



Volume 16 Issue 1

April, 2006

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It is important that we continue to have conferences and training sessions.

Sitting here for the past week trying to figure out exactly what to say in my first article as IURPA Chairman, it seems the simplest thing would be to start out by addressing what has already been a busy 2006 and will continue to be. As many of you have seen on the website IURPA is having a Revenue Protection Recovery Program Certification in Altamonte Springs/Orlando at the Hilton Hotel on March 6-8. The class will be taught by Ed Holmes, there is a limit of 50 in the class, and at this time we have had several inquiries already.

During our conference in Orlando last year the IURPA Board felt like we needed to set up this type of school for anyone that works in the recovery, prevention, or any other new problems that occur in our type of business. The IURPA Board has received many questions about the upcoming school, with the main concern being would we continue this and would it be done in other regions, the answer would simply be that we will look at what happens in March and work from there. As many regions continue to have their yearly conferences, we have found that more and more companies are willing to spend money on their employees if



Jeff Cornelius
IURPA Chairman

there is some type of certified training involved.

In May of this year it will be my honor to represent our organization at the UK National Revenue Protection Conference in Bromsgrove. There are several other conferences throughout the year, including the IURPA/NURPA joint conference in October to be held at Foxwoods Resort & Casino in Connecticut. I would ask that you check out website for details on all conferences.

When you go to the door to investigate an upside down or stolen meter at a home and the "butler" opens the door, it shows that theft has no boundaries.

I work for Peace River Electric which is a small cooperative located in Central Florida, serving about 32,000 consumers over 10 counties. Although my department deals with theft diversion on a regular basis, this is not our only function. Like many of those employed at co-operatives across the United States we are asked to do many tasks. When I speak with many of my contacts in the industry it never ceases to amaze me the amount of theft that occurs and the new methods people use to steal energy. As the internet age has made our lives easier in tracking down the perpetrators, in turn it has made their lives easier. For every way our groups are trying to protect our consumers privacy and make their information secure, others are simply stealing it for their personal gain, setting up false accounts including utilities. Many of our accounts at Peace River are considered "rural" consisting of residential and commercial locations. Like other utilities we have very affluent customers within our mix. When you go to the door to investigate an upside down or stolen meter at a home and the "butler" opens the door, it shows that theft has no boundaries.

It is important that we continue to have conferences and training sessions. Most importantly we must continue to have an open line of communication between all those involved in revenue protection. The IURPA organization is proud to offer that avenue for communication.

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IURPA VENDORS- PARTS OR PARTNERS?

By RICK GLASS • MCGUARD, ORCHARD PARK, NEW YORK

After ten years in the revenue protection and security industries, some things have become very apparent to me.

1. I do not know everything.
2. I never will know everything.
3. That's OK. Neither will anyone else.
4. It's OK to say "I don't know."

While I may not know everything, I've been around long enough to learn that the vendors actively participating in IURPA fill a crucial role- the role of Partner. Vendors can no longer expect to offer a reasonable product at a reasonable price to today's revenue protection professional with the expectation that that will be enough. More is expected of your IURPA vendors and more is delivered by them.

"Experience is a hard teacher because she gives the test first, the lesson afterwards."

Consider this. You work daily within your areas of responsibility and your geographic area to recover lost revenues and to prevent the theft of services you provide to the consumer. A lot of the decisions you make are surely based on your experience in your own area. Your IURPA vendors work every day with many revenue protection professionals from many organizations all over the world. We see many things that may be isolated, at the moment, within certain areas that you may not yet see in your area. Vernon Law once said "Experience is a hard teacher because she gives the test first, the lesson afterwards."

All of your IURPA vendors have had many of these "tests" and have learned a great deal from them. This wealth of information and experience can be very beneficial to you in structuring the policies and procedures within your revenue protection department.

So what should you look for in a vendor-partner? Please review again numbers 1 through 4 above. All vendors are different. All their products are different. The obvious answer is to find the right fit between your security requirements and the products the vendor has to offer. The not-so-obvious follow up to that is to allow that vendor to go the extra mile in developing a mutually beneficial partnership with you.

All of your IURPA vendors offer excellent products and services. Your decision may well be determined by the small things they do for you. I like to play golf, though I don't get the opportunity to as often as I would like. Let me give you a brief illustration indicating the impact the "little" things can have using the following information from last year's PGA Tour earnings.

Comparing earnings to average strokes per round, two top golf pros in 2005 posted these results:

2005 Rank: # 1	Tiger Woods
	PGA Earnings \$10,628,024
	Average Score per Round = 68.66
2005 Rank: # 10	Sergio Garcia
	PGA Earnings \$ 3,213,375
	Average Score per Round = 69.64

The number one golfer in the world last year, Tiger Woods, earned three and one-third times what number 10 earned although there was less than one stroke difference per round between them. Tiny differences in performance can produce enormous differences in results.



