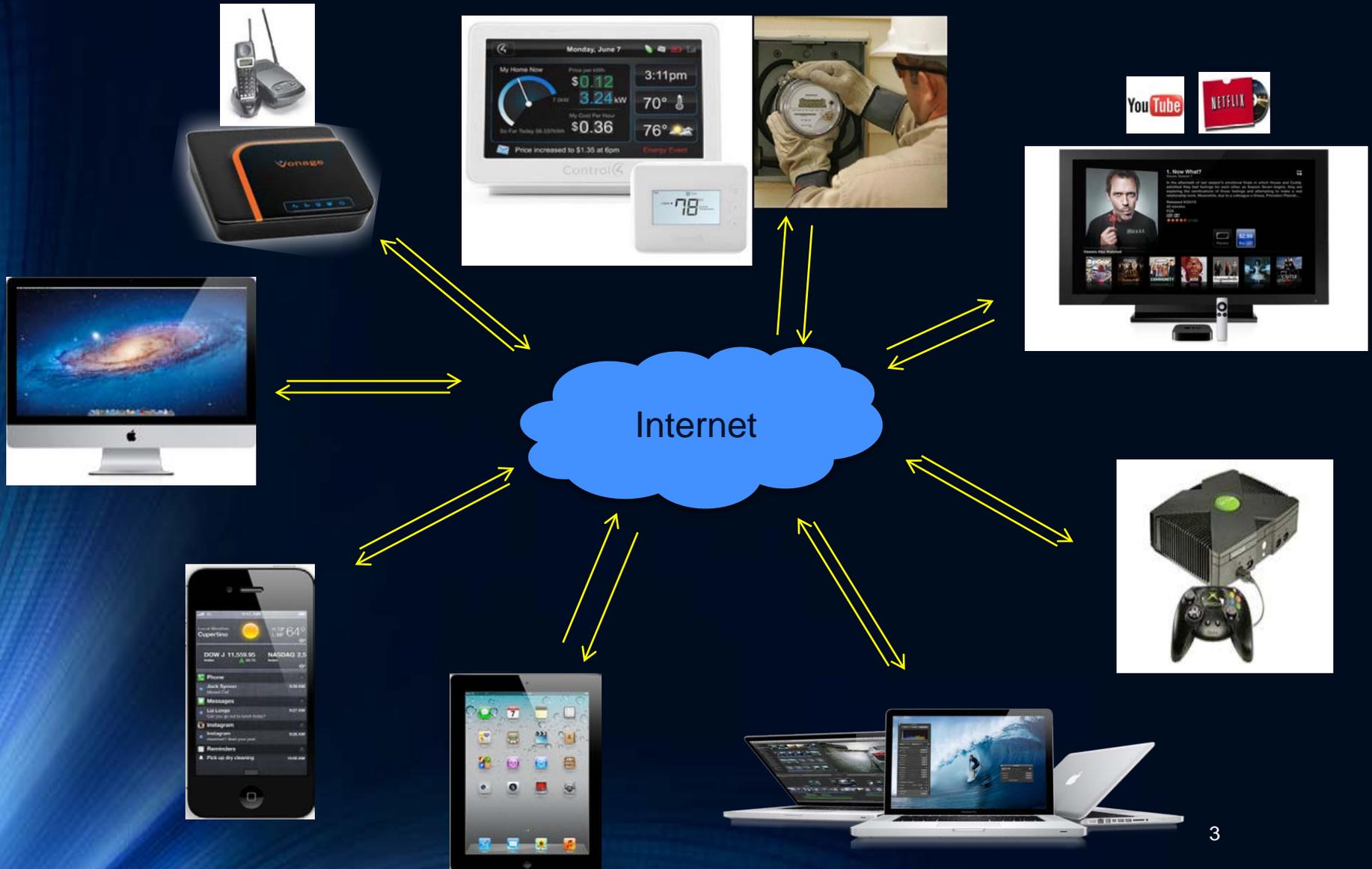
Laura Gonzales, *Chief Information Officer*

Los Alamos County, NM

# Fiber - The Future Demands It

- Global IP (data) traffic has grown 800% over the past five years
- Internet TV will grow at 33% per year and internet video will increase 23x in the next 5 years
- ~25 million homes in North America have access to direct fiber optic connectivity (10.5M subscribers)
- Up to 89% homebuyers indicate FTTP is key consideration in purchase
- 87% municipal fiber networks have experienced economical development benefits

