The Integrated Energy and Communication Systems Architecture

Volume I:
User Guidelines and Recommendations

Appendix B:
IECSA Project Team Members

EPRI Project Manager

Joe Hughes

Cosponsor

Electricity Innovation Institute Consortium for Electric Infrastructure to Support a Digital Society (CEIDS)

EPRI • 3412 Hillview Avenue, Palo Alto, California 94304 • PO Box 10412, Palo Alto, California 94303 • USA
800.313.3774 • 650.855.2121 • askepri@epri.com • www.epri.com

DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITIES

ORGANIZATIONS THAT PREPARED THIS DOCUMENT

General Electric Company led by GE Global Research (Prime Contractor)

Significant Contributions made by
EnerNex Corporation
Hypertek
Lucent Technologies (Partner)
Systems Integration Specialists Company, Inc.
Utility Consulting International (Partner)

ORDERING INFORMATION

Requests for copies of this report should be directed to EPRI Orders and Conferences, 1355 Willow Way, Suite 278, Concord, CA 94520. Toll-free number: 800.313.3774, press 2, or internally x5379; voice: 925.609.9169; fax: 925.609.1310.

CITATIONS

This document describes research sponsored by EPRI and Electricity Innovation Institute.
The publication is a corporate document that should be cited in the literature in the following manner:
THE INTEGRATED ENERGY AND COMMUNICATION SYSTEMS ARCHITECTURE, EPRI, Palo Alto, CA and Electricity Innovation Institute, Palo Alto, CA: 2003 {Product ID Number}.

APPENDIX B – IECSA PROJECT TEAM MEMBERS

No single company could have provided the expertise to address the diverse requirements that a project the scope of IECSA entails. To supply that expertise, a world-class team of experts was assembled that brought with it extensive utility industry and standards-making experience to define the requirements and associated technical approach. Leading this team was GE Global Research, GE's corporate technology development center. In addition, partner Lucent Technologies brought experience gained developing "self-healing" and "service intelligent" network solutions to the team, and Utilities Consulting International (UCI), the third partner, has extensive experience and domain knowledge directly related to the IECSA concept including T&D, customer operations, power-market operations, and communications infrastructure. EnerNex offered proficiency in electric power system studies and analysis, utility communication and automation, systems integration, SCADA security, and technology analysis and transfer. SISCO (Systems Integration Specialists) is a world leader in providing cost-effective standards based communications and integrated solutions to the utility industry. Hypertek provided consulting and guidance as E2I's technical advisor. In addition, the team included participation and consulting from multiple GE business units: GE Power Systems Energy Consulting, GE Multilin, and GE Network Reliability Products and Services. All team members are widely recognized for their electric utility expertise, play key roles in international standards organizations, and complemented each other's experience.

General Electric Company

GE is a diversified technology, media and financial services company dedicated to creating products to improve its customers' lives. In particular, GE's involvement in the power industry is historical – dating back to Edison and it continues today to provide innovative solutions for the power industryFor the IECSA program, GE pulled experts from key businesses that serve the power industry: GE Global Research, GE Consumer & Industrial (GE Multilin), and GE Energy (GE Network Reliability Products and Services, and GE Power Systems Energy Consulting). The GE Global Research Center staff represents one of the nation's most prestigious scientific and engineering resources. The scientists and engineers at GRC provide business and technical leadership on programs including the design and implementation of real-time monitoring and diagnostics, sensor development, and control of complex systems.

GE Energy'sNetwork Reliability Products and Services (GE NRPS) offers end-to-end, modular IT network management solutions for utilities and communications companies, including management of energy, distribution, operations, engineering, network assets and real-time control.NRPS is also a leader in the automation of electrical generation, transmission, and distribution networks, with expertise in the integration of IEDs into a wide variety of utility communications. GE Power Systems Energy Consultants (GE PSEC) provided intimate knowledge of grid and generation operations. GE Consumer & Industrial's GE Multilin is a world class provider of protection, control, and monitoring devices for application in both the industrial and utility marketplace.

GE wishes to thank the following people for their efforts on the IECSA program: Program Manager Peter Sanza (Global Research), Principle Investigator Mark Adamiak (GE Multilin), Walter Dixon III (Global Research), Grant Gilchrist (GE NRPS), Jamshid Sharif-Askary (GE NRPS), Louie Powell (GE PSEC), Mike Reichard (GE PSEC), and Dr. Rui Zhou (Global Research).

Lucent

Lucent Technologies designs and delivers the systems, services and software that drive next-generation communications networks. Backed by Bell Labs research and development, Lucent uses its strengths in mobility, optical, software, data and voice networking technologies, as well as services, to create new revenue-generating opportunities for its customers, while enabling them to quickly deploy and better manage their networks. Lucent's customer base includes communications service providers, governments and enterprises worldwide. With headquarters in Murray Hill, N.J., and 32,500 employees worldwide, Lucent is a leading global supplier of communications networking equipment, holding strong

leadership positions in Internet networking infrastructure for service providers, optical networking, wireless networks and communications networking support and services.

Lucent's efforts on the IESCA program have been led by Behrokh Samadi and Y.T. Wang.

Utilities Consulting International

Utility Consulting International (UCI), of Cupertino, California provides consulting services to the utility industry for the study, design, procurement, implementation, and integration of information systems, computer-based control systems, computer network and telecommunication systems for supporting the various aspects of utility operations. These systems include those for deregulation and marketing, transmission energy management, distribution automation and management, substation automation, and distributed energy resources. UCI also has brought to bear its extensive experience in security for utility operations systems, enterprise-wide system networking and integration as well as communication protocols and standards including UCA (Utility Communication Architecture), ICCP (InterControl Center Communications Protocol), and IEC61850.