Rick Glass

Top pros do a little bit more in preparing. Top golfers practice daily, invest heavily in coaching, and work constantly on developing their skills. Your vendors do the same things. Although their companies and products may be very different, they all continuously work to improve their skills and seek the input of others.

To take maximum advantage of their knowledge and skills, don't think of your vendor as simply a source for parts. Think of them as, and allow them to be, your partner.

Speaking of partners, the IURPA "family" of vendors lost one of our own recently with the passing of Cliff Green. My heartfelt condolence goes out to his family and friends during this difficult time. I believe each of our lives is a gift given to us from our creator. I also believe how we live our life is the gift we give to mankind. Cliff certainly gave in many ways to so many people. For those of us who knew him, he will be greatly missed. For those who did not have the opportunity to know him, you will miss even more.

Monthly Revenue Protection Newsletter International News



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2005 MIDWEST ENERGY THEFT ASSOCIATION

By KURT W. ROUSSELL, ACTING PRESIDENT

The Midwest Energy Theft Association Conference will be held June 28-30, 2006 in Milwaukee, Wisconsin at the Clarion Hotel at the Airport. The cost of the conference is \$175 and we have negotiated a room rate of \$79 and up. Following on the heels of the 2004 META conference, a comprehensive agenda has been created encompassing traditional revenue protection issues, and new strategies to combat the variety of frauds that utilities face daily.

To plan and execute this conference, volunteers in the Revenue Protection field throughout the Midwest have stepped up to the plate. A Speaker Committee was formed with Paul Unruh of ComEd serving as Chair. The committee members include Cassandra Shearing and Kim McAllister of Alliant Energy, Charles McFadden of Columbia Gas, Tommie Gray of Ameren, Jeff Harris of Missouri Gas Energy, Cris Smith and Jeff Meyer of We Energies.

The coordination of participant registrations is a daunting task, and Jeff Harris of Missouri Gas Energy is serving as the Chairman of the Registration Committee and is receiving the assistance of Cassandra Shearing and Charles McFadden. They will ensure all registrations are processed smoothly.

Steve Diebold of American Casting and Wayne Willis of Detectent will serve as Co-Chairs of the Vendor Committee. Steve will be providing liaison with our traditional Revenue Protection vendors, while Wayne is charged with coordinating the "high tech" vendors that will be participating in the conference. These "high tech" vendors are new to the Revenue Protection field, and have expressed an interest to participate. This includes Verid, Accurint, Choicepoint, and Itron.

The agenda includes the traditional Revenue Protection topics (theft of service and tampering - both gas & electric) and cable theft, but also the new obstacles facing Revenue Protection professionals across the nation including:

- Educating law enforcement and District Attorneys on pertinent energy theft issues
- AMR & Revenue Protection
- Benchmarking Revenue Protection Programs - Tim Szalski - PA Consulting
- Investigating Identity Theft - Dennis Drazkowski, Wisconsin Department of Justice
- Creating a Collections & Litigation Group within your organization - Learn from Jodi Wire of We Energies on how to bring \$25M in the door through targeted lawsuits
- Investigating and Prosecuting Bankruptcy Fraud - Scott Campbell and Gordon Giampietro, United States Attorneys Office, Eastern District of Wisconsin, David Asbach, United States Trustee, and Susan Blish, Special Agent, Federal Bureau of Investigation
- Cable Theft and how to work together with utility companies, Gary Edman, Security Manager, Time Warner Cable
- Electric Meter Tampering - Tom Rumsey, Exelon
- Gas Meter Tampering - Charles McFadden, Columbia Gas and Jeff Harris, Missouri Gas Energy

This conference should increase the knowledge and effectiveness of Revenue Protection and Credit and Collections personnel. Please see the IURPA website for registration details. See you at the conference!



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2006 IURPA / NURPA JOINT CONFERENCE & TRAINING SEMINAR

The 2006 joint conference has been set to be held at Foxwoods Resort & Casino located in Connecticut at the Mashantucket Pequot Tribal Nation. Information on the hotel may be obtained at: <http://www.foxwoods.com>. Touted as the largest casino in the world, Foxwoods has a variety of shops, restaurants and world class entertainment. Nearby attractions include the Mashantucket Pequot Museum (free shuttle available), Mystic Seaport, Mystic Aquarium and the US Naval Submarine Base.

An agenda is currently being drawn up and will be posted as soon as it becomes available along with conference reservation information.

A golf outing is also in the process of being planned on the Tuesday before the conference for those who wish to arrive early. Information in this will be updated as soon as plans have been set.

Rates apply for the Tuesday, Wednesday & Thursday nights ONLY. Regular pricing of \$145 & \$170 will be applied for additional nights before and after the conference.