# Devices in the Home



# Economic Development

- Improved infrastructure to keep up with the times
- Local data storage, disaster recovery, data transport, video conferencing, cloud computing

FTTH Council 2012 Annual Conference			
New Businesses	Fiber Install	1998-2002	2004-2008
Bristol, VA/TN	2003	14%	34%
Dalton, GA	2003	33%	36%
Jackson, TN	2004	9%	35%
Reedsburg, WI	2003	17%	25%
Windom, MN	2004	0%	19%

# Fiber as an Economic Driver

-Graham Richard, former Mayor Fort Wayne, IN

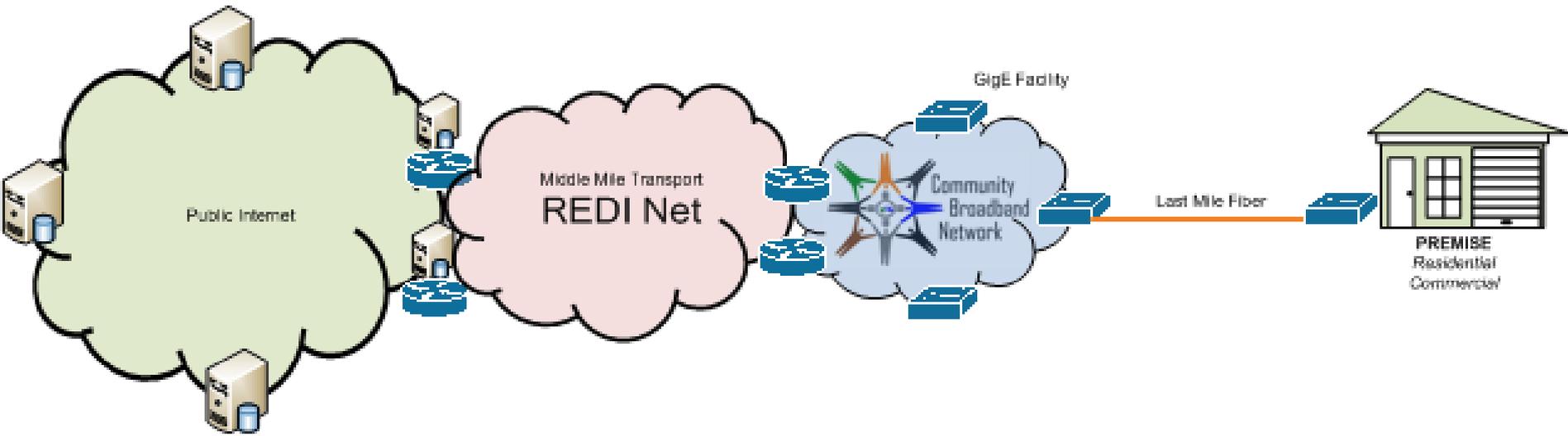
- “Even the smallest communities need to offer Broadband via FTTH. Communities that cannot offer fiber connectivity are on the off-ramp of the information and innovation superhighway.”
- “When looking to locate new businesses, companies Fiber is a consideration.”

# What Does High-Speed Broadband Enable?



- Education: Distance learning, R&D applications
- Health Care: Telemedicine, Electronic Medical Record
- Public Safety: Cyber security, interoperability, emergency response
- Energy: Smart metering, distributed generation
- Economic Development: Home-based businesses, tech start-ups, media & film, renewable energy, and yes, even agriculture

# Middle Mile to Last Mile



# Regional Projects: Kit Carson in Taos

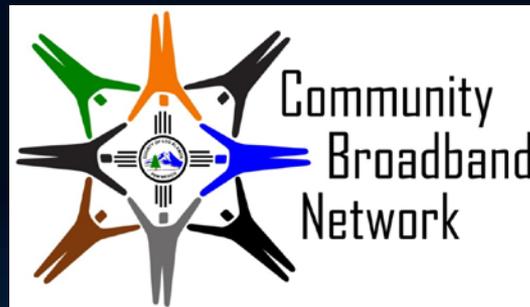
- FTTH project launched August 2011
- \$64 Million Cost (70% Federal, 30% Kit Carson)
- 100 Mbps
- 20,000 rural residents
- Economic development, education, public safety, healthcare, smart grid



