IDAHO POWER
An IDACORP Company

IDAHO POWER COMPANY
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BARTON L. KLINE
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May 9, 2003

Ms. Jean D. Jewell, Secretary
Idaho Public Utilities Commission
472 W. Washington Street
P.O. Box 83720
Boise, Idaho 83720-0074

Re: Case No. IPC-E-02-12
In the Matter of the Investigation of Time-of-Use Pricing for Idaho Power Residential Customers

Dear Ms. Jewell:

Among other things, Commission Order No. 29226 directs Idaho Power Company "to file the original AMR report relating to the Company's Idaho City pilot program with the Commission". Idaho Power believes a misunderstanding of the analyses performed by the Company regarding automated meter reading (AMR) exists and thus the appropriate analysis to be included as part of the record in this case was not identified in Order No. 29226. Idaho Power hopes to clear up this misunderstanding and believes the analysis herewith filed provides the desired information.

Idaho City Pilot

In 1998 Idaho Power pilot tested the installation and operation of the TWACS® power line carrier AMR system in the Idaho City area. This pilot was intended to provide to Idaho Power information on the potential viability of the technology to operate on one of the Company's longest feeders. Idaho Power did not make an application with the Commission requesting cost recovery or ratemaking treatment of any of the costs associated with this pilot. Rather, the Company met with Commission Staff to inform them of the details of the pilot so that they could respond to any inquiries they might receive from affected customers. In addition, the Company invited Staff to its offices to experience first hand the AMR process of contacting customer meters and gathering usage data. During this visit the Company informed Staff that the pilot had been successful in its sole purpose, i.e., testing the technology.

The Commission did not request that the Company file a report with the Commission detailing the results of the pilot. However, in order to minimize confusion regarding the Idaho City Pilot evidenced in Order No. 29226, the following is the write-up of the pilot results prepared for the Company's management in 1999:

In 1998 Idaho Power pilot tested the installation and operation of the TWACS® power line carrier AMR system. That test involved the installation of TWACS® substation equipment in one station bus section, 200 pilot meters supplied by DCSI, as well as a follow-on installation of 1,000 additional meters that the Company's central test facility retrofitted with TWACS® modules.

This pilot test proved that TWACS®, with reasonable accommodation and limited expansion of infrastructure, can communicate with the Asea Brown Boveri (ABB) meters-of-choice. TWACS®, zero-crossing modulated power line carrier communications is not affected by terrain, distance, or line equipment. Neither communications failure nor failed meters were experienced.

The TWACS® pilot test validated its deployability and capability to meet the Company's basic technology requirements:

- demand reset instructible meters
- ultra-high reliability

On-going changes in CIS prevented demonstration of a commodious data interface with the customer information system. Yet industry experience indicates that this will certainly be the case. TWACS®, open computing architecture uses the same file formatting as does the Itron system now in use for meter reading data delivery. The customer accounting system would see little difference from the meter data it now receives.

2002 Automated Meter Reading Analysis

Following the completion of the Idaho City Pilot in 1999, Idaho Power began a limited-purpose analysis of the costs and benefits of installing AMR technology. The purpose of the study was to gauge the overall potential benefits and costs associated with an AMR system and to provide the Company's management with the high level information needed to evaluate whether it was economic to proceed with plans for AMR

installation. In 2002 the analysis was updated to reflect the costs associated with the then current customer counts and employment levels. The 2002 analysis focused on the costs of installing an AMR infrastructure and the benefits associated with reduced O&M but did not address the treatment of the capital investment in existing meters nor did it address any costs associated with severing employment. In addition, the analysis did not identify a specific implementation time frame. This updated analysis, the 2002 Automated Meter Reading Analysis, was made available to Commission Staff in response to the First Production Request of Commission Staff and is the document referred to by Staff in its Comments in this case and by the Commission in Order No. 29226.

2003 Automated Meter Reading Analysis

Order No. 29226 also directs the Company to file a current analysis of the costs and benefits of the installation of an AMR system. This report is designated as "Automated Meter Reading Report, Idaho Power Company, May 2003" or "2003 AMR Report."

