



Along Montana's "Information Superhighway"

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TelAct - State commission duties

☞ Interconnection

- Prices
- Terms
- Facilities
- Enforcement

☞ Advanced services

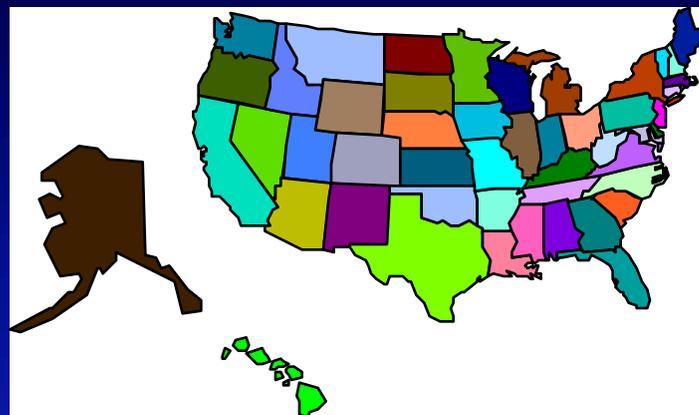
☞ Promoting competition

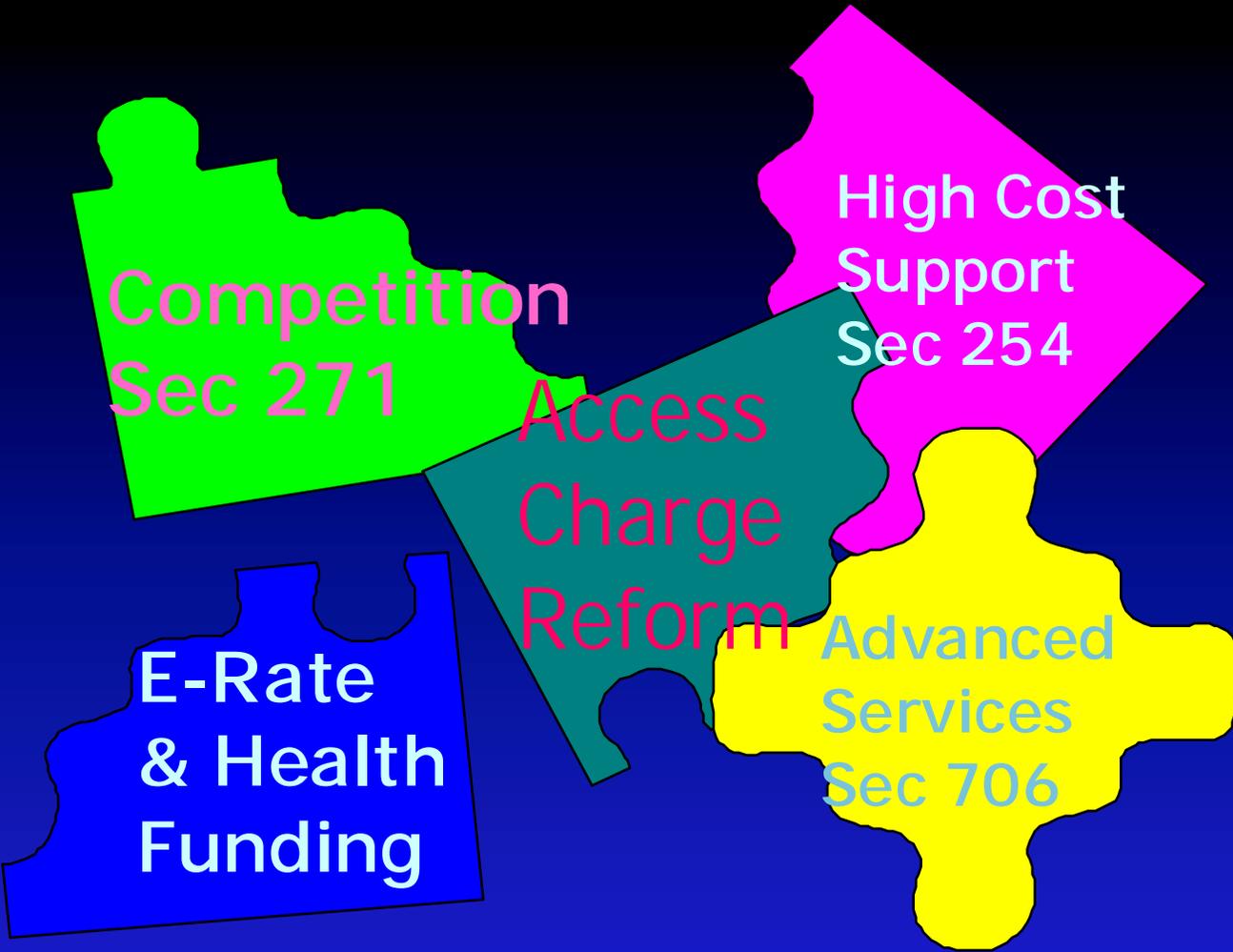
☞ Maintaining and advancing universal service

- Antithesis of competition, or basis for some competition?
- ED/CD opportunities and approaches

☞ Protecting customers of monopoly and competitive services

- Traditional methods still useful
- New methods required





The Challenge: How To Fit The Pieces Together

- Education & outreach
- Use existing networks
 - demonstrate by example
- Clearinghouse for local efforts
- Grant searching & writing assistance
- Technology training
- Community to community mentoring
- Public Internet access

Expanding traditional roles



Consider....

