

LANDIS+GYR INC.

Revised Comments
(Received earlier by
e-mail without attachments.)

FACSIMILE TRANSMITTAL SHEET

TO: Idaho Public Utility Commission	FROM: Kate O'Brien
COMPANY:	DATE: 8/15/2003
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PHONE NUMBER:	SENDER'S REFERENCE NUMBER:
RE: Case No. IPC-E-02-12	YOUR REFERENCE NUMBER:

URGENT FOR REVIEW PLEASE COMMENT PLEASE REPLY PLEASE RECYCLE

NOTES/COMMENTS:

To Whom It May Concern:

Please find Landis+Gyr's comments on Case No. IPC-E-02-12, Order No. 29291. If you have any question or if you would like additional information provided please contact me at kate.o'brien@us.landisgyr.com or at 765-429-1462.

Thank you,

Kate O'Brien

Proposal Coordinator

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Commission Secretary
Idaho Public Utilities Commission
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Re: Response to Questions on Idaho Power's Automated Meter Reading (AMR) Case
No. IPC-E-02-12 , Order No. 29291

Landis+Gyr is pleased to respond to the PUC's request for comments.

Our responses to your questions are listed below:

1. Should the Commission direct Idaho Power to implement AMR on it's system?

AMR should be implemented if it makes economic sense and provides value to Idaho Power's customers. Given the power fluctuations experienced in the last few years, many believe that 2-way AMR systems can be justified solely based on their demand response benefits during critical peak periods.

2. How can advanced metering technology enable Idaho Power Company and ratepayers to make the most of future 'smart grid' transmission and distribution technology?

Today's advanced metering technology invariably allows metering data to be transmitted from the host server over secured internet connections. 'Smart' grid systems can easily have access to this data via the internet or by FTP data file transfer. This will allow these systems to analyze load usage, outage info., etc. in 'real-time' at nearly all endpoints on the distribution system and make faster decisions during critical periods.

3. As part of a wise investment, what features or technology should Idaho Power employ?

Due to the diverse geography of Idaho Power's service territory, it appears to makes sense to implement a mix of AMR technologies. An RF solution could be used in the more densely populated urban areas while a PLC solution (such as the DCSI technology proposed by Idaho Power) would make more sense in the rural areas.

Landis+Gyr, in conjunction with StatSignal, has a 2-way RF solution that is ideal for urban AMR deployments. With this system, Idaho Power can essentially create an RF blanket over the urban areas that will allow them to offer advanced services, which can greatly enhance the value of the system and economics of their business case (see attached). These advanced features, such as demand response via Smart Thermostats and Discreet Load Control, will have immediate impact to Idaho Power's customers during critical peak periods. Additional features such as Remote Connect/Disconnect, Outage Management, Theft Detection, Home Security, Health Monitoring, and Home Automation provide additional benefits that will enhance the business case and add value to Idaho consumers.

The Landis+Gyr/StatSignal ADI system can utilize any WAN backbone that Idaho Power already has in place, such as a Fibre-optic loop, RF radio, microwave, etc.. This will allow Idaho Power to save on recurring airtime costs plus maintain control of the WAN backbone infrastructure.

Landis+Gyr also works with a wide variety of quality AMR solution providers, such as DCSI, Itron, Schlumberger/Cellnet, Hunt, American Innovations, etc.

4. Under what timeframe should Idaho Power implement AMR?

The 4 yr. deployment plan proposed by Idaho Power suggests going after the hardest cost of service customers first, followed by targeted urban areas. Although this strategy makes practical sense from the standpoint of meter reading costs, initial deployments over the more heavily populated urban areas provides the most impact from a demand response perspective.

5. How should Idaho Power recover the costs associated with AMR?

The pending Federal Energy Tax bill will allow accelerated depreciation of the AMR meters from 15 yrs. to 3 years. A monthly charge could also be added to customer's bills to offset the cost of the AMR system. Additional revenues could be generated by monthly fees from the sale of optional enhanced services offered to customers (e.g. home monitoring/security).

COMMERCIAL METERING TRANSPONDER FOR THE LANDIS + GYR S4® METER

DCSI's Commercial Metering Transponder (CMT) for the Landis+Gyr S4® meter provides electric utilities with a highly versatile, high performance solution for remotely acquiring billing and other strategic information about their commercial customers' usage patterns. The CMT for the S4 provides remote reading of electricity usage at both single and polyphase commercial customers with a wide selection of meter forms including under-glass 480V 3-wire delta installations. The CMT-S4 provides immediate accessibility to any of the powerful features of the S4 meter,

including reliable access to interval data for Load Profiling and to meet Real-Time metering requirements for direct-access accounts. All normal billing information, such as total consumption and peak demand, is immediately accessible.