Enclosed are an original and seven (7) copies each of the 2002 Automated Meter Reading Analysis and the 2003 AMR Report. In order to maintain the confidentiality of proprietary Company information (including information that could compromise the Company's ability to successfully negotiate with AMR vendors), the Company has marked and printed the proprietary portions of the 2002 and the 2003 Automated Meter Reading Analyses on yellow paper. Idaho Power and Commission Staff have negotiated an acceptable Protective Agreement. Following Staff Counsel's signature of that Protective Agreement, I would appreciate your obtaining a signed Exhibit A to the Protective Agreement from each Commission Staff member who will be reviewing the 2002 and 2003 analyses prior to disclosing them.

I would also appreciate your taking those steps necessary to separate and store the 2002 and 2003 Automated Meter Reading Analyses in a secure location with limited access and safeguarded from unauthorized disclosure. Your cooperation in this regard is greatly appreciated.

We have also enclosed an original and seven (7) copies of a redacted version of the 2003 AMR Report and a redacted copy of the 2003 AMR Report has been mailed to Bill Eddy (Land & Water fund of the Rockies, P.O. Box 1612, Boise, ID 83701) and Dan Delurey (Executive Director, Demand Response and Advanced Metering Coalition (DRAM), P.O. Box 33957, Washington, DC 20033).

I would appreciate it if you would return a stamped copy of this transmittal letter for our files.

Very truly yours,

Barton L. Kline

BLK:jb
Enclosures

IDAHO POWER
An IDACORP Company

AUTOMATED METER READING REPORT

IDAHO POWER COMPANY

MAY 2003

Case No. IPC-E-02-12
May 9, 2003

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Appendices

Overview and Recommendation

Idaho Power Company has been monitoring and evaluating the potential costs and benefits of Automated Meter Reading (AMR) technology since the mid-1990s. Given the overall rural nature of Idaho Power's service territory, the average density of 83 customers per square mile, and the topography of southern Idaho, few AMR technologies are capable of successfully capturing and transmitting all customer usage information within our service territory. Idaho Power has identified two technologies – Fixed Radio Network and Power Line Carrier – capable of meeting our system requirements. Of these two, the Power Line Carrier (PLC) technology is the most cost-effective given the geography and customer density of Idaho Power's service territory. For this reason, Idaho Power's evaluation of AMR has focused on the PLC technology. Appendix A to this report includes a detailed comparison of the cost-effectiveness of fixed radio network and PLC technologies and provides background for Idaho Power's decision to focus on PLC.

The Company's current analysis of AMR evaluates a "plain vanilla" power line carrier technology capable of replacing the functions currently performed by existing meter reading technicians. These functions include capturing the usage information, transmitting the usage information to the Company's billing system for preparation of a monthly bill, and detecting energy theft or diversion. While this "plain vanilla" technology will provide the basis for time-variant pricing in that hourly usage can be captured and transmitted, additional investment is necessary in order to implement other than standard, or traditional, time-of-use pricing. The Company's analysis does not include any cost components associated with the additional investment which would be necessary to implement advanced pricing or other advanced AMR features. The decision to focus the Company's analysis included in this report on a "plain vanilla" AMR system is the result of discussions with Commission Staff following the Commission's Public Meeting held on March 20, 2003.

The Company's analysis has attempted to include all components of cost associated with replacing existing metering equipment with advanced metering capability. Included in these costs are such items as metering and substation equipment, employee severance costs, amortization of the undepreciated investment in the existing meters, reductions in O&M expenses related to a reduced work force, and costs specific to the identified four-year implementation plan. Some of these costs have not been previously included in any Company analysis of AMR, including the 2002 Automated Meter Reading Analysis, since the purpose of the previous analyses has been to simply provide an indication to the Company's management of the potential viability of an AMR system and did not include an implementation plan. A comparison of the cost components included in the current analysis as well as the 2002 analysis is included in Appendix B. In accordance with the Commission's directive in Order No. 29226, the Company has also submitted to the Commission the 2002 Automated Meter Reading Analysis.

