

February 21, 2019

Why Broadband Infrastructure is Essential for a Strong Rural Economy

Ag Outlook Forum

The Rural Electric Program Begins

- The Great Depression
- 10% of farms had electric service
- Rural Electrification Administration (REA), now Rural Utilities Service (RUS), established by Exec. Order in 1935
- Act of Congress the following year



The REA Challenge

- Made low-interest loans for rural electrification
- However – the existing utilities serving higher density areas were not interested



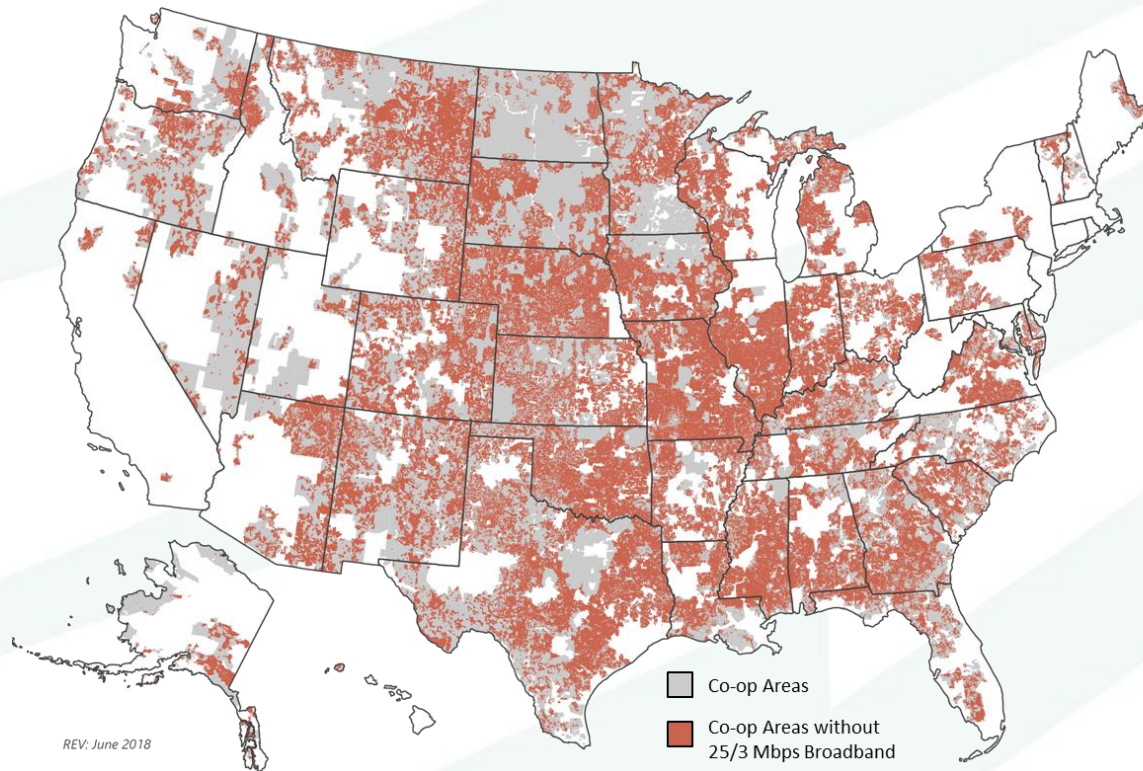
The Solution

- Help rural residents form electric cooperatives
- Farmers very comfortable with business model
- Successful public/private partnership

