

Cooperative Smart Grid Activities

IEEE PES Executive Committee

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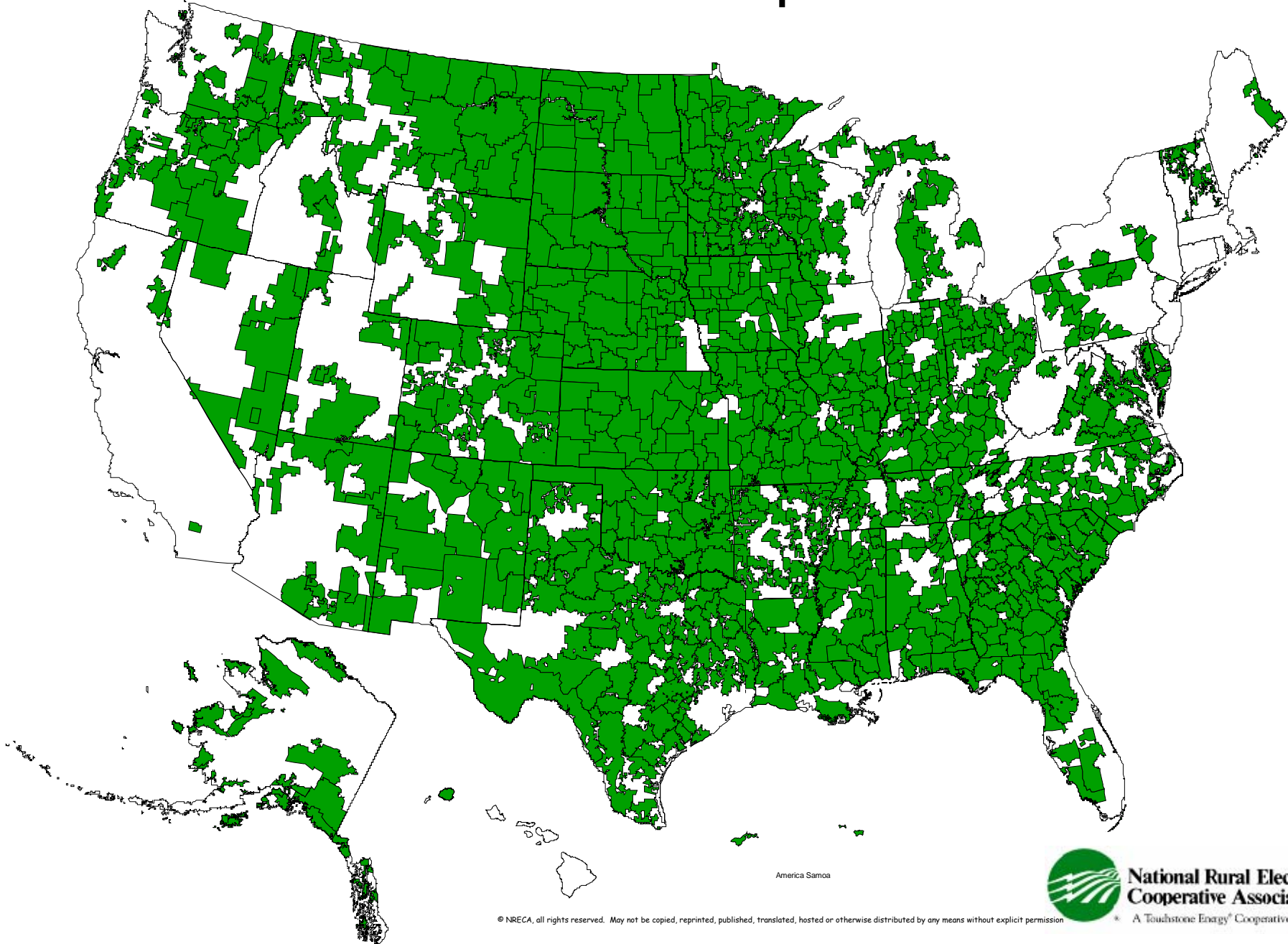
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**National Rural Electric
Cooperative Association**

A Touchstone Energy® Cooperative 

America's Electric Cooperative Network



America Samoa

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Co-op Facts and Figures

- 864 distribution and 66 G&T cooperatives serve:
- over 40 million people in 47 states.
- 17.5 million businesses, homes, schools, churches, farms, irrigation systems, and other establishments in 2,500 of 3,141 counties in the U.S.
- 12 percent of the nation's population.