PLEASE MENTION NURPA
AT THE TIME OF REGISTRATION
TO ENSURE ROOM AVAILABILITY & PRICING
DURING THE CONFERENCE

Early registration and hotel reservations are **STRONGLY** advised as hotel reservations will be accepted until Tuesday, September 12, 2006. After that reservations will be subject to room & rate availability.

PLEASE PLAN EARLY!

You may choose to fly into Bradley Airport located in Windsor Locks, Connecticut or TF Green Airport located in Providence, Rhode Island. Car rental will be needed from Bradley. Shuttle service is available from TF Green Airport.

2006 IURPA / NURPA JOINT CONFERENCE & TRAINING SEMINAR

Date: October 18, 19 & 20
Location: Foxwoods Resort & Casino
Mashantucket, Connecticut
Hotel Rates: \$125 & \$150
Registration: \$250

Meal Package is included.
Additional Guest Meal Package: \$200

Go to www.iurpa.org for updated info.



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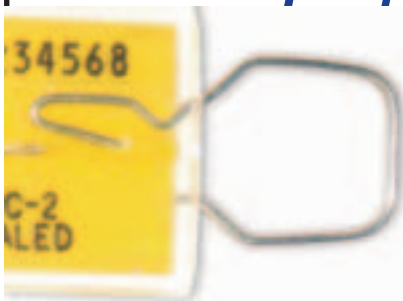
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ENERGY THEFT “AROUND THE CLOCK”

BY CRAIG BIALY • NORTHEAST UTILITIES

Some customers are more creative than others when it comes to methods of stealing energy. Solving those theft cases require equally creative methods on the part of the revenue investigator, combined with a little help from today's metering technology and sometimes, a little luck. The Northeast Utilities Revenue Protection team recently encountered one of the “creative” types that almost got away. Almost.

The initial report came in from a sharp meter mechanic who was at the location to change the meter to an AMR. Although the meter and test switch were located outdoors, the Current Transformer cabinet was located in the cellar. One of the kitchen workers let him into the cellar, where he discovered the customer's padlock installed on the CT cabinet, instead of an NU seal or lock. The mechanic went back upstairs and obtained a key from the same kitchen worker. When he unlocked the cabinet, he discovered a set of foreign wires bugged into the current circuit, using wire nuts to connect them to the current leads coming off each of the three CT's. The wires exited the CT cabinet through a wiring trough, continued into another box and then returned to the cabinet, where they were bugged back into the current wires leading to the meter. (The mechanic wasn't sure exactly what the box was, but indicated that it might be air conditioning equipment) To avoid raising suspicion, the mechanic quickly took a Polaroid snapshot of the CT cabinet, left the wires as he found them, installed a company lock on the cabinet, returned the key and left.

When we received the report in the Revenue Protection department, we tried to figure out what the customer could possibly be doing by connecting to AC equipment. Could he be altering the current angles by running the currents through a coil or a capacitor inside the AC? Interrupting current by tying into the thermostat circuit? Before we got too carried away with wild theories, we decided to install a check meter and determine what the losses were, if any. A week after installing the check meter, we visited the site at about 9:00AM (before the restaurant opened) with a laptop to extract diagnostic information from the solid state meter and compare usage to the check meter. The first thing we found was the check meter recording about 250 kWh a day more than the revenue meter! When we connected the laptop, the meter showed zero current on all three phases, despite the fact that lights were on and people were working inside. The check meter was also showing an advance when we re-read it. Over the next few weeks, several visits at different times of the day began to show a pattern - no current was being registered in the morning hours, but full load registering in the afternoon and evening hours. I began thinking that the current wires were tied into a switch or perhaps a timer, rather than AC equipment.

We reviewed the billing history for the location, but found no consumption drop during the three years since new owners took over the account. Therefore, it was possible that the previous owner had been the one who tampered with the wiring. If the new customer had no knowledge of the tam-

pering, NU would be limited to a 12 month back bill, meaning we would need a quick resolution. We decided to install a load profile meter that records 15 minute interval data, which would allow us to graph when the meter was on and off and determine whether it was the customer randomly switching the meter on and off, or a timer activating on a regular schedule. The day we changed the meter, we attempted to get to the CT cabinet, but were refused access to the cellar. The gentleman we spoke to (named Billy) insisted that he didn't have keys, he was only the cook and we would have to return when the owner was there, which would be 4 days from then.

We monitored the new meter against the check meter and found that the usage suddenly matched on the 2 meters. The customer's metered usage had more that doubled since the day we changed the meter. Load profile data extracted from the meter showed usage registering 24 hours a day. Consumption was monitored for another month and the same thing occurred. Meter and check meter matched, metered usage still more than double what it had been. Although it was now evident that the theft had stopped, we had them! We were fortunate that they had fixed whatever was wrong. Even if they hadn't tampered with the wiring originally, they obviously knew about it and we could bill them for the full three years, as well as pursuing criminal charges.