The 2003 analysis performed by the Company indicates that the revenue requirement for an AMR system is significantly higher than the revenue requirement for the current

metering system for the first seven years. After seven years the revenue requirement associated with an AMR system is lower than the revenue requirement for the current meter system. However in order to properly evaluate the time value of money issues inherent when evaluating customer payments over a 40 year period, the Company used its current after tax weighted average cost of capital of 7.241% as a proxy for the cost of capital for present value calculation purposes. The average cost of money, or appropriate discount rate, actually experienced by our customers over the 40 year period could be very different from the discount rate used in the analysis. However, the Company believes the current value of 7.241% is a reasonable proxy for analysis purposes. The Company's updated analysis of AMR indicates that over a 40-year time frame, implementing an AMR system instead of maintaining the current manual system for reading meters has the potential to result in a present value revenue requirement reduction of $ 32,758,268. However, during the first six years when the yearly revenue requirement of AMR is greater than the current system, the present value of the revenue requirement would be $31,498,713 greater with an AMR system than with the current metering system. On a present value basis, the breakeven point (where the reduction in revenue requirement resulting from full implementation of an AMR system outweighs the initial increase in revenue requirement) is in year 2024. The Company believes that the many risk factors associated with a 21-year payback for a technology-based investment is too long a time period to justify recommending AMR implementation at this time. Consequently, Idaho Power does not recommend proceeding with AMR implementation at this time.

AMR System Functionality

The 2003 analysis addresses a power line carrier AMR system with the following functionality:

- Capability to collect hourly meter readings daily from a remote location.
- Remotely reads meters for computing beginning and ending bills as customers and businesses move.
- Provides two-way communications with meters connected to the power line.
- Detects and alerts Idaho Power to possible energy theft.
- Supports monthly billing of existing rates.
- Supports monthly billing of "traditional TOU rates."

Implementation Timetable

Commission Order No. 29226 directed the Company to "...set out an implementation timetable that institutes AMR first in areas Idaho Power and its customers will receive the greatest benefits." Idaho Power has identified the following implementation schedule as providing the greatest benefit. This timetable assumes a Commission Order directing Idaho Power to proceed with AMR implementation is issued in September of this year.

Beginning April 2004

Payette, McCall, Mountain Home, Hailey, Mini Cassia, areas and the minimum information infrastructure investment. (Includes Cambridge, Council, Cascade, Glenns Ferry, Ketchum, Fairfield, Oakley) **Total Cost - $20.1 Million**

2005

Twin Falls, Jerome, Gooding, COC, Emmett areas. (Includes Hagerman, Buhl, Kimberly, Hansen, Shoshone, Wendell, Bliss, Nampa, Caldwell, Horseshoe Bend, Garden Valley and Lowman) **Total Cost - $26.7 Million**

2006

Boise area. (Includes Meridian, Kuna, Idaho City) **Total Cost - $25.9 Million**

2007

Pocatello, American Falls, Blackfoot, Salmon areas. **Total Cost - $13.8 Million**

The implementation timetable shown above meets the following deployment strategies.

- A six-month lead-time is needed to initiate the project and get equipment ordered.
- Start with isolated areas that have a more favorable cost/benefit analysis, i.e. Mountain Home, McCall, Hailey.
- Start in a smaller impact area and perfect the deployment process before the full ramp up necessary to complete the Nampa, Caldwell, Meridian, Boise areas.
- Complete the deployment in contiguous areas to capture the full benefit of reduced operational costs and minimize negative impact on customer service.
- Automate operational areas where access issues (e.g., agricultural areas) are more problematic before those areas where access is less problematic.
- Spread the financial impact of this project to an approximate maximum of $25 Million per year.
- A four-year implementation plan will allow for a better transition to a reduced workforce.
- The meters removed from lower growth areas (Payette) can be reused in higher growth areas (Boise, Nampa, Meridian) until automation occurs.

2003 Analysis Results

The total initial Capital Cost for the identified four-year implementation of an AMR system is projected to be $86.5 Million. The Company calculated the yearly revenue requirement over forty years for both an AMR system and the current manual meter reading system. Table 7 in Appendix C contains the results of revenue requirement calculations for each year of the 40-year analysis. Appendix C also contains the details related to the calculation of the revenue requirement for both systems. Table 8 details the calculations for the current standard manual system and Table 9 details the calculations for the AMR system. Compared to the revenue requirement associated with the current meter system, the revenue requirement for an AMR system would be $8.2 Million higher in the first year of implementation (2004), $9.2 Million higher in Year 2 (2005), $9.1 Million higher in Year 3 (2006), $9.1 Million higher in Year 4 (2007), and $1.1 Million

Higher in Year 5 (2008). The revenue requirement for an AMR system would continue to be higher than the revenue required to support manual meter reading until 2010. The revenue requirement for an AMR system would be less than the revenue requirement for the manual meter system for the remaining 32 years of the analysis. However by 2010 our customers would have paid in excess of $37 million for the AMR system beyond what they would have paid for the current manual system.