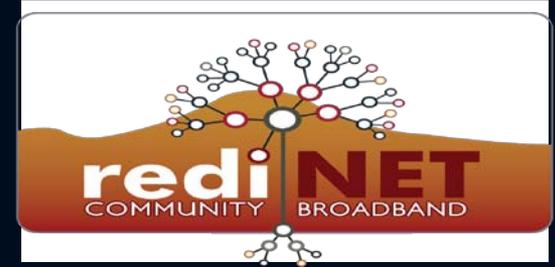
The screenshot shows the website for Kit Carson Electric Cooperative (KCEC). The header includes the KCEC logo with the tagline "Owned by those we serve" and the Touchstone Energy logo. A large banner image shows a mountain range. Below the banner, there is a "Customer Service" menu with links for "Pay My Bill", "Billing & Payments", "Forms", "Locations", "Contact Us", "FAQs", "Customer Feedback", and "New Service". A "News" section features a video player with the title "Rural Broadband, Emergency Command Day at Kit Carson" and a sub-headline "Electric Co-op hosts \$64 million fiber-to-the-home groundbreaking; Ribbon cutting for Command Center". The video shows a group of people cutting a red ribbon. To the right of the video, there is a "Taos, NM (August 17, 2011) - Kit Carson Electric Co-op (KCEC) today formally launched its \$64,000,000 broadband fiber-to-the-home project with a ground breaking ceremony that included Senator Jeff Bingaman and Congressman Ben R. Lujan as well as a host of other dignitaries." Below the video, there is a "Broadband Update" section with a "CLICK HERE" link.

# Regional Projects: Community Broadband Network Study

- Fiber-to-the-Premise
- Up to 1 Gbps, dedicated
- Open Access Model
- All citizens and businesses (~9,000 locations)
- Deliverables
  - Business case
  - Engineering design
  - “shovel-ready” project
- Economic development, education, public safety, healthcare, smart grid



# Regional Projects: REDI Net



## Economic Development Origins

- Regional Economic Development Initiative (REDI) funded by Progress through Partnering (2007)
- Regional ED Plan completed in 2008
- High-speed broadband identified as #1 ED priority
- Consensus that without high-speed broadband, all ED efforts would fail
- Economic development, education, public safety, healthcare, smart grid

# Regional Projects: REDI Net Cont.

## Middle Mile Fiber Network

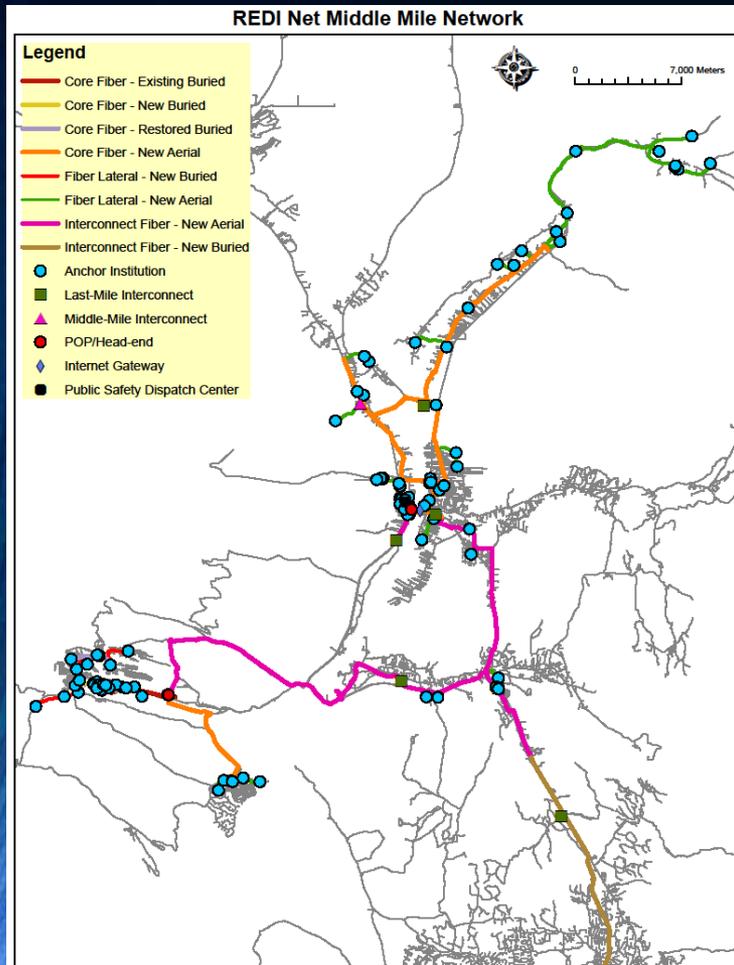
- Brings fiber optics and connectivity to Los Alamos and other communities
- Provides service to schools, medical facilities, government and service providers