The day we arrived at the restaurant accompanied by the Connecticut State Police and the mechanic who reported the theft, we were once again greeted by Billy, who turned out to be one of the three co-owners of the restaurant. This time he was able to locate his keys, which he reluctantly used to let us in the cellar. We discovered the company lock cut off of the CT cabinet and the CT's wired correctly. Mounted on the wall, we found a three-phase timer switch set to cycle on and off every 6 hours. Wires from the timer entered an adjacent wiring trough, which ran between the timer box and the CT cabinet. After disassembling the trough, the mechanic identified the wires, which were now disconnected from the CT's and tucked back into the trough - ready to be reinstalled. After being questioned by the police, a second of the three owners provided a sworn statement indicting the previous owner of tampering with the meter wiring. He claimed he knew nothing about what had been done to the wiring - he admitted only to making a phone call after Billy refused us access at the last meter change and the previous owner came out and fixed “whatever he had done”. It was enough, however to prove he was aware of the problem and involved in getting it fixed.

As a result, NU has billed the current owners over \$26,000 and filed a criminal complaint. The State Police expect to issue arrest warrants for the current and previous owners, who will have the opportunity to fight it out in court. Depending on the outcome of that, NU may seek additional restitution from the previous owner, as well.



Craig Bialy

ANATOMY OF A BYPASS (TAP)

By MIKE TRUDELL • PROGRESS ENERGY, PINELLAS COUNTY, FLORIDA

I am a 15 year employee of Progress Energy, Florida and a veteran investigator. Previously to my employment with Progress Energy I worked as an Electrical Contractor. As an electrician throughout the years I have seen some creative and dangerous wiring in homes and businesses. It wasn't until my career path lead me to the Revenue Protection Department at Progress Energy in 1996 that I now have a true understanding of how creative some customers can be.

In June of 2005, I received a tip from an R&D cut man who reported that when he removed the meter disconnect service for nonpayment, the air conditioner continued to run. This obviously is not an uncommon thing for any electrical utility, taps are a part of life, but usually the tap is fed from the line side jaws inside the meter socket and very visible. In this case, there were no visible connections on the line side jaws. With the meter out I walked around the house and found a set of unprotected wires coming out of the eave and tie wrapped down the conduit into the pool sub-panel.

Upon further inspection, I found that the conductors ran down into the ground behind the pool filter. As I walked along a planter around the pool I noticed exposed wires above ground at approximately every 10 feet. The situation continued before finally disappearing underground near the back of the property. Now, it was time to contact the police and an underground crew.

The underground crew, after 10 minutes of searching was able to find the location where the customer had connected to our underground wires. The customer used #6 gauge stranded wire to connect to our 1/0. It turns out that the customer had connected the central a/c/heat as well as the pool pump to the tap.

Once the police arrived and having seen the evidence, made contact with the customer. He agreed to make restitution but admitted no guilt, insisting that this wiring was there when he moved in. Coincidentally this customer is an electrician. When someone ran this circuit, as an electrician, you would think he would have taken into consideration the unsafe circuit (un-fused) running across his attic. Our customers continue to amaze us.

This story is a prime example of how our system can and does often work properly. My hat is tipped to the R&D man in this case and any other field personnel throughout the industry that continue to remain observant in the completion of there daily tasks. Within Progress Energy, we receive many good tips that translate into recovery dollars. After all, that's the name of the game.

Obviously a tap of this nature is hard to detect. If the air conditioning had not been running, this tap could have gone unnoticed. This situation could have continued for years. With 1.5 million customers in Florida alone, we are not naïve. We know this type of diversion will continue to exist. My hope is that our fellow employees will continue to take ownership in attempting to safeguard the meter, which is our cash register.

This story does have a happy ending. After I calculated the load and the estimated hours of operation for the appliances involved, I came up with a dollar amount of \$4000.00 for restitution. The bill was promptly paid. Mission accomplished!

Mike Trudell is a Revenue Protection Investigator for Progress Energy Florida



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WE ARE OUR OWN WORST ENEMIES.....

BY FRANK SCALLETTA • ORLANDO UTILITIES COMMISSION, ORLANDO, FL.

.....when it comes to being victims of fraud. Identity theft, and its' related crimes (credit card fraud, check fraud, etc), is the fastest growing crime in the US. Utilities are currently the number two victim behind internet sales. There has to be a reason or reasons why these people target our industry. I believe the answer is simple. We continue to draw great big bulls eyes on our foreheads. We are all fond of blaming everything from global warming to bird flu on deregulation. But let's all agree, that's where a lot of our current problems started. As utilities positioned themselves to garner more of the market, they all attempted to make it easier for customers. Face to face transactions became a thing of the past. A vast number of utilities closed their service center doors to customers, instead relying on phone centers and the internet. We started to accept credit card payments, to make it easier for the customer. We started to accept internet and email activation orders to make it easier for the customer. We reduced or dropped required deposits to make it easier for the customer. A funny thing happened however. We made it easier for the thief. Make no mistake about it, these people are thieves. They are no different than those who choose to steal by tampering with their meters.