Aggregation/Teamwork



- ✦ Global Telecommunications Revolution
- ✦ America's policy is evolving daily.
- ✦ States and Federal gov must work together.
- ✦ Equalizing Urban and Rural access is critical.
- ✦ Funding is uncertain.
- ✦ Aggregation is essential.
- ✦ Communities must create and pursue their visions.

Tel Act tools



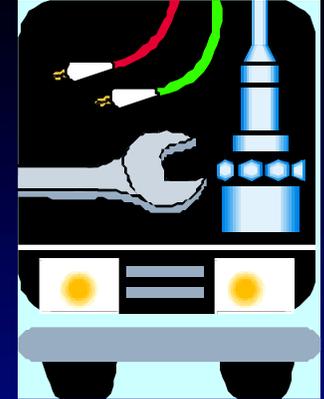
❖ **Sec. 254 - Universal service tools**

- High cost fund, rural health care, libraries and schools, low income.
- Federal-State Joint Board will review support for rural companies, what services should be covered.

❖ **Sec. 706 - Promote deployment of advanced services.**

- Encourage deployment of advanced services reasonably and timely to all Americans.

Telecom Act Tools



❧ Sec. 251-252 - Competition tools

- How “competitors” and incumbents use the network through interconnection, resale, and unbundled network elements.

❧ Sec. 271 - “Baby Bells” may provide **long distance** when local markets are **competitive**

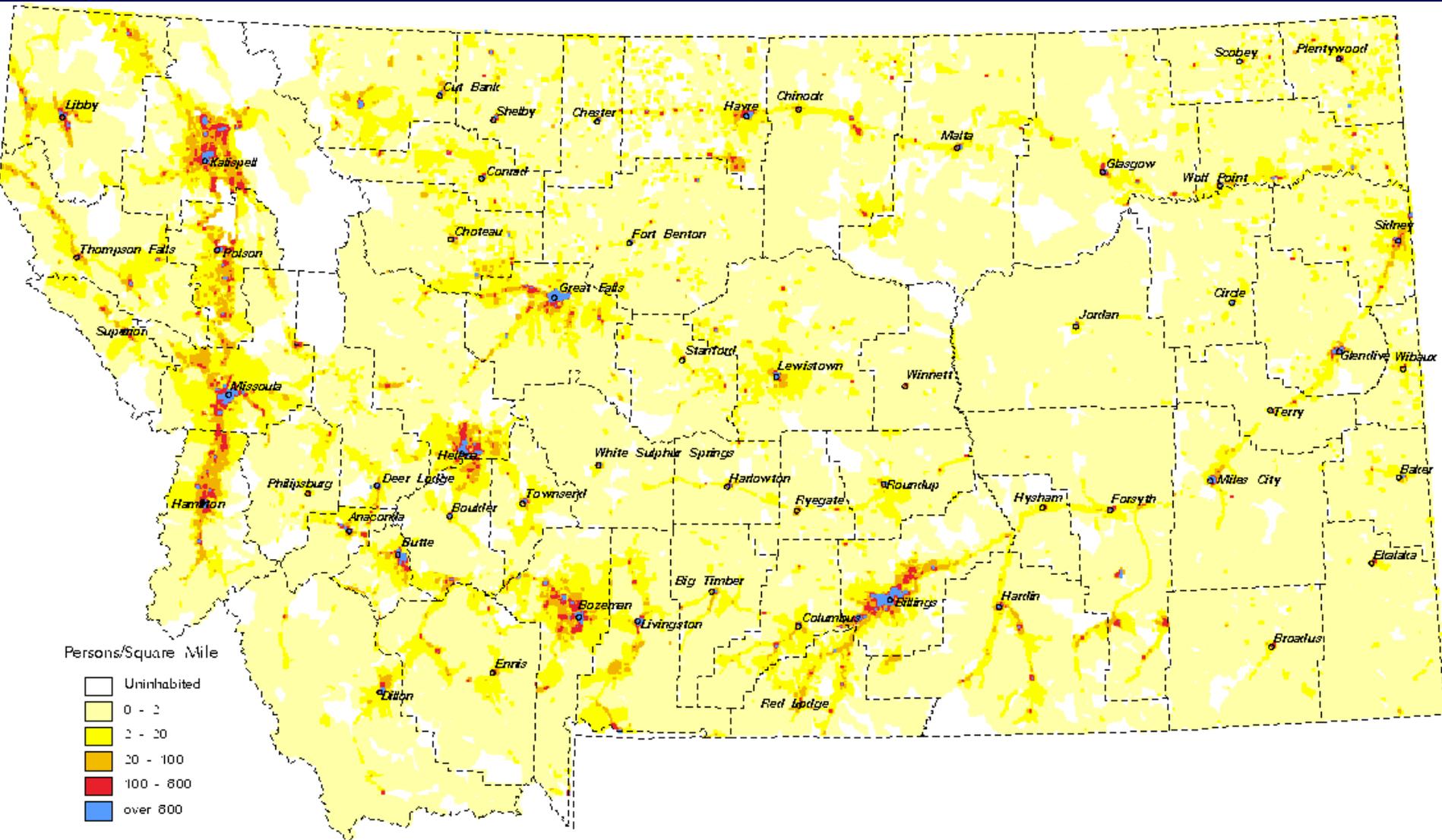
- MT and 12 other Qwest states collaboratively working with Qwest and competitors (includes DSL and other new services).