In order to properly evaluate the time value of money issues inherent when comparing differing customer payments over a 40 year period, the Company used its current after tax weighted average cost of capital of 7.241% as a proxy for the customer's cost of capital for present value calculation purposes. The weighted average cost of money, or the discount rate, actually experienced over the 40-year period could be very different from the discount rate used in the analysis. To properly calculate the present value of the revenue requirement, we would need to determine the incremental borrowing rate (cost of money) for each customer then weight customers' borrowing rate by their relative share of total revenue requirement. This calculation of course would be next to impossible hence the use of a proxy discount rate of 7.241%. The Company's analysis of AMR indicates that over a 40 year time frame, implementing an AMR system instead of maintaining the current manual system for reading meters has the potential to result in a present value reduced revenue requirement of $ 32,758,268. However, during the four-year implementation time frame, the present value of the revenue requirement would be $30,864,220 greater with an AMR system than with the current metering system and non-discounted incremental charges to customers of $35,629,570. Even after seven years, when the yearly revenue requirement of AMR is less than the current system, the present value of the revenue requirement would be $31,498,713 greater with an AMR system than with the current metering system. On a present value basis, the breakeven point (where the reduction in revenue requirement resulting from full implementation of an AMR system outweighs the initial increase in revenue requirement) is in year 2024 or 21 years after installation.

Of course the Company does not know for certain what the true cost of money is for our customers so in order to provide some sensitivity analysis regarding the true cost of money, the Company also evaluated the present value of the yearly revenue requirement for an AMR system and for the current manual system with a discount rate of 5%, 10%, 11%, and 12%. If our customers' incremental borrowing rate were as low as 5%, the breakeven point would still be 19 years after installation. If our customers' borrowing rate were 10%, the breakeven point would be 30 years. If we discount the customer costs by 11%, the breakeven point is in year 37. Finally, if we use 12%, the breakeven point is somewhere beyond our 40 year analysis.

One method the Company has employed to actually shorten the payback time frame for an AMR system is to amortize the book value of the existing meters over the 4-year AMR installation time frame. If the existing meters were to be amortized over a longer period, the breakeven point would move out even further. For example shifting the amortization to 20 years results in an additional four years to reach breakeven or a total of 25 years. The proposed amortization schedule also matches the traditional GAAP