Unfortunately we, in Revenue and Fraud Prevention, are at the mercy of customer service types. They simply do not, or refuse, to grasp the importance of fraud prevention. A study was done several years ago at a mid sized electric utility. They learned that they were losing more to fraud than they were to traditional utility theft. The relaxation of activation policies had led to an increase of fraudulent activities and a direct increase in bad debt writeoffs. They had closed their face to face service centers and relied on a phone center only approach. At the same time they relaxed their deposit requirements and began offering deposit installments, even on high risk customers! They relied on using one of the credit agencies for credit scoring. These credit agencies use names and social security numbers for verification purposes. The amount of returned credit hits in the category of "NO MATCH" quickly rose. This is the category used when a name and social security number combination do not match. With no option of using a face to face transaction, the utility did not have many options. They chose to impose a double deposit on the prospective customer even though the supplied information could not be verified. They then offered deposit installments on this double deposit!!! After a year long study, it was then determined that over 50% of these type accounts went to bad debts, some with not even the deposit installment being collected.

We have long relied on social security numbers for identification purposes. This even though they were never intended to be used for that purpose. In fact, my card, issued in 1964 says right at the bottom "FOR SOCIAL SECURITY AND TAX PURPOSES-NOT FOR IDENTIFICATION" It is simply a grouping of 9 numbers. For years we could tell what state the card was issued in by using the first three digits. No longer. Many agencies and businesses now do not use social security numbers, and in the near future it will be illegal to do so. What are we doing about it? Not much. For example, the Social Security Administration does not issue numbers beginning with "8". It never has. I recently queried our CIS for numbers beginning with "8". I found over 250 customers. How did they pass the deposit query? It took me four days and the use of our contracted skip tracing provider to obtain correct SS#'s. I found over \$30,000.00 dollars worth of previously uncollected debts. If we had that many customers with numbers beginning with

"8", imagine how many we had with fraudulent numbers. The SSA also does not issue numbers containing only one digit, i.e. 111-11-1111, etc. I found over 500 customers in our CIS with those type numbers entered. After asking customer service why our reps were inputting these numbers, I was told that "well something has to be entered" if the customer did not have or wished not

to use their SS#!! The fact is, our CIS did not require a number be entered. It was mandatory only if the 1099 block was checked. We need to wean ourselves off the reliance to social security numbers NOW. I proposed that we use drivers license numbers. Here in Florida, our numbers contain the first letter of our last name, our year of birth, and our month and day of birth in code. It also contains whether the holder is male or female. All one has to have is the formula for validation. We have used it in our collections section with great success. Customer Service, however, is another story. They will not ask for drivers license numbers over the phone. Our face to face reps (yes we still have a service center) will however. When asked why we don't ask for DL numbers over the phone, I was told that most people know their SS#'s by heart, but their DL numbers. Of course, you can also make up a SS# which is unverifiable just by the number. It is much more difficult to make up a Florida DL number is the rep knows the formula. But heck, we have to make it easy for the customer. It is clear we need to be proactive at the activation level in order to prevent, or at least slow, the rising tide of identity theft.

When asked many years ago if we should begin to accept credit cards, my response was "Absolutely, positively NOT"!! Of course, to make it easier on the customer we began. I really don't need to get into specifics, because we all know the horrors of credit card fraud. Even with all the safeguards now in place (required billing ZIP verification, CVV number verification) credit card fraud continues to rise. Rising equally is check fraud over the internet. Think of now many checks you personally write and how many people see the information on the front of the check. Those who handle the check now have your name, address (including ZIP), routing number, and account number. In addition, they now have your phone number thanks to those who have put their phone numbers on their checks. You wouldn't believe the number of people who have taken jobs at check processing facilities only to mine information. This information is then sold to the highest bidder. We now see much more check fraud than credit card fraud.

How do we prevent these types of fraud? I believe the answer is education. It begins at the management level. Without their support, a proactive prevention program won't work. We must convince them that a solid, well thought out program, WILL work and be beneficial. It will save our good ratepayers millions of dollars. Once management is convinced, the rest will fall into place. Customer service reps should receive anti-fraud training during their initial employment initiation. Established reps should receive initial fraud training, and then all reps should receive annual refresher training. Then and only then can we even begin to combat the rising tide of utility fraud.

