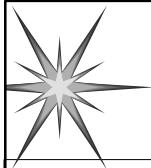
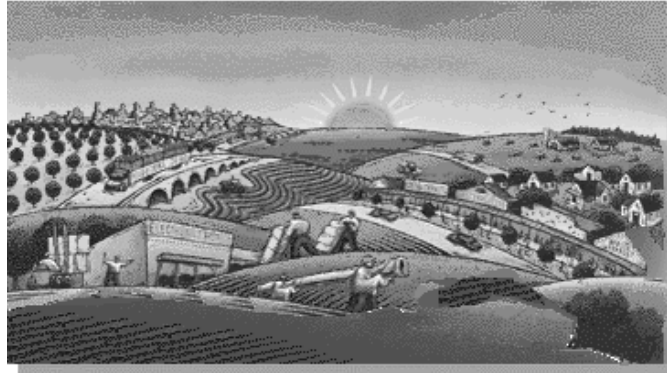
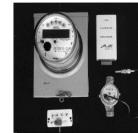


Rural Utilities Service
Serving Rural America Since 1935

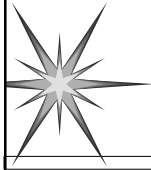


RUS Engineering Seminar
March 2000

“Review Of AMR Systems”



Charles M. Philpott
Chief, Northern Engineering Branch
Northern Regional Division

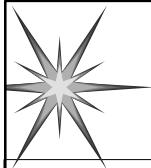


2000 AMRA Report Of AMR Installations



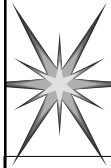
AMR Association Releases Report Of Record Plans For AMR Installations

- ◆ **Electric/GAS/Water Utilities Report Of
15 M Units For 1999-2000, Worldwide**
- ◆ **Electric Utilities Report Majority Of
Units Installed Or Planned**



Pressures Influencing Decisions To Install AMR

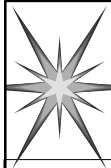
- ◆ **State Public Utility Commissions**
- ◆ **Electric Utility Deregulation**
- ◆ **Utility's Desire To Improve Services
To Its Consumers**



RUS Finances AMR - May 28, 1999 Letter To Borrowers

SUBJECT: Automated Meter Reading (AMR) Systems
TO: All RUS Electric Borrowers
FROM: Blaine D. Stockton, Jr.
Assistant Administrator
Electric Program

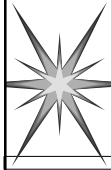
“The Rural Utilities Service (RUS) is pleased to announce that it will now finance the costs associated with the purchase and installation of AMR systems. In developing a request for financing, either as part of a loan application or the use of general funds subject to future reimbursement with RUS financing, you should work with the RUS General Field Representative (GFR) in providing the following support documentation:.....”



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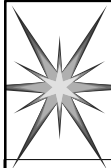
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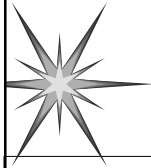
Support Documentation For RUS Financing Of AMR Projects

- ◆ **Cost/Benefit Analysis**
- ◆ **Technical Description Of AMR System,
Including Communication Medium**
- ◆ **Breakdown Of Cost Estimates Of
Major AMR Components**



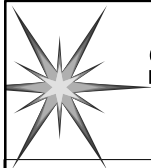
AMR Equipment In RUS's “List of Materials”

- ◆ **Some AMR Capable Watt-hour Meters
Are Presently Included Under “ga”**
- ◆ **RUS Is Proposing A Separate
Listing For AMR Capable Watt-hour
Meters**
- ◆ **RUS Is Sending Out A “Requirements
Sheet” To Meter Manufacturers**



AMR Projects Submitted To RUS

- ◆ **Since May '99, Approx. 20 AMR Projects Have Been Sent To RUS**
- ◆ **Majority Of AMR Projects Are Of One Type/One Way Communication**

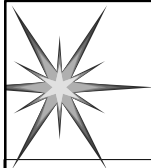
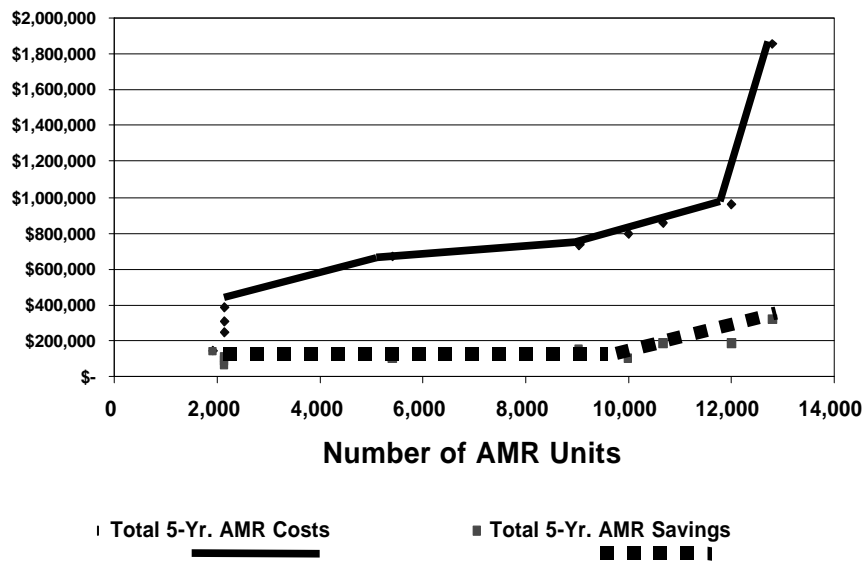


Summary Of AMR Projects Submitted to RUS

Review Of 10 AMR Projects

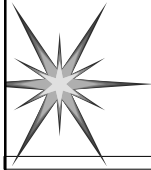
- ◆ **Smallest (2,100 units), 5 Substations
5 -Year Project Cost Est. - \$249,000**
- ◆ **Largest (12,805 units), 12 Substations
5 -Year Project Cost Est. - \$1,852,000**

Review of 10 AMR projects



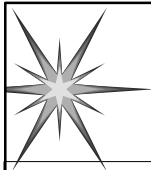
Cost Evaluation Of AMR Systems Is Critical

- ◆ Investment In AMR Is Significant
- ◆ Should Cost Out All Items Affected By The Installation Of AMR
- ◆ Develop An Annual Budget Of Costs



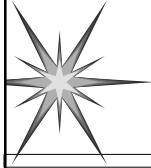
Reported Intangible Benefits Of AMR Systems

- ◆ **Improves Member Relations - No longer Requires Member's Dogs To Be Tied Up**
- ◆ **Eliminates Ruts In Member's Yard Made By Meter Reader**
- ◆ **Reduces High Bill Complaints Due To Incorrect Meter Readings**



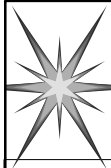
Reported Intangible Benefits Of AMR Systems (continued)

- ◆ **Reduces Member Complaints When Meter Was Not Read (Estimate Bill)**
- ◆ **Relieves Member Of Reading Own Meter**
- ◆ **Relieves Member Of Phoning In Power Outages**



Conclusions

- ◆ **AMR Offers Opportunities To The Electric Utility And Its Consumers, But At A Cost**
- ◆ **Installation Of AMR Systems Will Accelerate, As Deregulation Is Implemented**
- ◆ **The Trend In AMR Systems Will Be Toward 2-Way Communications, As Costs Come Down And Technology Advances**



Is AMR For Your Electric System ?