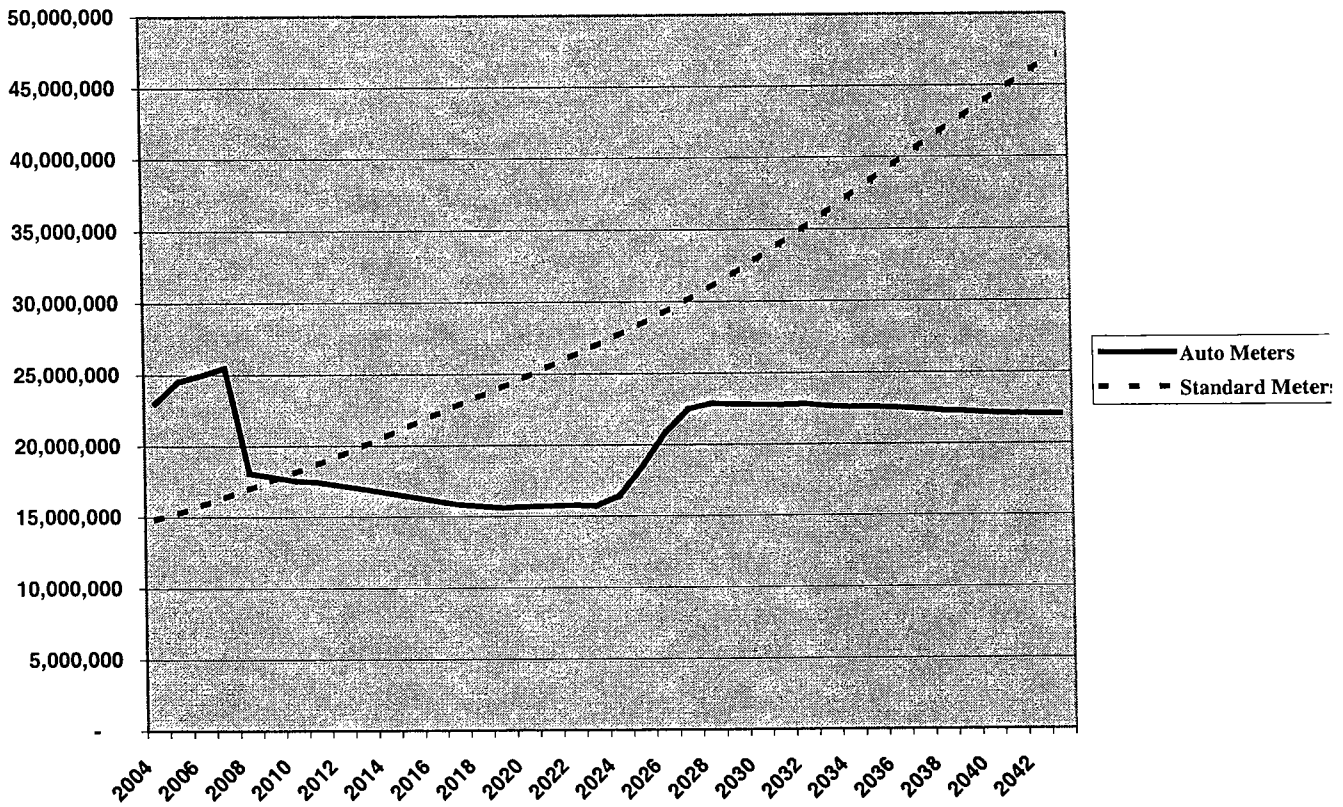
treatment for writing off equipment as it becomes obsolete or is no longer used. The existing meters would amortize out at approximately the same rate that the old meters are taken out of service. The other advantage of the amortization schedule matching the implementation schedule will be to provide a partial cash supplement to the heavy upfront cash requirements of the new AMR system.

The long-term savings of an AMR system comes from a reduction of O&M expense. The first year after the AMR system is fully installed across the Company's service territory (2008), projected O&M for the AMR system is $7.5 million less than the projected O&M for the current meter system. O&M for each year of the first six years is shown on the second page of Table 1 below. As the labor and other costs continue to escalate the gap between the O&M for an AMR system and the current meter process widens. Of course the additional cost of an AMR system over the Company's current meter process is in the financing and depreciation revenue requirement. In the first year after the AMR system is fully installed across the Company's service territory, projected financing costs and depreciation for the AMR system is $8.6 million more than the projected cost for the current meter system.

Additional details of the Company's analysis are included below and in Appendix C.

The following chart plots the revenue requirement of AMR compared to our current meter reading process over 40 years. For actual data points see the first table in Appendix C.

CHART 1: Revenue Requirement



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2003 Analysis Assumptions

The 2003 financial analysis was based on the following assumptions:

- The analysis covers a 40-year time frame.
- The meter count (i.e., number of customers) increases yearly by our current load forecast projections.
- The operation and maintenance costs (including labor) escalate yearly based on Idaho Economics' CPI forecast.
- Current productivity levels remain constant
- The present value calculations are based on Idaho Powers after-tax weighted average cost of capital of 7.241%.
- The book value of the existing manually read meters are amortized over the four-year implementation schedule in order to defray some of the cost of the implementation
- The AMR system operating costs are based upon reduced staffing levels plus other related operating costs.
- The AMR meters have a 20-year life.
- The AMR station equipment has a 15-year life.
- The transformer buss equipment has a 25-year life.
- Software and information systems have a 7-year life.
- Current meters have a 35-year life.
- All equipment is replaced at the end of its useful life.
- The price of the AMR system is expected to hold firm or decrease.
- All meter equipment replacements are at today's cost.

Advanced Features Requiring Additional Investment

The following advanced features are not included in the "plain vanilla" AMR system analyzed by the Company. These additional features would require additional investments and software upgrades in order to be implemented. In order to identify the potential costs and benefits of these additional features, as well as the specific functionality and program design which would be desired, separate analyses would need to be performed.