Frank Scalletta is a Fraud Investigator for the Orlando Utilities Commission. Frank is both the current and past President of SURPA. He is a former Police Officer and has worked in the Revenue Protection and Fraud field since 1987.



Frank Scalletta

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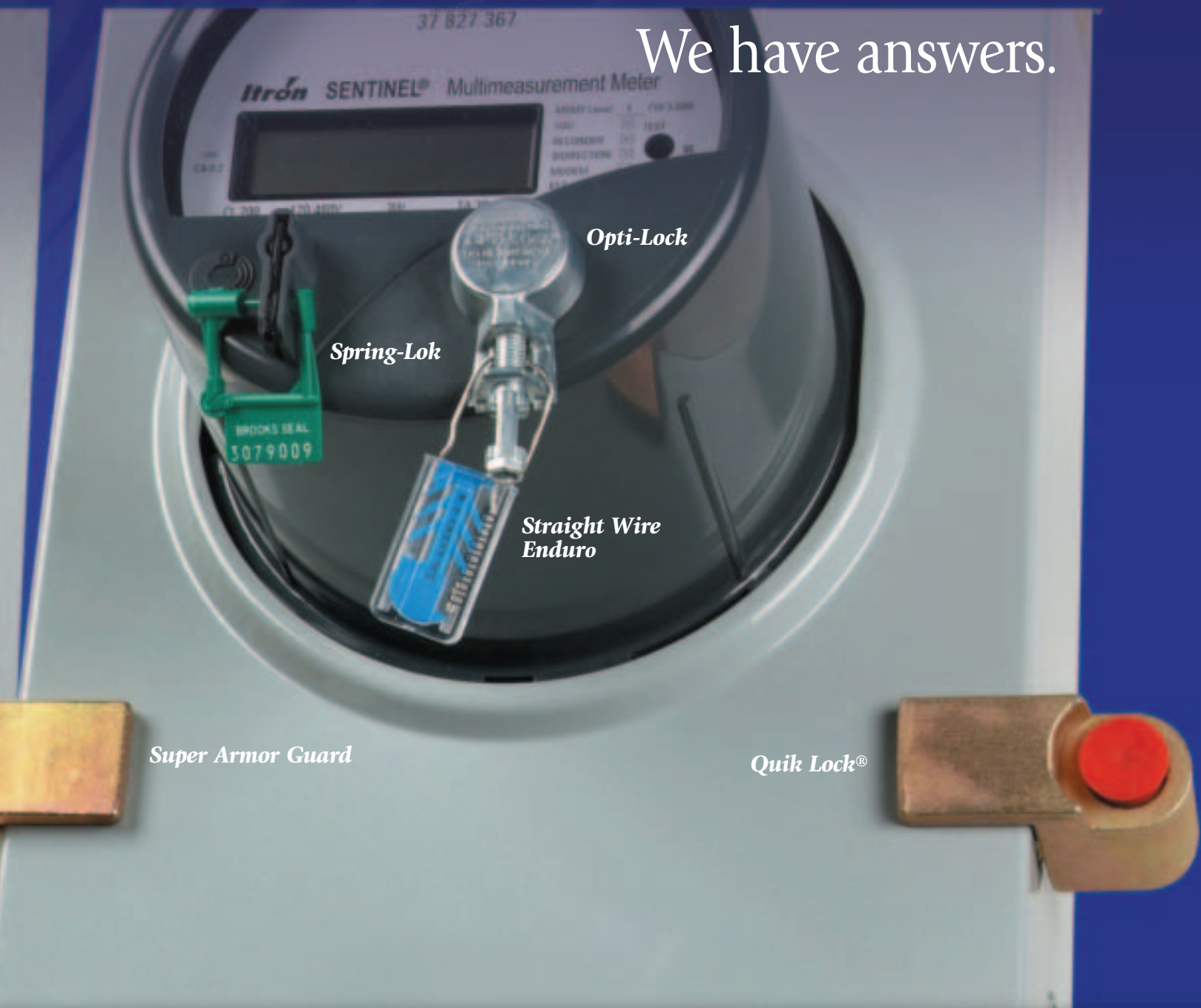
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METER READERS ARE ENCOURAGED TO DETECT NEW CASES OF UNAUTHORIZED USE OF ELECTRICITY

By ITZICK MICHAELI, AFULA REGIONAL MANAGER, ISRAEL ELECTRIC CORPORATION

One of the initial tasks of the new marketing department manager at the Israeli Electric Corporation, Mr. Israel Movshovitz, was to appoint a work team to examine ways for establishing the task of detecting unauthorized use of electricity. The team included senior regional and district company marketing managers, representatives in charge of detecting unauthorized use of electricity, members of the human resources and marketing departments.