So what's ru'al?



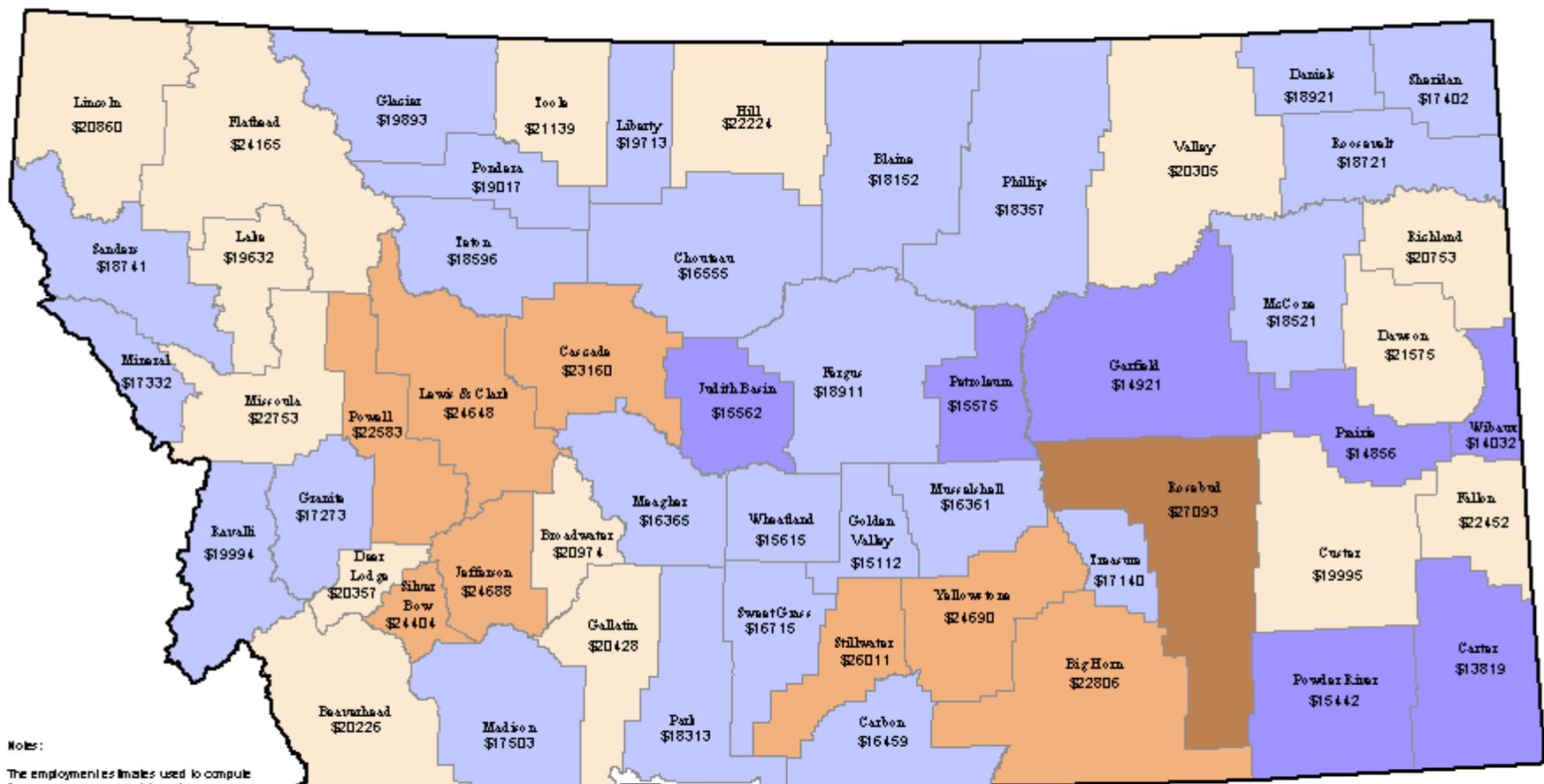
North Cut Bank, Montana central office
Northern Telephone Cooperative Inc.

3 D's of T-Com: Distance-Density-Demand



Average Wage per Job for Montana Counties

Standard Deviation of Wages for 1998



Notes:
 The employment figures used to compute the average wage are at job, not a person, count. People holding more than one job are counted in the employment figures for each job they hold.

Large back wage settlement in the primary metals manufacturing sector of Flathead County inflated 1998 wage and salary disbursements for this county and to a small extent for Montana as a whole. These inflated wage and salary disbursements caused an overstatement of average wages per job for 1998. Estimated correct 1998 average wages for Flathead County and Montana are \$22,600 and \$22,300 respectively.