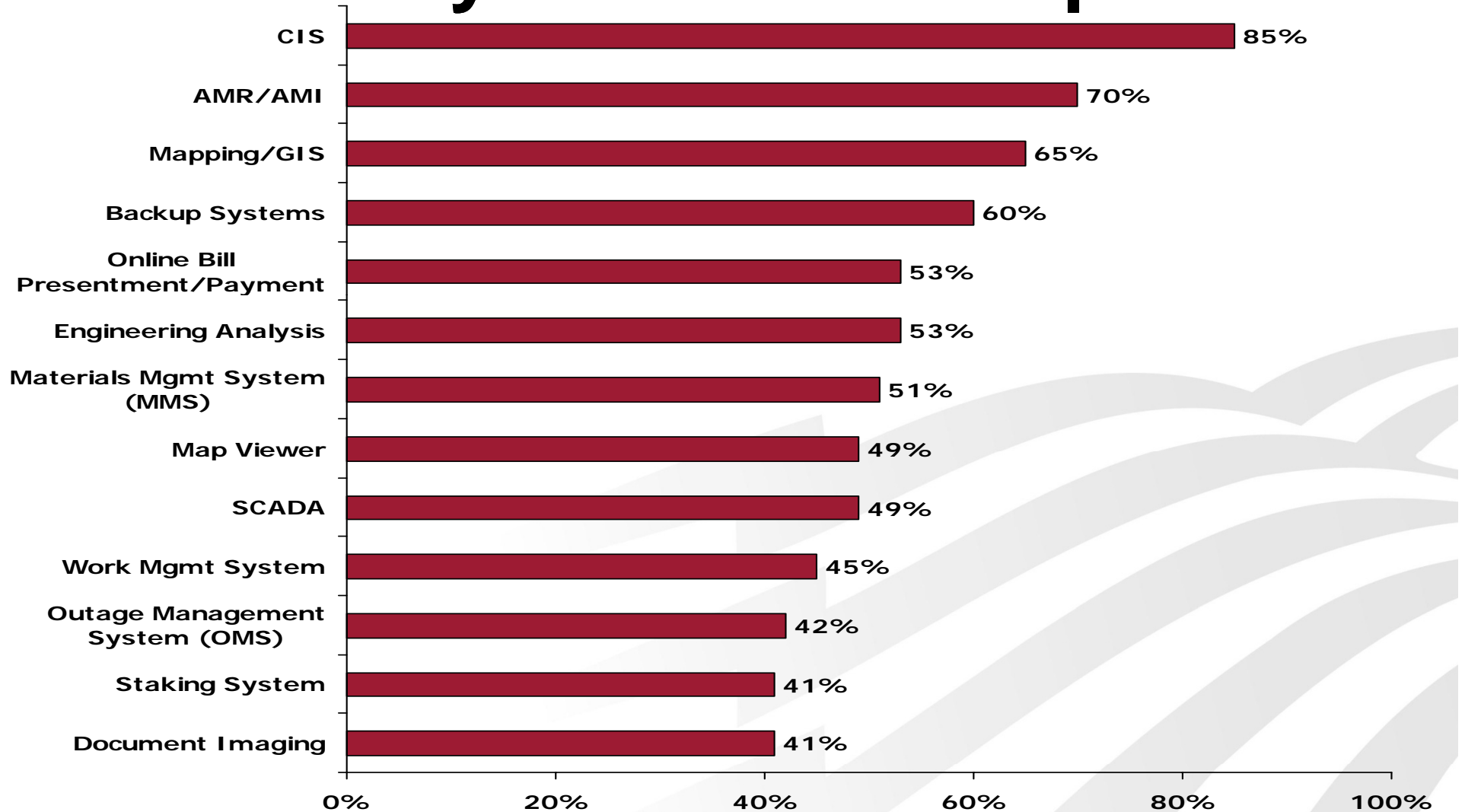
To perform their mission, electric cooperatives:

- own assets worth \$100 billion,
- own and maintain 2.5 million miles, or 42%, of the nation's electric distribution lines, covering three quarters of the nation's landmass,
- deliver 10 percent of the total kilowatt-hours sold in the U.S. each year,
- generate nearly 5 percent of the total electricity produced in the U.S. each year,
- employ 67,000 people in the United States.

The “average” distribution Cooperative:

- 12,500 customers (member/owners) –
 - 88% Residential,
 - 11% Commercial,
 - 1% Industrial
- 7 customers per mile of distribution line
- 430 MWh retail sales
- 70 Employees

Software Applications Currently In Use at Co-ops





MultiSpeak[®] Objectives

Industry-wide open initiative sponsored by the National Rural Electric Cooperative Association (NRECA) to facilitate development of software interfaces needed by electric distribution utilities

- Developed uniform interface definitions for data exchange among commonly used software
- Developed consensus among vendors about details of the interfaces, including data dictionary, data objects, and messaging framework



How to Do Integration

Three approaches:

1. Single-vendor software suite (does not facilitate “best-of-breed” purchases)
2. Custom interfaces (expensive and time consuming)
3. “Standards”-based integration (MultiSpeak)

Likely to use a combination of 1, 2 and 3



What is MultiSpeak?