In addition to the S4 features, the CMT provides pertinent outage data stored in non-volatile memory, to calculate customer outage indices as specified in IEEE-1366. CMT-S4 functionality is further enhanced by the ability to support system level monitoring of feeder phase voltage profiles.

Two-way power line communication combines unparalleled flexibility to read and reset the meter with proven reliability to achieve an economical, high-performance wide-area utility communication solution. The CMT-S4 is available in either a single port design or with the added functionality of a multi-port design. The three ports on the multi-port model can be used to read up to three meters (i.e., electricity, gas, and water) through a single module.

The CMT for the Landis+Gyr S4 meter is a TWACS communication module available factory-installed or as a retrofit kit. The CMT-S4 module acts as a protocol converter between the native language of the solid-state meter and the TWACS communication channel, and can collect and transmit any meter quantity data. The data is returned in less than 20 seconds, and non-billing data such as outage indices, phase voltages, currents, power factor, etc. can also be retrieved, to support remote site diagnosis, power quality and other analysis.

The TWACS CMT for the S4 can be used to collect interval billing data from all meters to yield an accurate and indisputable settlement process, as well as for supporting aggregation, combined billing and other tools of the commercial marketplace. 15-, 30-, and 60-minute interval data can be retrieved from the CMT-S4 in blocks several times a day, eliminating the need for separate recording instruments and associated costs.

Outage Indices

The CMT-S4 module has powerful built-in registers that enable timely, accurate calculation of customer "Power Distribution Reliability Indices" per IEEE Std. 1366.

Outage Detection and Restoration Mapping

The TWACS CMT-S4 supports identification and verification of outages and restoration mapping via its two-way protocol, allowing more accurate dispatch of crews and timely verification of restoration progress.

Voltage Monitoring

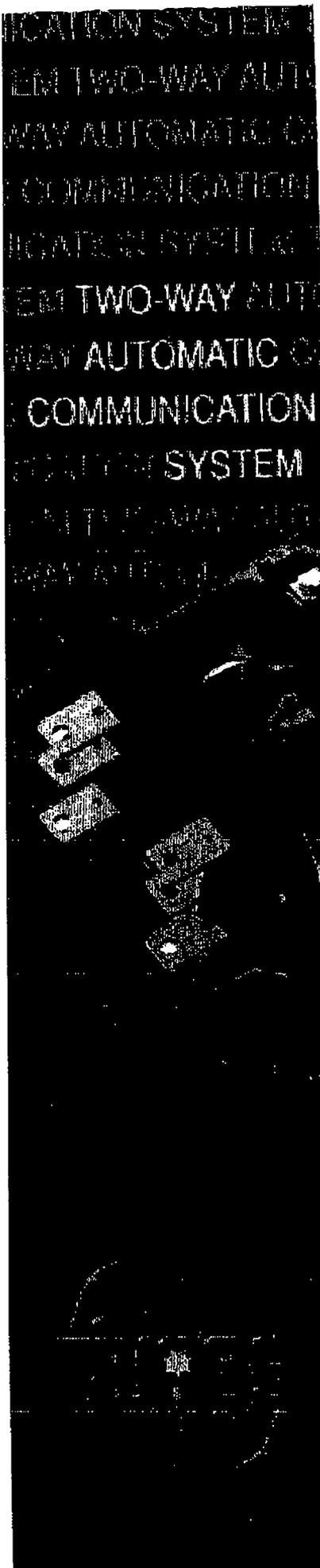
The CMT-S4 can monitor feeder voltage and support system level profiles by retrieving phase voltage measurements from the meter, enabling automatic monitoring and "field" diagnostic capabilities from the office.

Energy, On-Request and Aggregated Reads

The CMT module provides remote access to the accurate energy registers of the S4 meter. Since the CMT-S4 is always connected to the main office all billing data and any selected meter register can be read "live" usually within 30 seconds. Aggregated reads and billing are enabled through system time synchronization and integration of multiple meter inputs into a single customer/account identifier.

Time-of-Use Tariff Billing

The CMT-S4 accumulates consumption in up to five TOU "tiers" based on time of usage. TWACS is used to synchronize all system meter clocks, provide remote access to the TOU tier data and make adjustments to the TOU schedule. Data can also include peak demand values calculated separately within each TOU period.