Table CAC4 Regional Economic Information System, Bureau of Economic Analysis, March 2000

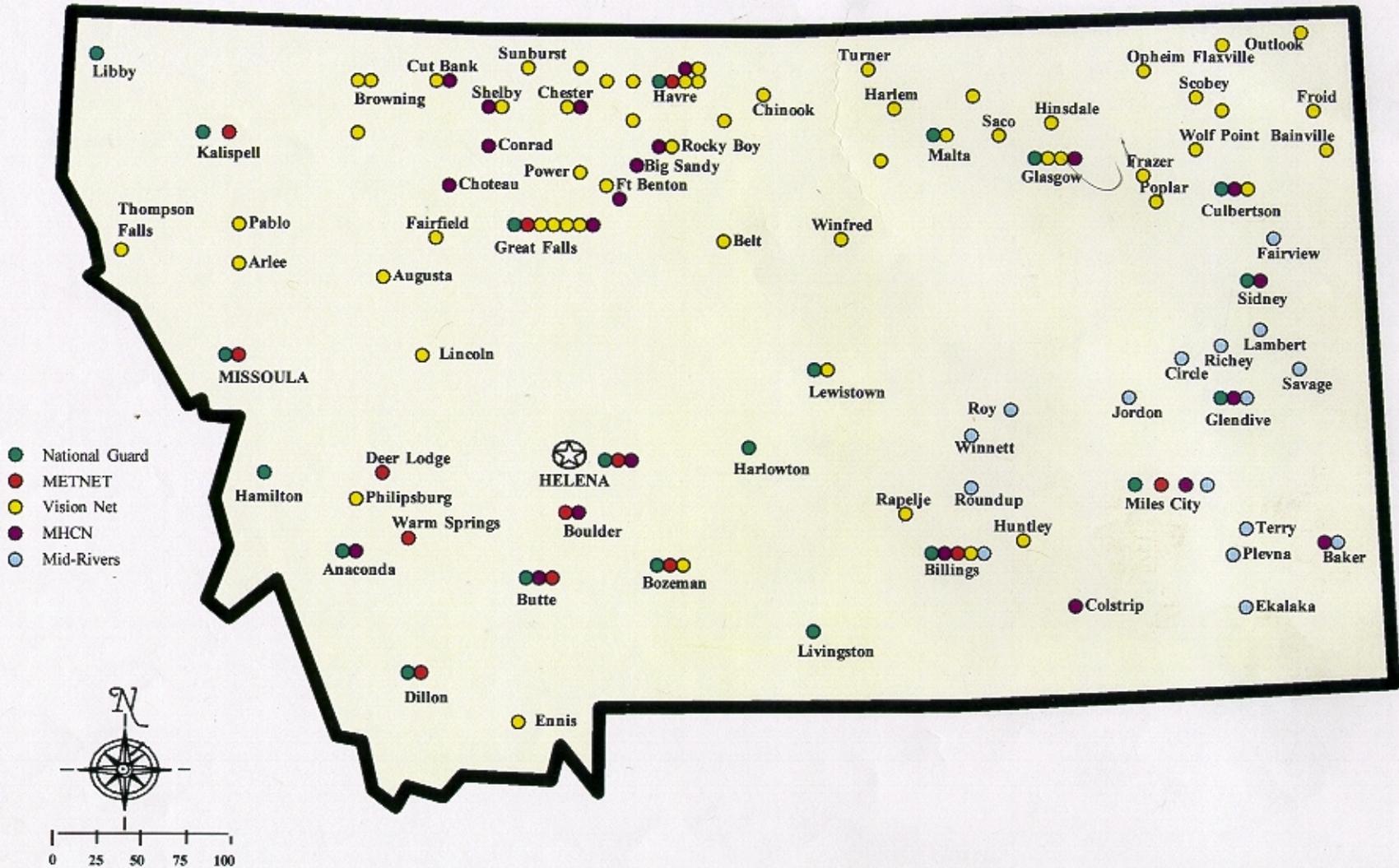
Yellowstone National Park

Mean 1998 Wage: \$19,245
 Standard Deviation: \$3,209



Created by:
 Montana Census & Economic Information Center
 Montana Department of Commerce
 142 N. Ninth Ave., Helena, MT 59620-0505
 406 444-4393 celc@state.mt.us
 http://commerce.state.mt.us/celc

VTC Sites





Lame Deer Health Clinic - Removing Distance Barriers

Rural Realities

- ✂ Rural America tends to be poor America.
- ✂ '97 per capita metropolitan income = \$26,840
- ✂ '97 per capita non metro income = \$19,089
(40% lower)
- ✂ '98 Montana Average/capita income=\$20,247'
- ✂ Average Crow Income- \$4,243
- ✂ Average Northern Cheyenne Income - \$4,479

Access is linked to economics.

Rural costs are higher. Rural incomes are lower.

“If we build, will they subscribe?”

Rural Insights:

- ❖ Like everyone, rural customers want “smaller, faster, cheaper, better” service.
- ❖ Rural Challenges - existing networks; investment in new facilities; evolving technologies; customer service base

Federal High Cost Universal Service funding is critical - Funding assistance for basic service frees other funds to be used for advanced service deployment.