- Specification for data exchange interfaces
- Treats software applications as “black boxes”
- Does not limit vendors from developing new features or working together to provide tighter integration than presently supported by spec



What MultiSpeak Does

- Defines what data need to be exchanged between common software
- Defines the structure of those data objects
- Specifies message structures and messaging architectures
- Supports real time (Web Services) and/or file-based (Sockets and SOAP) data exchanges



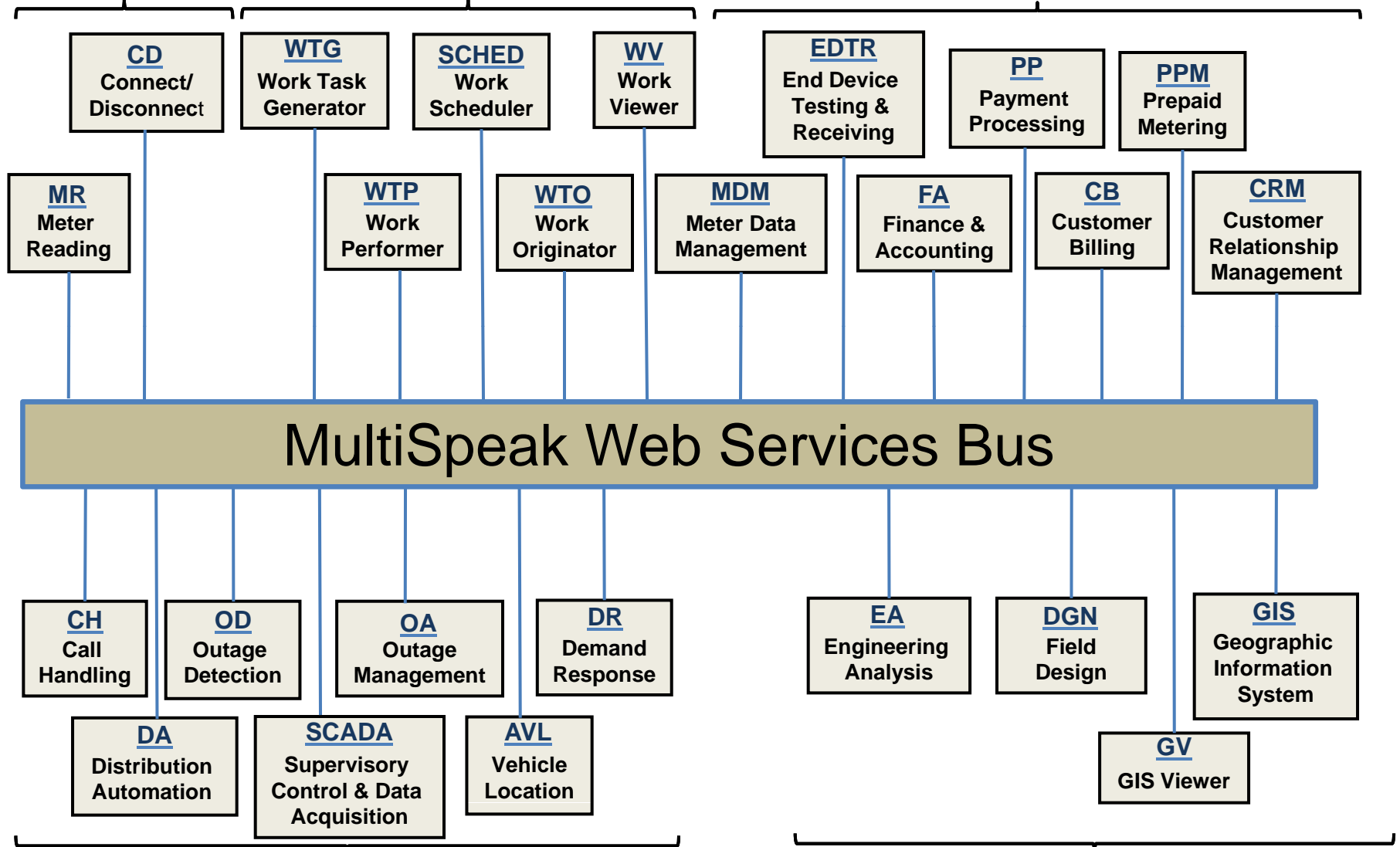
What MultiSpeak is **Not**

- Not a product, you don't buy MultiSpeak except as part of vendors' software
- Not a comprehensive utility data model
- Not the solution to all of your problems, especially if:
 - Not all of your software supports MultiSpeak
 - Your compliant software don't support all of the necessary interfaces
 - You want to send data not included in MultiSpeak
 - You have data quality problems
- Not plug and play