TWO-WAY COMMUNICATION SYSTEM
 AUTOMATIC
 COMMUNICATION
 SYSTEM

COMMERCIAL METERING TRANSPONDER—S4 (CMT-VEC)

Functional Specifications	Value or Range
Line Voltage	208, 240, 277, 480 VAC ±15/-20%
Frequency	60 Hz ± 5%
Temperature Range	
With Solar Load	-40°C to +53°C
Without Solar Load	-40°C to +60°C
Storage Temperature	-40°C to +85°C (18 months max.)
Humidity	0% to 95%, non-condensing
Quiescent Power	1.7 Watts Typical, Single Port
EMI/RFI Susceptibility	ANSI C12.1-2001 Test No. 26
AC Line Surge	ANSI/IEEE C82.41-1991 per ANSI C12.1-2001 Test No. 17
Electrical Fast Transient	IEC 61000-PT4 per ANSI C12.1-2001 Test No. 25
EMI/RFI Emissions	FCC Part 15, Class B per ANSI C12.1-2001 Test No. 27
Meter Forms	Class 20: 3S, 5S/45S, 6S/36S, 8S/9S, 29S, 56S Class 200: 2S, 12S, 16S, 25S Class 320: 2SE, 12SE, 16SE Class 480: 12K, 16K, 27K
Self-Diagnostic Reporting Visual Power-up Indicator	From both CMT module and meter One cycle through meter's Alternate Display to signal CMT Diagnostic pass
Standards Approval	Measurement Canada Approved

ADDITIONAL FEATURES

Demand Billing with Remote Reset

For demand-billed accounts, both real and/or reactive demand values and times of occurrence can be remotely read. The CMT-S4 can acquire a demand reading without reset which eliminates monthly resealing of the demand-reset lever, multiple inadvertent resets, and tampering through unauthorized resets.

Flexible Read Dates

The CMT-S4 supports the rescheduling of read dates to reflect cycle changes or to meet customer needs to be read on a specific date or schedule -- without the need to visit the meter.

Tamper Detection

The CMT-S4 expands five levels of password security in the S4 to include remote monitoring of reverse power flow, "no pulses in 24 hours", and self-diagnostics. Since the TWACS CMT is in communication with the main office throughout the day, interval data can be used to determine changes in usage, an early indicator of tampering.

INSTALLATION FEATURES

Self Contained 480V 3-Wire Delta Availability

The CMT-S4 combination enables simple self-contained 480V 3-wire delta installations without the need for expensive potential transformers and associated wiring.

Wide Selection of Meter Forms

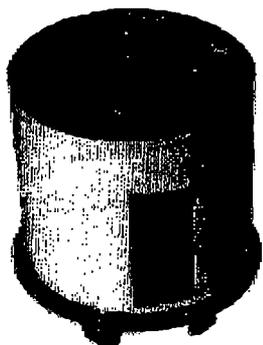
The CMT, in conjunction with the S4 meter, are available in the widest selection of meter forms yet, 208, 240, 277, 480 VAC, to fit most commercial applications.

Optional Input/Output Board

An option board is available to supply "KYZ" outputs and to receive inputs from up to two additional meters.

STANDARD FEATURES

- "Under the Glass" AMR
- No batteries required in the CMT module
- System-wide time synchronization
- Non-Volatile billing data registers
- Retrieved data stored in an Oracle relational database



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The StatSignal Solution - Overview