Universal Service

- ✿ Political, economic and social dimensions
- ✿ Participate in state proceedings/FCC proceedings
 - State Universal Service Funding and Policy (NNRI, September 1998)
- ✿ Work directly with under-served communities
 - Losing Ground Bit by Bit (Benton Foundation, 1998), www.benton.org/Library/Low-Income
 - Falling Through the Net II (NTIA, 1998) www.ntia.doc.gov/ntiahome/net2/falling.html

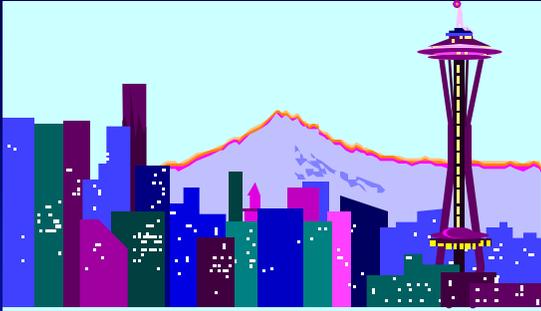
Universal service

- Multiple, overlapping factors (age, income, housing type, geography-local factors)
- Ethnicity an overlapping factor with many others
- Radios/TVs involve simple purchase of goods (possibly used). Telephone gap may persist longer because it's a more complex service transaction.
 - Jorge Schement, The Persistent Gap in Telecommunications (Penn State, unpublished)

Universal Service

- ❧ Section 254 Issues
- ❧ Upcoming Referral to Joint Board of "Definitions"
- ❧ NECA, NTCA and NTIA/RUS reports

Universal Service Support

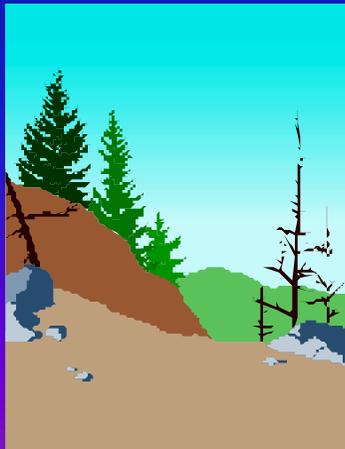


Joint FCC - State
responsibility

☎ Comparable Service

☎ Comparable Rates

☎ Urban & Rural areas

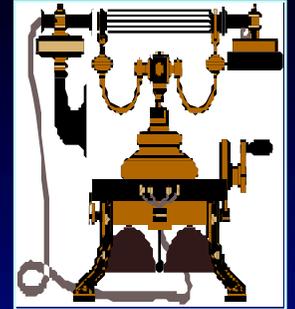


Rural Deployment of Advanced Services

S. 254(b)(3) declares that access to “advanced telecommunications and information services” in rural and high cost areas should be:

- reasonably comparable to urban services
- priced reasonably comparable to urban services and prices.
- “comparable” and “affordable” can be different.

Universal Service: "It's not just a good idea. It's the law."



- Provide affordable telephone service *and advanced service* for *all* Americans
- Through **high cost support** for telephone companies and low income assistance;
- To connect schools, libraries, & rural health care providers to global telecom network

Definition Sec. 254(c)

- ✧ Evolving level of telecom service.
- ✧ Periodic Joint Board recommendation.
- ✧ Considering extent to which
 - Essential to education, public health or safety,
 - Through the operation of market choices by customers have been subscribed to by a majority of customers,
 - are being deployed in public telecom networks by carriers,
 - and, consistent with public interest, convenience and necessity.

Keep the Promise

- ✪ **The benefits of competition and technological advances must come to rural areas and residential markets.**
- ✪ **If it takes universal service to provide prices and quality that is comparable between rural and urban areas, then **JUST DO IT.****
- ✪ **The Rural Difference is not an insurmountable obstacle.**



The Rural Difference

	Rural Carriers	Non-Rural
Access Lines	8%	92%
Land Area	38%	62%
Average 1990 Population Per Square Mile	13	105
Local MOU as % of Total Intrastate MOU	69%	85%
Access Lines Per Switch	1,254	>7,000
Average Total Plant Investment Per Loop	>\$5,000	<\$3,000
Average Plant Specific Expense Per Loop	\$180	\$97

RURAL TASK FORCE

Key Choices

❖ Recommended Mechanism for Sizing Fund

- **Current Non-rural Support Mechanism**
- **Modified Non-rural Mechanisms**
- **Current Rural Support Mechanism**
- **Modification of Current Rural Support Mechanism**
- **Others Considered**

Overview of Criteria

☞ **Model structure**

- Comparison to FCC initial model criteria
- Realistic network modeled
- Consistency between structure and inputs

☞ **Model inputs**

- Sufficient variability to reflect individual company circumstances

☞ **Model outputs**

- Reasonable comparability to actual results, where appropriate

☞ **Model results**

- Test of reasonableness

DENSITY / DEMAND

HIGH DENSITY/HIGH DEMAND

Competition/market solutions

HIGH DENSITY/LOW DEMAND

Economic & community development

LOW DENSITY/HIGH DEMAND

Universal service, aggregation,
technology

LOW DENSITY/LOW DEMAND

"Throw the book at 'em"