## ARRA Funding Opportunities

- Regional project; Partnerships
- BTOP



# Regional Projects: REDI Net Cont.



- Applicant: North Central New Mexico Economic Development District
- Infrastructure Type: Middle-mile, open access, community owned network
- Project Cost: \$13,391,443 total, \$10,565,792 in federal funding, \$2,825,651 in cash and in-kind match
- Match Contributions: Rio Arriba County (\$700k cash); Los Alamos County (\$400k cash, \$625k in-kind); Jemez Mountains Electric Cooperative (\$686k in-kind); Los Alamos National Security, LLC (\$170k cash); Program Income & Application Costs (\$220k cash); City of Española (\$20k in-kind), Northern New Mexico College (\$5k in-kind)
- Technology and Deployment: 144 count fiber optic cable, 150 miles of fiber (aerial and underground), up to 1 Gbps dedicated service

# National FTTH Projects

- ❖ 1,100 applications to Google FTTH
- ❖ 109 independent telcos and municipalities deploying fiber to the premises



# Ways to Move Forward

- ❖ Encourage Partnerships between State, local, tribal governments, electric coops, telecomm providers, etc.
- ❖ Work with Federal government to create mechanisms forward to expedite construction of fiber pathways
- ❖ Be Shovel Ready

# Ways to Move Forward Continued

- ❖ Create a General Approach
  - ❖ Develop standard practices
  - ❖ Consider innovative “sweat equity” and sponsorship programs
  - ❖ Leverage available programs, funds and infrastructure
  - ❖ State matching funds or fund allocation
  - ❖ Consider and mitigate risks
- ❖ Become a “Fiber-Friendly” State

# Documenting Regional Need

## The Need

- Government entities, schools, hospitals cannot obtain the bandwidth they need (40-50 mbps minimum, and higher)
- Incumbent carriers promise the service, but can't deliver the bandwidth or justify ROI, leaving people on long waiting lists
- Internet service is unaffordable. Even T1 lines are exorbitantly priced in this low-income region
- No real competition because incumbents own all of the infrastructure for connectivity and set prices for its use

## The Solution

A "big pipe" capable of providing required bandwidth

Extremely affordable pricing

Community ownership of an open network which opens up competition by allowing service providers access at low costs

PARTICIPATING INTERNET SERVICE PROVIDERS



# The Need to Be Shovel Ready

- ❖ 21 projects in New Mexico funded by the American Recovery and Reinvestment Act
- ❖ Critical to have a detailed design and business plan