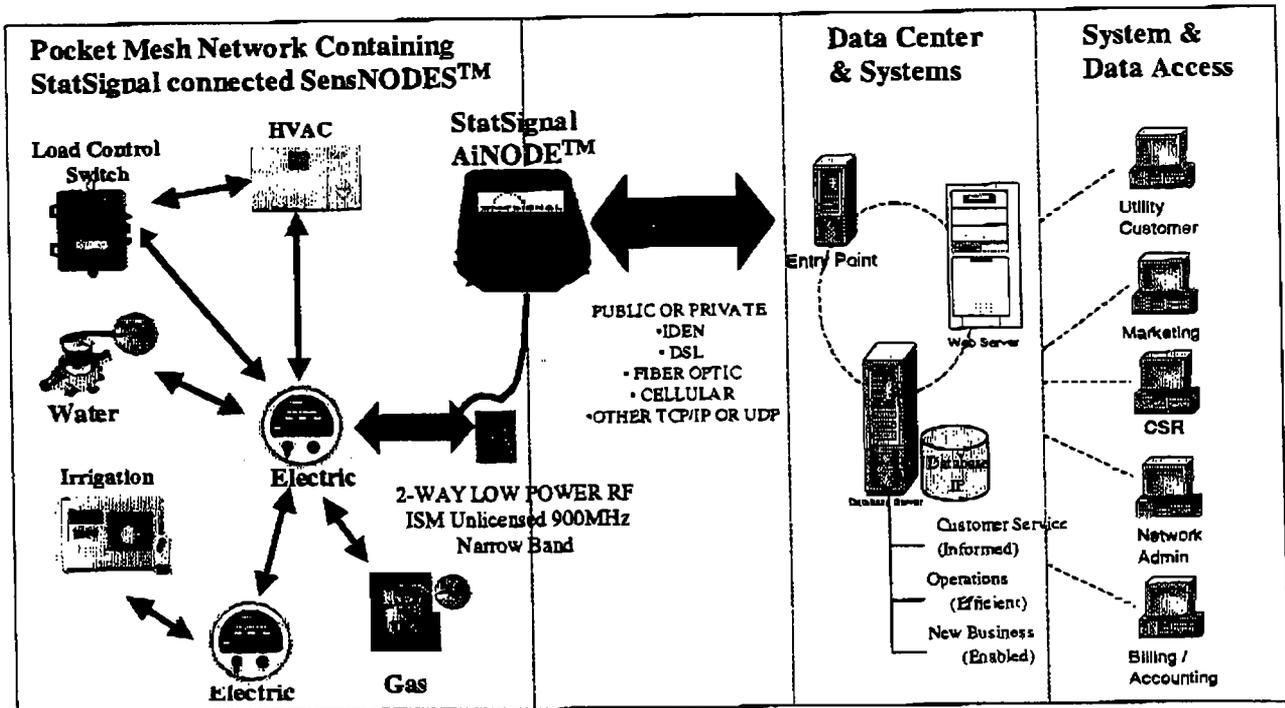
AUTOMATED METER READING GENERATES A COMPETITIVE ADVANTAGE

StatSignal is the pioneer in the field of wireless mesh networks for AMR. StatSignal's innovative approach reduces capital and operational cost and provides a solution that finally fits the business case of an electric, gas and water utility.

For many years the business case for AMR could not be justified for mass deployments. StatSignal approached the problem from a different perspective; bringing their knowledge of low cost data transmission from the banking and security industry to the metering industry. StatSignal designed the communication infrastructure based on the networking capabilities of the Internet, and engineered unnecessary cost out of their AMR solution. With their innovative approach, StatSignal has designed and developed a solution that provides for a truly flexible, scalable, and cost-effective system.

STATSIGNAL'S SOLUTION

StatSignal provides a wireless end-to-end solution for the acquisition, transportation, management and delivery of meter data, and other related data (such as load management).





StatSignal offers the utility an integrated application services support platform that is organized as shown in the above diagram:

1. The Local Area Network (LAN) – The LAN or Pocket Network, comprises SensNODES™ (such as electric meters, water meters, etc.) that communicate to and through each other in a full two-way, redundant mesh. SensNODES are enabled to move the data because they contain StatSignal's patented communications Module. The AiNODE provides a secured bridge to/from the Internet, where data or commands are forwarded to/from the Data Center and associated control applications. In future expansions, other value added services can be made AMR ready by integrating StatSignal's transceiver into the equipment to be controlled or monitored over The Internet.
2. Wide Area Network (WAN) - AiNODES form a bridge between the Pocket LAN and WAN. On the LAN side, the AiNODE communicates with and manages SensNODES such as electric meters. On the WAN side, the AiNODE communicates with the Data Center and controlling applications via TCP/IP or UDP.
3. Data Center – The Data Center manages the network, communication services, data storage and application support. Upon delivery from the AiNODE, data is stored in the database and made available to various query and control applications (such as a Utility CIS, StatSignal's Web Interface, etc.).

2.3 LOCAL AREA NETWORK

A key advantage of the StatSignal's Local Area Pocket Network is its ability to support monitoring and control applications by using two-way transceivers communicating from the meter to the utility. StatSignal's patented Pocket LAN technology enables the following processes:

- Instant reads for bill validation, move-in/move-out reads, etc.
- Remote programming and upgrades of network devices
- Send control signals and other messages to the customer or end point device
- Monthly, daily, or hourly data collection from every meter
- Inform customers of pricing
- Expansion with other services and applications for load management (e.g. electric thermostats and irrigation system controls, which, when enabled with StatSignal communications modules, provide an integrated communications system.)