“Digital Divide” Issues by network layer (vertical)

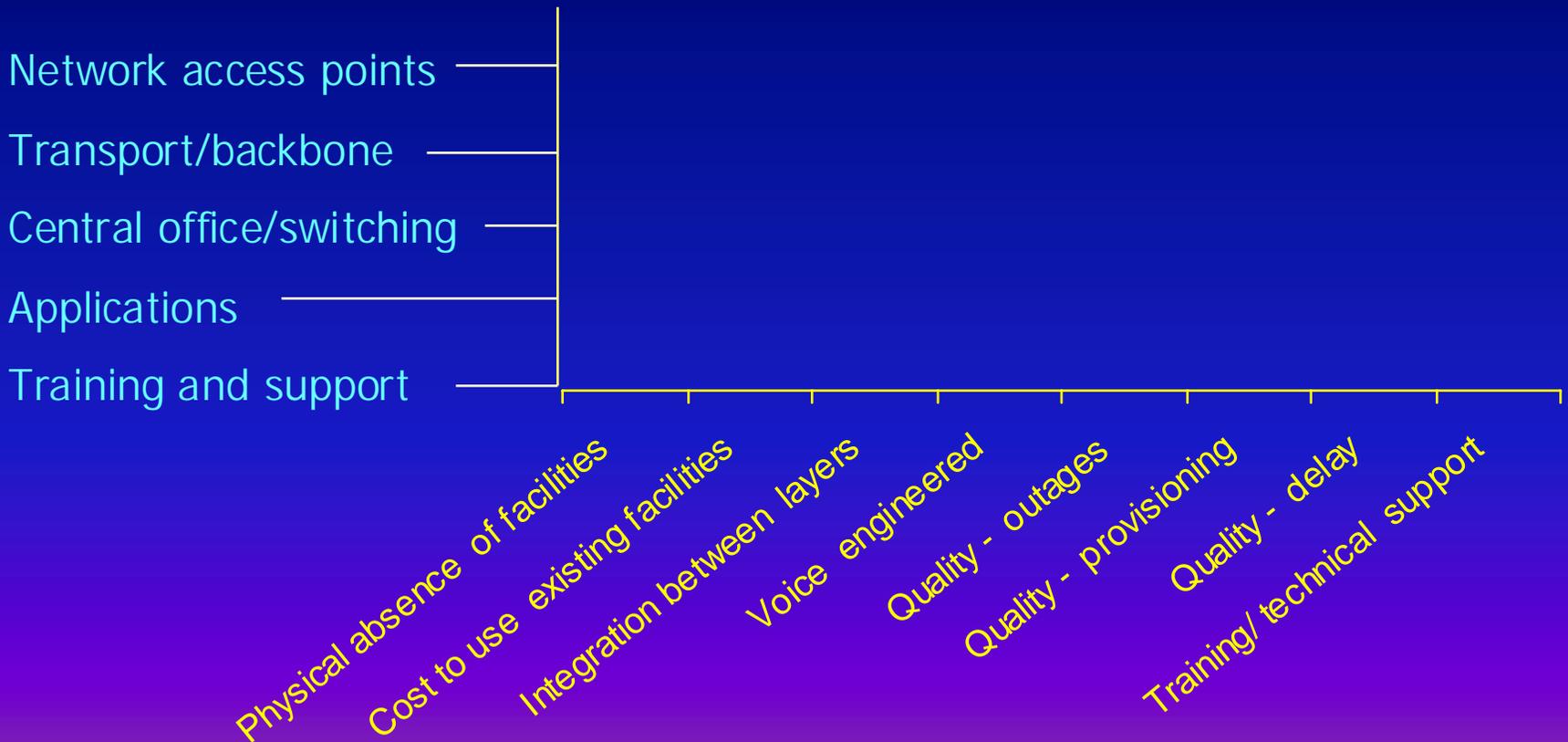
- Backbone/transport
- Switch
- Loop
- CPE
- Applications
- Human capital/support

Issues by Type (horizontal)

- No facilities (physical absence)
- Congestion/exhaustion
- Price for existing facilities
- Quality
 - Outages
 - Provisioning speed/accuracy
 - Complex order processing
 - Technical support

MULTIPLE DIGITAL DIVIDES NETWORK LAYERS AND ISSUES

NETWORK LAYER



254 and 706 compared

- Section 254 Focuses on Providing Support for Services. Section 706 Focuses on Removing Barriers to Advanced Services.
- Will All Loops Be Conditioned to Be xDSL Ready?
- Will Providers Install Backbone Access Points Beyond the Major Markets?
- Will Data Services Be Available to Everyone at Reasonable Prices in a Timely Manner?

S. 706, Subsection A:

- The FCC and states shall encourage the deployment of Advanced Telecommunications Capability:
 - reasonable and timely basis
 - to all Americans.