The duties of the work team included:

- Presentation of recommended ways for increasing detection of unauthorized use of electricity among meter readers.
- Proposal to hold training sessions for meter readers to increase handling of unauthorized use of electricity and examining their effectiveness.
- Improving motivation among meter readers to reveal unauthorized use of electricity.
- Proposals to reward meter readers for the discovery of verified unauthorized use of electricity.

The work team characterized the unique problems facing meter readers in the Electricity Corporation:

- The inferior image associated with meter reading.
- Monotonous and eroding work that entailing friction with customers and increasing work load.
- Most meter readers are enlisted for temporary work periods.

The team's basic work assumption was that there is no substitute for meter readers, who are "the company's eyes in the field", and it is important to find the best way to improve their level of motivation to detect new cases of unauthorized use of electricity.

The work team held several rounds of discussions and brainstorming, and discussed various methods and means currently practiced in the various districts of the company. Two meter readers appeared before the team, one of which



Itzick Michaeli

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has detected many cases of unauthorized use of electricity; whereas the other prefers to be immersed in the current task and does not often detect cases of unauthorized use of electricity. The meter readers described their work and their motives for investing or not investing in the detection of unauthorized use of electricity.

The team's basic work assumption was that there is no substitute for meter readers, who are "the company's eyes in the field"

The team formulated an opinion, that the awareness of detecting cases of unauthorized use of electricity as a means of protecting company income, should be that of all the company workers and it is not correct to rely on the meter readers only for achieving this goal.

Among others, it was highly recommended to adopt the letter formulated and initiated by Aaron Deri, head of the unauthorized use of electricity sector in the Haifa district, "What a pity, you just lost 120 shekels". This letter was sent

to a meter reader who "missed out" on the unauthorized use of electricity on a meter that he had read at least twice during the previous year. The letter detailed the precise location of the meter with a close up picture of the meter showing the unauthorized use of electricity.

Additional recommendations by the team:

- Upgrading of the incentives given to the meter readers that frequently report verified cases of unauthorized use of electricity.
- Development of ways to increased meter reader's alertness to places where unauthorized use of electricity has taken place in the past (colored seals, warning labels).
- Issue of cameras to meter readers that excel in reporting suspicions of unauthorized use of electricity.
- Investment in training meter readers to improve their professional level on the matter and performance of control as to the effectiveness of the training.

The work team's recommendations were presented to the management of the Electricity Corporation Marketing Sector, and in additional discussion the priority of their execution will be defined.

ISRAEL ELECTRIC

What a pity – you have sacrificed \$ 30




Address: Kibutz Galuiot St.
City : Haifa
Contract number: 1367012

Dear meter reader,


This meter was read by you a few times throughout the last year. The District Revenue protection investigators exposed a metal object inserted into the meter, tampering its records. Your extra attention could have prevented this lasting tampering, creating losses for the corporation, and rewarding you with a \$ 30 incentive.

Yours faithfully,
Aaron Deri
Revenue Protection leader
Haifa District


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2005 WSUTA CONFERENCE HELD IN RENO, NEVADA

The 2005 WSUTA conference was held August 24th thru August 26th at the Silver Legacy Resort Casino in Reno, Nevada. There were 62 attendees representing utilities from California, Nevada, Arizona, Utah, Oregon, Washington, Texas, Missouri, Montana, Colorado, Idaho and Ontario, Canada and 9 vendors. It was a diverse mix of Revenue Protection professionals with years of knowledge and experience to contribute and this year's conference produced a lot of sharing of experiences and lessons learned. The agenda consisted of a safety forum presented by Wayne Wohler from Los Angeles Department of Water and Power, Establishing and Strengthening an Effective Revenue Protection Program presented by Jim Peterson from PacifiCorp, Meth Labs, Marijuana and victims rights presented by Debora Podkow from the Federal DEA, Power Theft Case Histories - Lobbying for Utility Workers and Reckless Endangerment, Working with Law Enforcement and The DA's Office presented by Jim Peterson of PacifiCorp, and Advanced Revenue Protection Investigator Certification presented by Karl Seger of Associated Corporate Consultants. It was a great conference with lots of praise to the 2005 WSUTA officers for a job well done. Thanks to all the WSUTA members who attended and contributed to the success of the conference. We look forward to the upcoming conference.