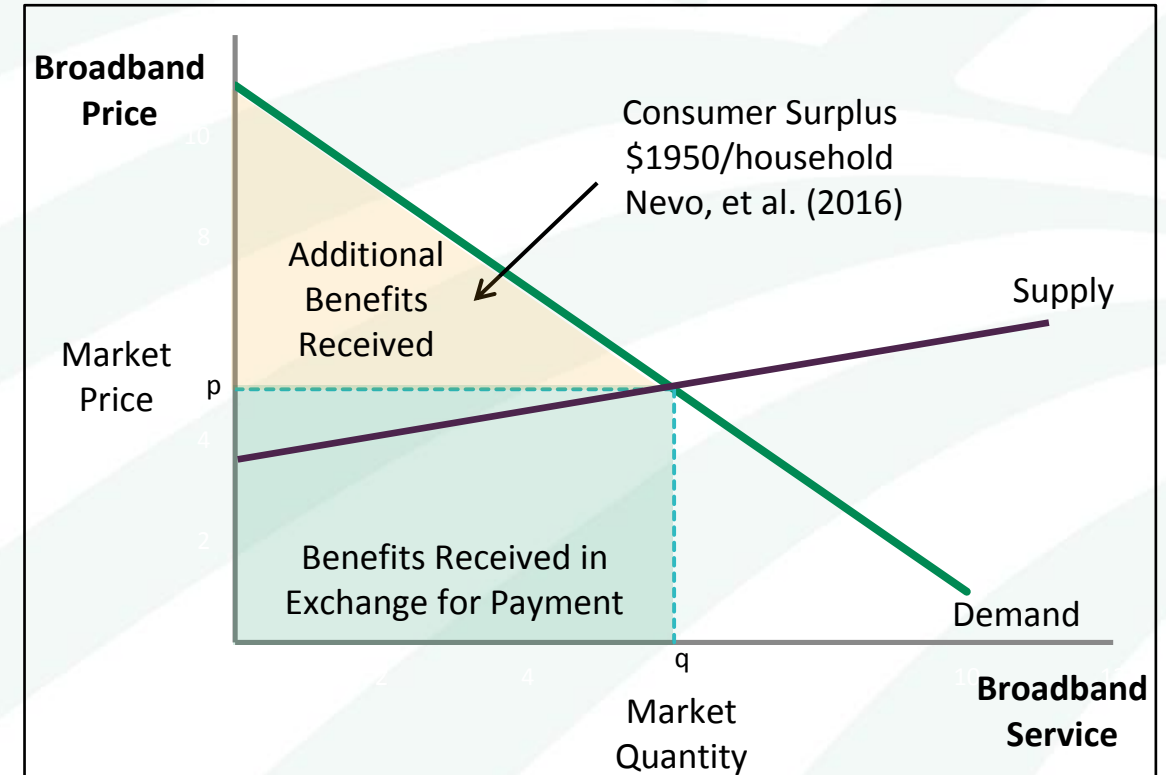


Unlocking the Value of Broadband For Electric Cooperative Communities

6.3 Million Households in Co-op Areas
Lack Access to 25/3 Mbps Service



Broadband Market – Metropolitan America



Lack of broadband in areas served by electric co-ops results in \approx \$68 billion of lost consumer value over 20 years

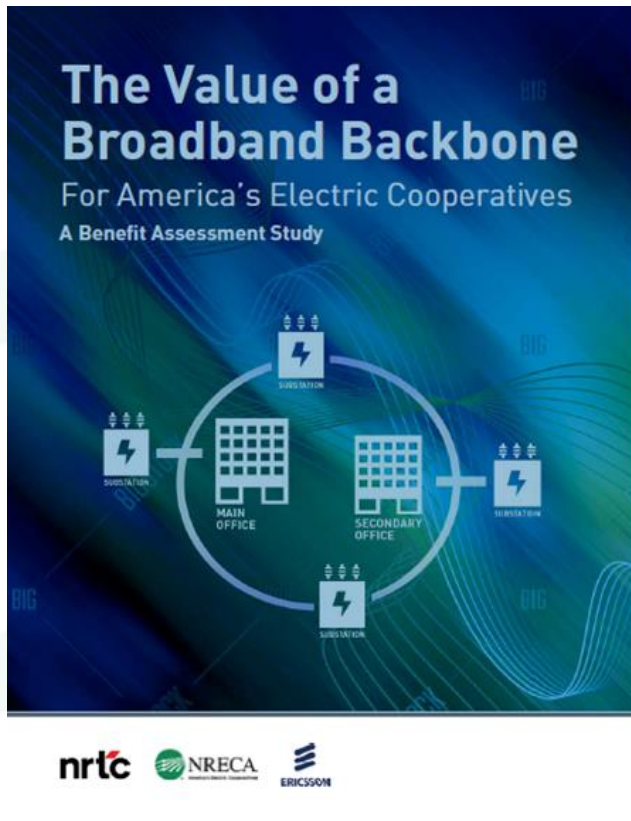
Broadband Access Provides Value

Lost Value to Electric Co-op Households: \$68 Billion (over 20 years)



Broadband Enables the Smart Grid

Digital Applications Enhance Controllability of Costs



Application	Annual Valuation per Meter (2018)
Distribution Automation	\$20-\$30
Advanced Metering Infrastructure (AMI)	\$12-\$18
Volt/Var Optimization	\$14-\$29
Demand Management	\$88-\$140
Outage Reduction	\$1-\$3
Asset Management	\$45-\$85
Distributed Energy Resources (DER)	\$1-\$3

Case Study - Roanoke Electric Cooperative

- 14,500 members in northeastern N.C.
- Build backbone to connect 12 substations to offices across 200 miles
- Planned to lease dark fiber to 3rd party internet service providers (ISPs)
- Little interest from ISPs
- Conducted successful retail pilot; formed subsidiary – Roanoke Connect
- Plans to fully deploy retail broadband and enable smart thermostats and smart water heaters



Summary

- Millions of electric co-op consumer-members lack adequate broadband service
- Lack of service limits value for consumer-members
- Electric co-ops are part of the solution
- Public/private partnerships can enable consumer-members, community, and network benefits

Questions?

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