Section 706 - Advanced Telecommunications Capability (ATC) *is defined:*

- high-speed, switched, broadband telecom capability that enables users to:
 - ✓ originate and receive
 - ✓ high-quality telecommunications
 - ✓ using any technology: voice, data, graphics or video.
- without regard to any transmission media or technology

S. 706, Subsection B

The FCC shall initiate a notice of inquiry:

- Within 30 months of the Act.
- Regularly thereafter.
- Concerning the availability of ATC to all Americans.
- Complete the inquiry within 180 days.
- FCC '99 report generally concludes deployment is "reasonable and timely."

S. 706, Subsection B

- ✿ If the Commission's determination is negative, it shall take immediate action to:
 - accelerate deployment of such capability
 - remove barriers to infrastructure investment and
 - promote competition in the telecommunications market.

FCC's August 2000 report

- “Broadband survey” of companies serving over 250 broadband lines.
- Joint Conference field hearing results.
- Retains 200 Kbps ATC definition.
 - “High speed” - greater than 200 Kbps.
- Deployment reasonable and timely, but certain groups at risk.
 - Rural
 - Inner city
 - Low-income
 - Minority
 - Tribal areas.

FCC report - findings

- ❧ 2.8 million subs on 12-31-99.
 - 1.8 m. are res/small bus
 - 1.0 m. have speeds greater than 200 Kbps both ways.
- ❧ Penetration tripled from 0.3% at end of '98 to 1.0% end of '99.
- ❧ 875,000 cable modem (3x increase)
- ❧ 115,000 DSL (4x increase)
- ❧ 59% of zip codes (with 91% of population) have at least one high speed subscriber.
- ❧ At least one sub in only 19% of most sparsely populated zip codes.

FCC report - actions to accelerate deployment

- Ensure remote terminal access.
- Streamline ATC wireless equipment and CPE approval.
- Continue support for E-rate and determine whether more can be done.
- Consider making available more (licensed and unlicensed) spectrum.
- Open proceeding on national standard for multiple ISP access to cable plant.

Beginning in Summer '98, States urged FCC to open 706 proceeding

NARUC resolutions summarized state expertise and concerns.

Opportunity for Federal-State cooperation
706 charges both to encourage ATC development

Urged FCC-State proceeding to examine deployment of advanced services.

FCC established 706 Joint Conference - Oct 99

Objective: Speed ATC deployment

Structure: 5 FCC and 5 State Commissioners

Scope:

Examine best practices
Data gathering initiatives

States and FCC step away from the Beltway and join to take a snapshot of Americans' access to advanced services.

706 Joint Conference

Task: Where are advanced services successfully being deployed? Where are there barriers? What can we learn from one another?

Six Regional Field Hearings

Washington, DC

Anchorage, Alaska (Tacoma, WA satellite)

So. Sioux City, Nebraska

Lowell, Massachusetts

Miami, Florida

**Cheyenne, Wyoming (Bozeman, MT
satellite)**

Mountain West Regional Field Hearing

Bozeman, MT - Cheyenne, WY

- 6/21/2000 - Bozeman 6/23/2000 - Cheyenne
- Video Conferencing- Pablo, Glasgow, Billings and Cheyenne
- Field tours - Wheat Montana; Burns Center
- Special Focus:
 - Community Demand Aggregation
 - Deployment in Rural Areas
 - Deployment in Native American Areas

**Think: Anchor Tenants
Aggregation**

Rural Realities

- Advanced services often not deployed as quickly without targeted efforts.
- Rural deployment success--a cooperative effort
 - Universal service high cost funding
 - Rural Utility Service (RUS) grants/loans
 - TOP grants (TIIAP)
 - Telecom & economic development linked
 - Telecom carriers commitment to communities.

**Innovative Funding
Loans & Grants: RUS & TOP (TIIAP)**

706 Data-Base Survey & Information Bank

Web-based searchable data bank

Project descriptions

Demographics

Target users

Technology

Funding sources

Keys to success, obstacles

People helping people.

www.nrri.ohio-state.edu/broadbandsurvey.php

NECA report

- Rural broadband cost study
<http://www.neca.org/broadban.asp>
- "Seemingly contradictory results:
 - Estimated bill about \$10.9 billion.
 - Rural telephone companies respondents will have about 65% of rural lines will be broadband capable by 2002.

National Telephone Cooperative Association

• Building the Last Mile

http://www.ntca.org/leg_reg/white/dp5_.pdf

- Built infrastructure to deploy basic and advanced services
- Employ a range of technology
- Will require public commitment to reach all of rural America.

National Telephone Cooperative Association Survey (9/99)

- ☛ 412 NTCA members responded (of 500+)
- ☛ 30% or more offer ISDN, DSL or fractional T1 in at least parts of their marketplace.
- ☛ What would help deployment?
 - Universal service support - 60%.
 - Low cost loans - 24%
 - Rural-oriented technical standards- 32%
- ☛ 97% offer dial-up Internet, up to 56k speed.
- ☛ 81% offer Internet to over 75% of their marketplace.
- ☛ Less than 20% of potential customers take dial-up Internet, and less than 1% take wide-band.

NTIA/RUS report

- Advanced Telecoms in Rural America
<http://www.ntia.doc.gov/reports/ruralbb42600.pdf>
- Responds to Admin/Congressional requests.
- Conclusions -
 - Backbone deployment generally good,
 - Loop deployment lags in rural areas,
 - Most emphasis on CATV and DSL.