38 service providers

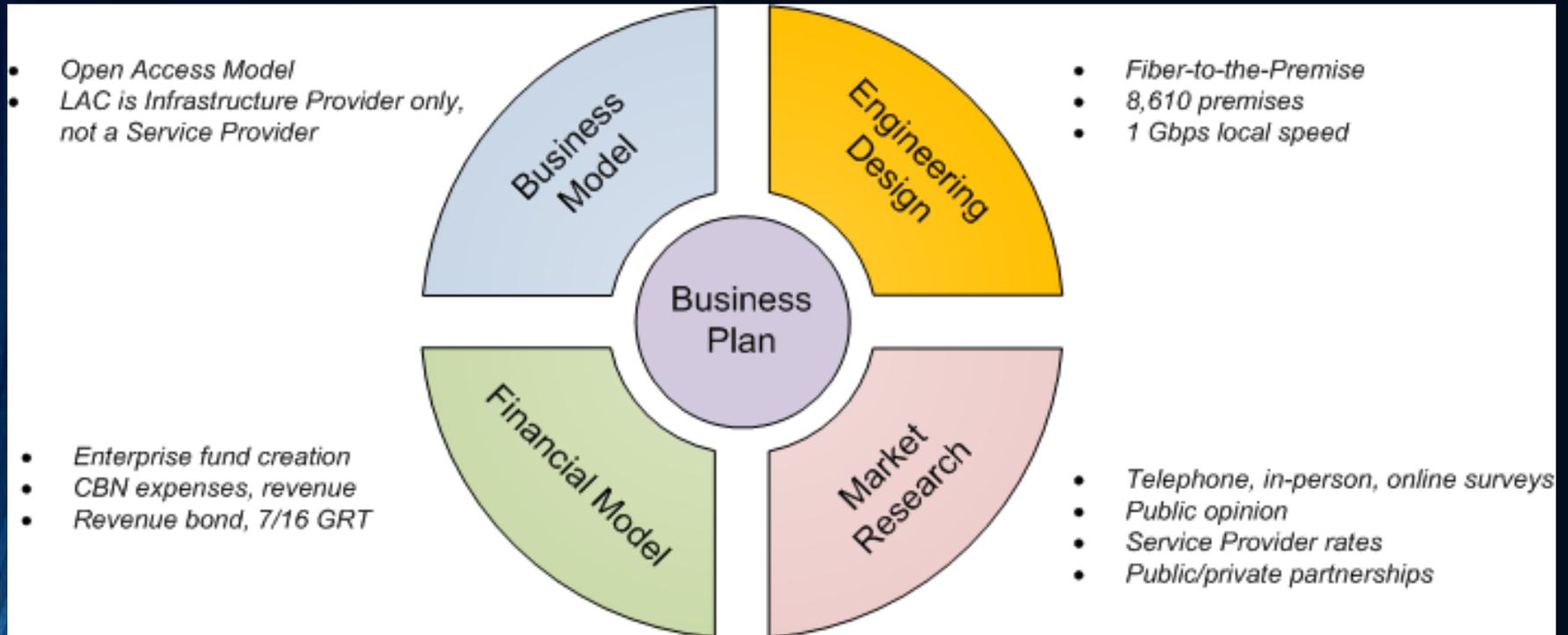
## NEW MEXICO BROADBAND GRANTEES

The following listing includes entities in New Mexico that have been awarded Broadband grants. Click the Grantee name for more details about the project and contact information.

- Grantee: **Kit Carson Rural Electric Coop**  
Total Awarded: **\$63,700,000**
- Grantee: **University Corp. for Advanced Internet Development**  
Total Awarded: **\$62,500,000**
- Grantee: **Hughes Network Services**  
Total Awarded: **\$58,800,000**
- Grantee: **DoIT - Public Safety Network**  
Total Awarded: **\$38,700,000**
- Grantee: **Navajo Tribal Utility Authority (Commnet Wireless)**  
Total Awarded: **\$32,200,000**
- Grantee: **One Economy Corp. (Albuquerque)**  
Total Awarded: **\$28,500,000**
- Grantee: **Wildblue Communications**  
Total Awarded: **\$19,500,000**
- Grantee: **ENMR Plateau Telephone**  
Total Awarded: **\$16,500,000**
- Grantee: **Communication Service for the Deaf**  
Total Awarded: **\$15,000,000**
- Grantee: **La Jicarita Rural Telephone Coop**  
Total Awarded: **\$11,800,000**
- Grantee: **ENMR Plateau Telephone**  
Total Awarded: **\$11,300,000**
- Grantee: **NCNMEDD - REDINet**  
Total Awarded: **\$10,500,000**
- Grantee: **Peñasco Valley Telecom**  
Total Awarded: **\$9,600,000**
- Grantee: **DoIT - SBDDP**  
Total Awarded: **\$4,800,000**
- Grantee: **Mission Economic Development Agency (Anthony, NM)**  
Total Awarded: **\$3,700,000**
- Grantee: **Baca Valley Telephone Coop**  
Total Awarded: **\$3,300,000**
- Grantee: **Windstream Communications**  
Total Awarded: **\$2,300,000**
- Grantee: **New Mexico State Library - Fast Forward NM**  
Total Awarded: **\$1,500,000**
- Grantee: **Zero Divide (Santa Fe Boys and Girls Club)**  
Total Awarded: **\$1,400,000**
- Grantee: **San Ildefonso Pueblo - TewaCom**  
Total Awarded: **\$1,200,000**
- Grantee: **Santa Fe Civic Housing Authority**  
Total Awarded: **\$200,000**

21 Grantees

# Create a General Approach



Comprehensive development process, melding business model, network design, market research & financial analysis