Distribution System Monitoring

Work Management

Business Functions External to Distribution Management



Distribution Operations

Distribution Engineering, Planning, Construction, and GIS²



New in MultiSpeak V4

- Work management interfaces.
- AVL interfaces.
- Enhanced support for water and gas metering.
- Transmission power system model exchange (including traditional MultiSpeak approach and optional IEC CIM CPSM format).
- Improved distribution power system model exchange.
- Internationalization
 - International telephone and address fields
 - Unit/value pairs with wide selection of units
 - Supports all ISO 4217 currency codes
- Support for in-home displays, home area networks, and customer-based smart grid features (Scoping has just begun, following other industry efforts)



IEC Harmonization Status

- Progress toward harmonization is continuing to be made on both sides.
- Subgroups of WG14 are reviewing MultiSpeak for possible inclusion (in part) in appropriate specification parts. Each subgroup is reviewing MultiSpeak to see if it can handle all identified IEC use cases.
- Strong interest exists in making MultiSpeak a conformance block of CIM.
- Collaboration effort has been created and proposed two sets of IEC standards:
 - IEC 61968-14-1: Mapping between MultiSpeak 4.0 and IEC 61968, parts 3 through 10
 - IEC 61968-14-2: A CIM profile for MultiSpeak 4.0, one profile for IEC 61968 parts 3 through 10



Completed Interoperability Tests (as of 3/09)

- Survalent SCADA v. 1.08.0262
- Elster EnergyAxis MAS v. 6.0.2 – Milsoft DisSPatch & Web Server v. 7.2
- Aclara (TWACS) AMR (OD) with C3-ilex SCADA (acting as OA).
- Hunt Command Center v.2.2.2 – Milsoft Windmil & Web Server v. 7.1
- Advanced Control Systems PRISM Web Service Gateway v. 1.0
- Cannon Yukon v. 3.1.17 – Milsoft DisSPatch & Web Server v. 7.1
- DCSI Optimum v. 0.1 – Milsoft WindMil, DisSPatch & Web Server v. 7.1
- Hunt Command Center v. 2.2.2 – NISC iVUE v. 1.8
- Survalent Windows SCADA v. 3.0 – Milsoft WindMil, DisSPatch & Web Server v. 7.1
- QEI TDMS Plus SCADA System v. 7.0.0 - Milsoft WindMil, DisSPatch & Web Server v. 7.2
- Exceleron PAMS v. 1.0 – Hunt Command Center v. 3.0
- Exceleron PAMS v. 1.0 – Cannon Yukon v. 3.2
- Exceleron PAMS v. 1.0 – DCSI TWACS OPTIMUM V. 1.5
- Cannon Yukon v. 3.2 – NISC OMS v. 1.7 & iVUE v. 1.8
- DCSI TWACS OPTIMUM v. 1.5 – NISC OMS v. 1.7 & iVUE v. 1.8



MultiSpeak Vendor Members

- Aclara (DCSI TWACS)
- Advanced Control Systems
- C3-Ilex
- Carina Technology, Inc.
- Central Service Association
- Clevest Solutions
- Cooper Power (Cannon Technologies)
- Cooperative Response Center
- Cornice Engineering
- Daffron
- Elster Integrated Solutions
- EnerNex
- Enspira Solutions
- EPRI
- ESRI
- Exceleron Software
- GeoNav Group
- Landis + Gyr
- Meltran, Inc.
- Milsoft
- N-Dimension Solutions
- Nexant, Inc.
- NISC
- NRTC
- Open Secure Energy Control Systems
- Open Systems International
- Oracle
- Ovace A Mamnoon
- Partner Software
- Powel
- Power Delivery Associates
- Power System Engineering (PSE)
- Professional Computer Systems
- QEI
- RMA Engineering
- SEDC
- Siemens
- SpatialNet
- Survalent Technologies
- Tantalus
- Telvent/Miner & Miner
- Trimble/UAI
- UISOL
- Wireless Matrix
- Xtensible Solutions



MultiSpeak Utility Members

(4/2009)

- Central Alabama Elec. Co-op
- Central REC, OK
- Co-Mo EC, MO
- Consumers Energy Company, MI
- Corn Belt Energy, IL
- Dakota EA, MN
- Detroit Edison Company, MI
- Duck River EMC
- Hart EMC, GA
- New Hampshire Electric Co-op
- Northern Neck EC, VA
- Oklahoma Electric Co-op
- Owen Elec. Co-op, KY
- Pioneer REC, OH
- Platte-Clay Elec. Co-op, MO
- Poudre Valley REA, CO
- Santee Elec. Co-op, SC
- Vermont Electric Co-op
- WIN Energy REMC, IN



More Information

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