NTIA/RUS report - cont

• Recommends -

- Continue competition policies,
- Develop alternative technologies,
- Review universal service definition,
- Explore new funding sources.

Resources

- ✿ **706 Site (www.fcc.gov/jointconference)**
- ✿ **RUS (www.usda.gov/rus/telephone)**
- ✿ **TOP grants (TIIAP)
(<http://www.ntia.doc.gov/otiahome>)**

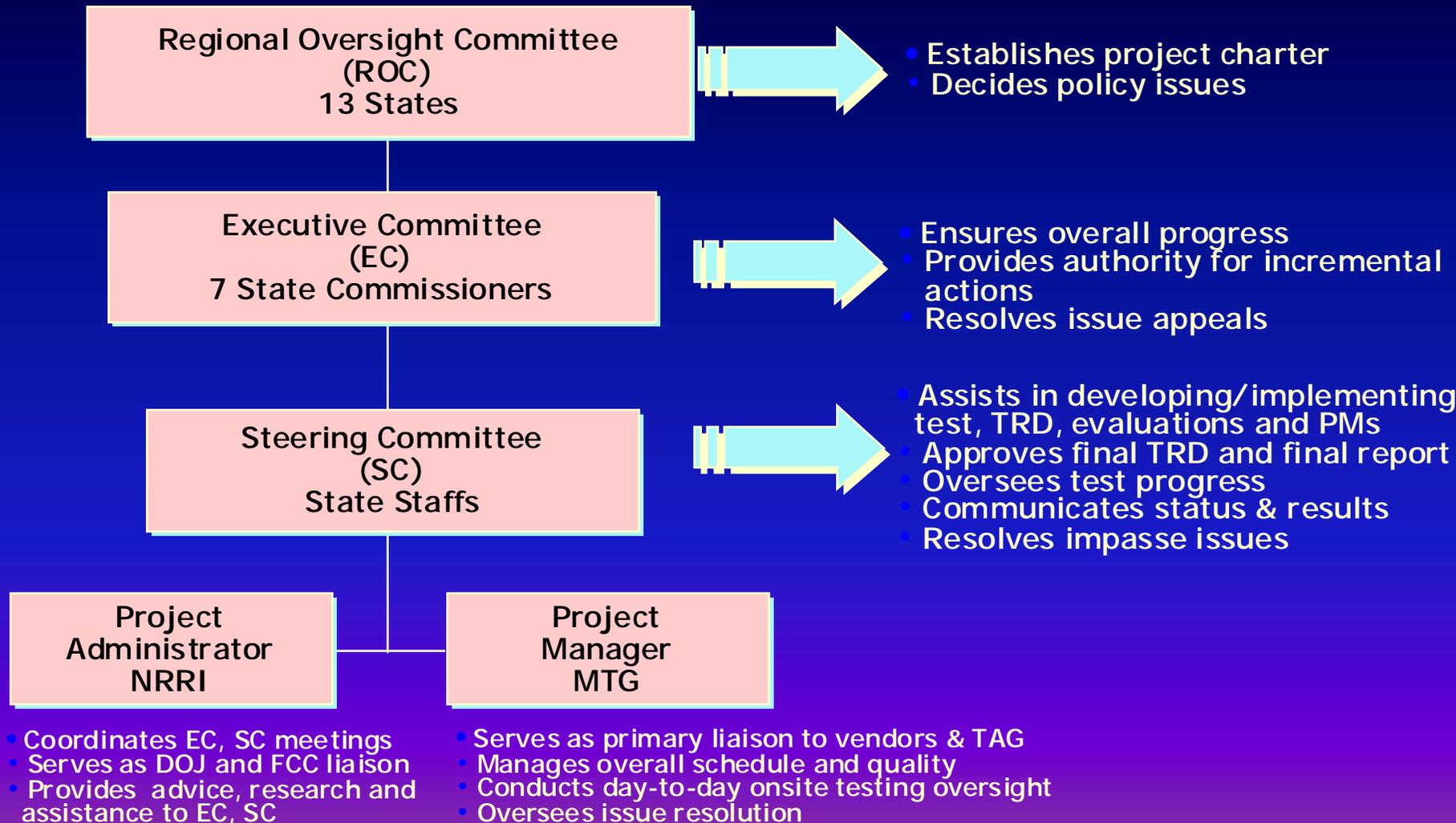
Promote workable competition

- Balanced approach to wholesale-level issues, focusing on end-benefit to customer.
 - Interconnection terms and pricing.
 - Section 271 review (BOC in-region long distance) - checklist compliance plus “public interest.”
 - Wholesale service quality, OSS, specific tariff cases.
 - “Enforcement.”
- Mergers and acquisitions.
 - Only rates and service, or market effects as well?

Regional Oversight Committee for Qwest – OSS Collaborative?

- Open, web-based process, with list-serve, conference calls and in-person workshops
- <http://www.nrri.ohio-state.edu/oss.htm>
- Structure
 - Executive committee (commissioners)
 - Steering committee (state staff)
 - Technical Advisory Group (TAG) including U S WEST, CLECs, consumers.

ROC Testing Organization



ITTI 2000