StatSignal's mesh-based network significantly improves cost effectiveness over traditional hub-and-spoke wireless or power line carrier fixed network systems:

- **Reduced Network Infrastructure Cost:**

StatSignal rethought the basic architecture of wireless networks, and created a revolutionary mesh network for AMR and Smart Metering. It allows the meters or other 'StatReady' devices (SensNODES) to communicate wirelessly with very little infrastructure. Every device in the network acts as a RepNODE, relaying traffic for every other device. Traffic hops from device to device until it reaches the nearest data collection device (AiNODE), which is a secured Internet access point. StatSignal's multiple routing offers non-line-of-sight connectivity to the data collector, eliminating the



need for overlapping towers and extensive redundant system design. This model significantly improves cost effectiveness over traditional wireless or power line carrier AMR systems using expensive hierarchical or multi-tier network infrastructure.

- **Lower Installation Cost:**

StatSignal's mesh network reduces installation costs to a minimum since it operates with very little infrastructure (meters can serve as RepNODEs or routers, forming the infrastructure). Installation costs have been further minimized with the system's built-in self-initialization process. When the meter is plugged into the meter socket, it will log itself into the network and start reporting data immediately. Self-initialization will set into memory all available paths and order these paths by best signal strength. Any areas not covered by meter communications can be filled using StatSignal's pole-mounted, AC or solar-powered network RepNODEs.

- **Lower Operation and Maintenance Cost:**

Maintenance of the system is reduced by the fault tolerant communication and self-healing messaging links. The mesh network communication uses peer-to-peer messaging and intelligently routes the message via an alternate route if a communication link is compromised. Most LAN operation and maintenance tasks can be conducted remotely from the office eliminating the requirement for expensive field visits & delivering even more O&M cost-savings. Last but not the least, StatSignal's LAN software (firmware in communication modules, as well as the software in the AiNODE) is fully and remotely upgradeable from StatSignal's network. This ensures ongoing flexibility and adaptability of the systems, while continuing to eliminate the requirement for expensive field visits.

StatSignal's RF modules operate in the 900Mhz ISM unlicensed band.

2.4 THE WIDE AREA NETWORK

The Wide Area Network (WAN) consists of AiNODEs connected to a public or private network, which provide the wide area communications infrastructure. All data and commands are processed through the AiNODE. Data and commands are sent to the StatSignal ISP through the public or private network of the utility's choice.

The AiNODE is an open architecture WAN gateway capable of leveraging the various Wide Area Networks available, ensuring flexible and scalable integration with current Utility and Commercial systems. The AiNODE collects and stores meter indexes. Once a day (by default), the AiNODE forwards the meter information to the Data Center through the Wide Area Network. In the case of alarms, the AiNODE forwards immediately the event/alarm message to the Data Center and to the appropriate servers/applications.

Operational costs are minimized because the AiNODE software can be remotely upgraded. By enabling the use of multiple WAN options, StatSignal's solution provides the utility the ability to choose the most cost-effective method for each location. This option reduces the risk to the utility of technology obsolescence and price changes.

StatSignal's open architecture WAN gateway is capable of leveraging various public and private WAN's which support TCP/IP or UDP, including:

- Telephone
- Internet Cable
- DSL



- Cellular
- Fiber Optics
- Satellite
- Microwave, etc.

2.5 DATA CENTER AND UTILITY INFORMATION SYSTEM (UIS)

From the WAN, data is moved to the database where processing can take place. The data becomes available to be stored, managed or passed off directly to the utility's CIS or other system.

All information is disseminated as specified by your utility: page formatting, web page design, reports, specific data retrieval request, specific control commands issued, specific actions to be taken, security access levels, etc.

StatSignal's technology has been designed to address technology advances and upgrade needs, thereby minimizing risk associated with technology obsolescence. The open technology integrates into various communications and application systems, simplifying the resources required to interface with legacy systems, and future systems.

StatSignal's existing state-of-the-art Data Center, located near our Atlanta office, maintains all the collected information and serves as the primary information access point for Utilities. The interface to the Utility is either provided through a Web Server interface or a dedicated Application Gateway via an Open Structured Data Base system "OSDB". The Customer Service Representatives can easily use the head-end system directly or information can be fed into the legacy utility systems. This easy integration of the AMR system into the utility call center, market research and planning processes allows for more efficient operations.

Among others, our Data Center provides the following reliable and secure attributes:

- 24x7 Operation
- Built to meet UL Security Requirements
- Dedicated Network Management Software (Computer Associates)
- 3 DES encryption / Verisign Certification
- Emergency Alerts
- Full Backup, Disaster and Recovery Capabilities:
 - Redundant Data Center in Europe
 - UPS systems and diesel generators
 - Microsoft, IBM, Sun, HP, and Cisco components to insure full compliance with your systems and latest standards
- TCP/IP, and UDP protocols.

In addition to the ASP model described above, the Data Center and associated hardware/software can be made available on an 'own and operate' basis.