# Best Industry Practices

- ❖ Symmetrical bandwidth, 75% of municipalities
  - ❖ Production model vs. consumption
- ❖ Economic development vehicle
  - ❖ 58% of communities experiencing an increase
- ❖ Time shift workplace and telecommuting
  - ❖ 67% work from home, 11% home based business
- ❖ Increasing home valuations ~\$6,500
- ❖ Lowering community operating costs ~2%
  - ❖ Reducing roadway congestion and associated costs
- ❖ Generating revenues for the community
  - ❖ Home based business could add \$47m per year in revenue
  - ❖ Potential for 215 new jobs based on industry averages

# Risks

- ❖ Market risks and take-rate expectations

  - Mitigation measures

    - ❖ Downward factoring of research data
    - ❖ Marketing campaign, inline with best industry practices
    - ❖ Competitive pricing maintenance

- ❖ Financial risk, securing capital, & cost overruns

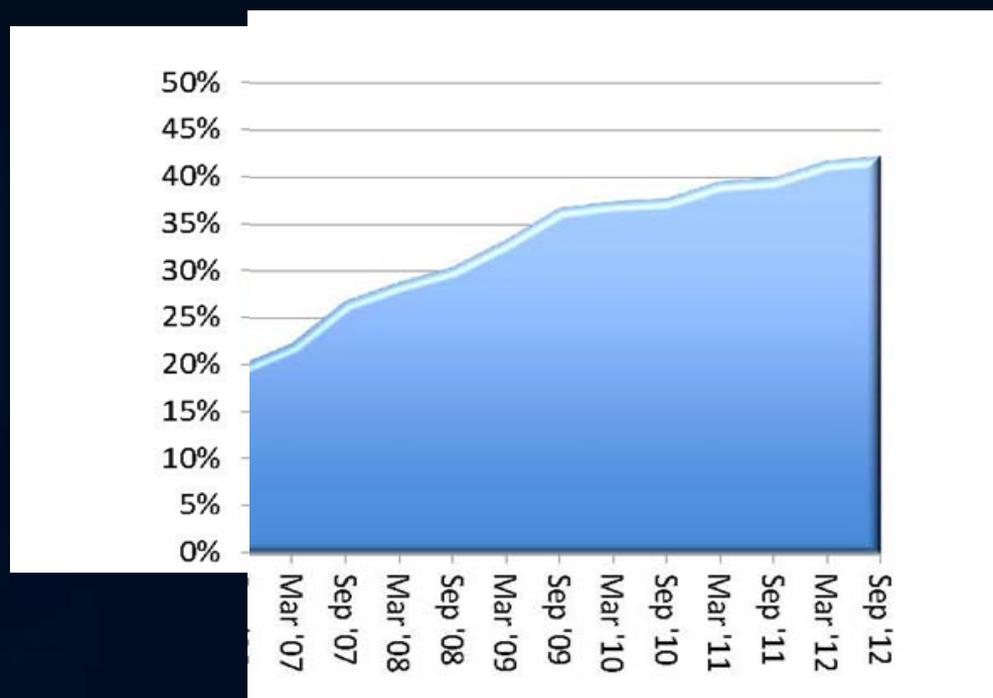
  - Mitigation measures

    - ❖ Community support for bond measure and GRT levy
    - ❖ 3<sup>rd</sup> party review conducted to verify cost assumptions

- ❖ Legal risks, potential challenges

  - ❖ Mitigated by “open access” model, non-compete

- ❖ Middle-mile



## Overall FTTH Take-Rates Hit New Record

*North American Take-Rates Reach 42.2%*

# Questions and Discussion

Laura Gonzales, CGCIO®, PMP®  
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Information Management Division  
Los Alamos County, New Mexico  
laura.gonzales@lacnm.us

## Links:

<http://www.redinetnm.org/>

<http://www.kitcarson.com/content/enchanted-light-fiber-optic-update>

<http://www.losalamosnm.us/projects/itd/Pages/CommunityBroadbandNetwork.aspx>

<http://www.ftthcouncil.org/d/do/1214>

<http://www.computerweekly.com/news/2240179601/Businesses-urge-government-to-boost-economy-by-broadband-investment>

<http://www.bbcmag.com/mecon12.php>

[http://www.bbpmag.com/2009issues/april09/BBP\\_April09\\_GrahamRichard.pdf](http://www.bbpmag.com/2009issues/april09/BBP_April09_GrahamRichard.pdf)

<http://www.areadevelopment.com/search.aspx?val=fiber>