The UCI team was led by Frances Cleveland with contributions from Nokhum Markushevich and Mark Lachman

Systems Integration Specialists

SISCO focuses on international communications/integration standards and develops products to make the implementation of standards based systems feasible. SISCO has established itself as a world leader in providing cost-effective standards based communications and integration solutions. Its software is used in a wide variety of industries from electrical power transmission, distribution and generation systems to manufacturing and postal automation equipment. SISCO serves both end users and OEMs. In addition to application development, systems integration, and consulting, SISCO offers products and protocol source code for international standards, such as the Utility Communications Architecture (UCA™) per IEC61850, the Inter-control Center Communications Protocol (ICCP) per IEC60870-6 TASE.2, the Manufacturing Message Specification (MMS) per ISO9506 and Utility Integration Bus (UIB) for integrating operations applications using mainstream middleware per CIM and GID related IEC61970 standards.

SISCO's efforts were led by John Gillerman with contributions from Herb Falk.

EnerNex

EnerNex Corporation is an electric power engineering consulting firm specializing in the development and application of new electric power technologies. EnerNex provides engineering and research services, along with software solutions and customization, to electric utilities, government agencies, research institutions, and end-use customers. EnerNex's key capabilities lie in electric power system studies and analysis, utility communication and automation, systems integration, SCADA security, and technology analysis and transfer. EnerNex has a strong background in projects that address both power and communication systems and has been a strong advocate of harnessing the potential state of the art technologies to optimize both utility and customer power systems. Equipped with full understanding of the interplay between communications systems, utility transmission and distribution networks, and customer power systems, EnerNex brought expertise in consumer functions such as real time pricing, demand response, advanced metering, and power quality to the IECSA project.

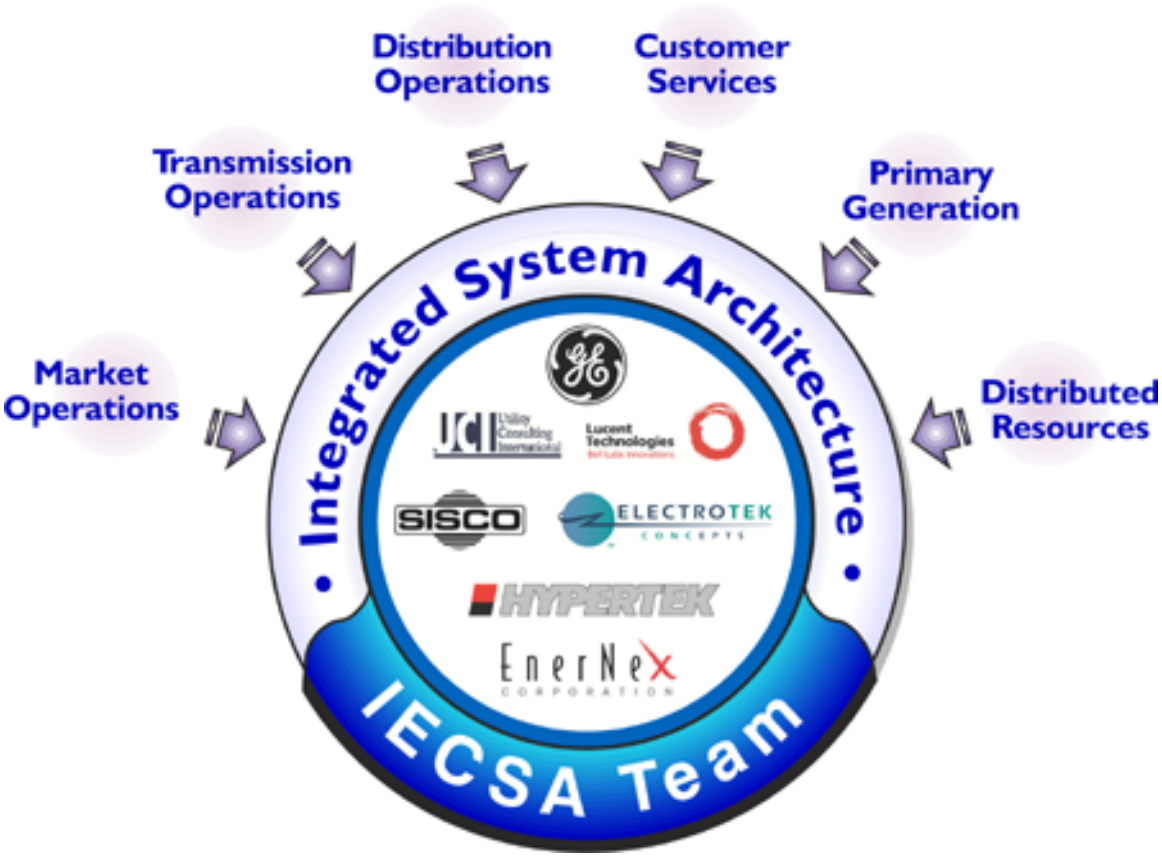
EnerNex's team was led by Erich Gunther with contributions from Jeff Lamoree, Sandy Smith, and Jack King.

Hypertek

Hypertek, Inc. is a consulting organization specializing in the development and application of technologies that principally involve the communications between applications and smart electronic devices. We seek

to maintain a workload mix of 40% research into communications standards and technical aspects of business development and 60% implementation of hardware and software tasks that use communications standards and components. Hypertek believes that this distribution of its resources maximizes the value of tools that we can bring to projects of both kinds. Hypertek brought its experience in utility communications standards (ANSI C12, UCA 2, ASHRAE) and hardware and software development to bear on this architecture project as the technical advisor to E2I's program manager. Assistance was provided in participating in the architecture development, and, reviewing and assessing documents and plans.

Hypertek's team was represented by Dr. Martin J. Burns



This page intentionally left blank.