- Outage detection and restoration verification.
- Remote meter connect and disconnect.
- Demand management via remote load control.
- Providing energy consumption data supporting advanced pricing such as critical peak TOU pricing and real-time pricing. *

***Note:** Before advanced pricing can be attempted, additional investment will be required to upgrade the existing customer information and billing system. Also, a method for communicating price signals to customers will be needed. Both of these functionalities are separate from the AMR system.

Potential Risks

The following risks are associated with making an investment in an AMR system at this time.

- The cost of AMR technologies may decrease in cost as more deployments occur.
- The functionality of AMR may increase in the near future
- The technology selected for deployment today may become obsolete due to technological advancements prior to reaching the breakeven point in 21 years.
- The limited number of vendors providing AMR technologies and the related financial stability of vendors.
    - Both radio and PLC AMR technologies are proprietary; once a specific product is deployed, future vender competition for material and service is virtually eliminated, resulting in a single source supplier.
    - If the vendor for the deployed proprietary technology were to change the technology, discontinue support or service, or go out of business, it could have a significant impact on the utility.

Cost Recovery of AMR Investment

Idaho Power to proceed with the implementation of an AMR system, Idaho Power would recommend that standard ratemaking treatment be utilized. This treatment would include: 1) recognizing in rate base any investment in AMR equipment; 2) making known and measurable adjustments to rate base for any near term investment in AMR equipment; 3) recognizing any adjustments to O&M expenses; and 4) accelerating the depreciation on the net book investment in existing meters. In addition, Idaho Power would suggest that, depending on the timing of rate case proceedings, a separate proceeding to include in retail rates the costs of additional investment in AMR equipment as well as the decrease in O&M expenses might be appropriate. Such a proceeding was conducted in Case No. IPC-E-95-4 to include in retail rates the Company's investment in the Twin Falls and Swan Falls plants.

Recommendation

The information contained in this report supports the conclusion that investing in an AMR system is not a prudent investment at this time. The financial analyses conducted in 2002 and 2003 show that the cost of an AMR system for Idaho Power's customers is not justifiable based on the savings achieved by eliminating the costs associated with manual meter reading processes. Idaho Power customers would incur greater costs for the first six years of the project and would not breakeven until year 2024. This is longer than the life of many of the components comprising an AMR system. With such a long payback for a developing technology, one has to question whether the AMR technologies today would become obsolete before Idaho Power and its customers could realize the financial benefits.

Idaho Power recommends that the Company and the Commission continue to monitor developments in the AMR industry and conduct regular assessments to determine the appropriate time for AMR. Idaho Power believes that there is a future for AMR for our customers in the next several years. It has been that belief that has prompted the

Company to independently test AMR in Idaho City as well as conduct studies and compares the costs of AMR with the current metering process. As our meter related O&M costs increase with inflation and as the cost of this new technology becomes more affordable, while at the same time increasing in functionality, the time will be right to take advantage of AMR at Idaho Power and immediately save money for our customers.

APPENDIX A

Technology Analysis Philosophy

The methodology used to select a specific automated meter reading (AMR) technology and vendor was consistent with the following philosophy.

- The AMR system must provide automatic meter data collection from all Idaho Power Company customers. (Approximately 420,000)
- The AMR system vendor must be able to demonstrate that their product is beyond the development/testing/piloting stages and is in full-scale operation at other electric utilities.

Technology Requirements

1. The technology must be deployed at over 1,000,000 service points and with at least 200,000 service points at a single utility company. This requirement separates multiple pilot locations from full deployment. It also demonstrates large-scale integration with billing systems. Idaho Power does not want to put customer-billing processes at risk due to the deployment of an undeveloped, unproven technology.
2. The technology must be applicable to Idaho Power's billing requirements by customer class.
    a. Residential
    b. Commercial (includes small and large commercial and irrigation)
3. The technology must be applicable to Idaho Power's customer densities.
4. The technology selected must not be dependent on customer maintaining other utility services to provide the communication link to Idaho Power. If the AMR system is dependent on the customer maintaining services, such as telephone, cable, or Internet, the Idaho Power could incur significant cost in obtaining readings when the customer fails to notify the Company of changes in service status.
5. The AMR system must include the communication link for the collection of customer meter data.
6. The product must be capable of collecting and transmitting hourly consumption data to support time of use rates as well as traditional rates.
7. The AMR system must be capable of two-way communications.