The 2006 WSUTA conference will be held August 15th thru August 18th, with early registration commencing at 4:00 pm on August 15th, at the Silver Legacy Resort Casino in Reno, Nevada. The conference agenda has not been finalized yet, but we will be looking at the comment sheets from last year's conference to try and meet the needs of the attendees. We will be asking that all attendees bring a "favorite or most memorable" case to the conference. That would include sharing pictures, evidence, etc. We have secured Bite Prevention Training from "Pets for Protection" for one of the training sessions. The training will include a hands-on demo with highly trained dogs. All hands-on participants will be protected with a full body suit and head protection. "Pets for Protection" will be offering a certificate of participation upon completion of the course. We are also planning on going off grounds to the Sierra Pacific training facility for some on site demonstrations. Tom Penny, one of our WSUTA members from Ontario, Canada will be teaming with one of his local detectives in the drug and vice unit, to share their experiences with marijuana grows. Tom sent me some pictures



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from cases in 2006 and it is incredible. George Diaz, lobbyist for Pinnacle West Capital Corp., has also agreed to give a presentation this year. This was in response to a request from last year's conference. George was instrumental in getting the presumptive evidence legislation passed in Arizona. This should give us a behind the scenes look at the political side of the business. Kirk McKeever with the City of San Diego Water Dept. will be giving us a presentation on water theft which will be very informative. We are actively seeking presenters from the AMR industry to contribute to the conference. There is much more being planned for the agenda with updates being added to our website. The WSUTA officers are looking forward to an informative conference with lots of participation and interaction with our fellow Revenue Protection professionals.

NEW RESEARCH ON TAMPER-INDICATING SEALS

By ROGER G. JOHNSTON, PH.D., CPP • LOS ALAMOS NATIONAL LABORATORY, LOS ALAMOS, NM

Introduction

This article summarizes the research findings of the Vulnerability Assessment Team (VAT) at Los Alamos National Laboratory (LANL). The VAT has extensively studied tamper-indicating seals for the past 15 years. Such seals have an important role to play in reducing revenue loss in the utility industry. Unlike locks, seals are not meant to physically deter unauthorized access, just record that it took place.

Seal Vulnerabilities

The VAT has analyzed hundreds of different seals. This includes government and commercial seals, from low-tech mechanical seals through high-tech electronic seals. The unit cost of these seals varies by a factor of 10,000.

We have demonstrated how all these seals can be defeated quickly and easily using tools, supplies, and methods readily available to almost anyone. While we have access to considerable high technology at LANL, we have not yet seen a seal that requires high-tech attacks. This is true even for seals used in nuclear applications!

(To “defeat” a seal means to attack the seal by removing it, then re-sealing using either the original seal or a counterfeit, without being detected. Merely yanking a seal off a utility meter, lock box, container, or valve, for example, does not defeat it because the fact that the seal is missing or damaged will be noted at the time of inspection.)

We have studied 244 different seals in considerable detail, plus approximately 200 additional seals in lesser detail. The discussion here focuses on the 244 most carefully studied seals, but the results are qualitatively similar for the others. Figure 1 shows the percent of the 244 seals that can be defeated in less than a given amount of time by one person, well practiced in the attack, working alone, and using only low-tech methods.

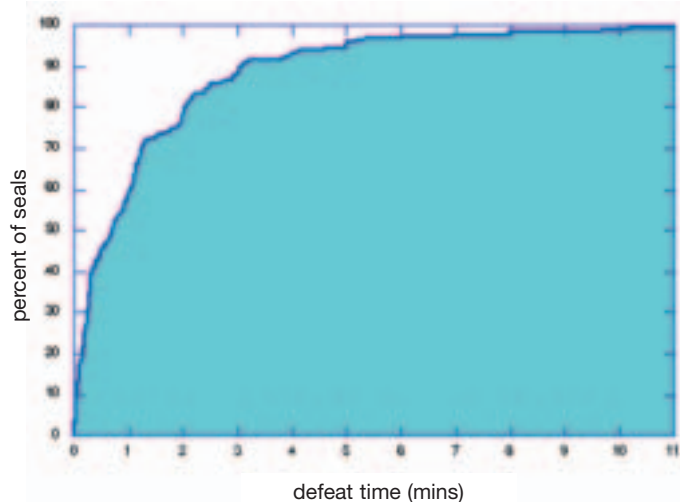


Fig 1 - Percent of seals that can be defeated in less than a given amount of time by 1 person. For some seals, an assistant would decrease the defeat times plotted here, but for others, an assistant just gets in the way.

We declared that a given seal had been defeated when the attack reliably fooled the actual field inspection procedure used for the specific application of interest. With seals for which we had no specific application and/or users, we employed an installation and inspection protocol that was recommended by the seal manufacturer. When that did not exist, we devised a protocol that we judged to be typical for seals of that type.

How did we know that an attack was successful, i.e., a defeat? For 7% of the 393 different attacks we developed, this was proven via rigorous blind or double blind tests involving the actual seal users and/or inspectors. For another 7% of the attacks, they also could not detect the attacks by examining attacked seals but the testing was more informal. For 22% of the attacks, we demonstrated the attack to the seal users and/or inspectors and they told us the attacks were viable. In 30% of the cases, a briefing on how the attacks work was sufficient to convince the seal users. For 34% of the attacks (including for seals not yet in field use), there was no available seal user or application to test against. We judged those attacks to be successful based solely on our own experience.

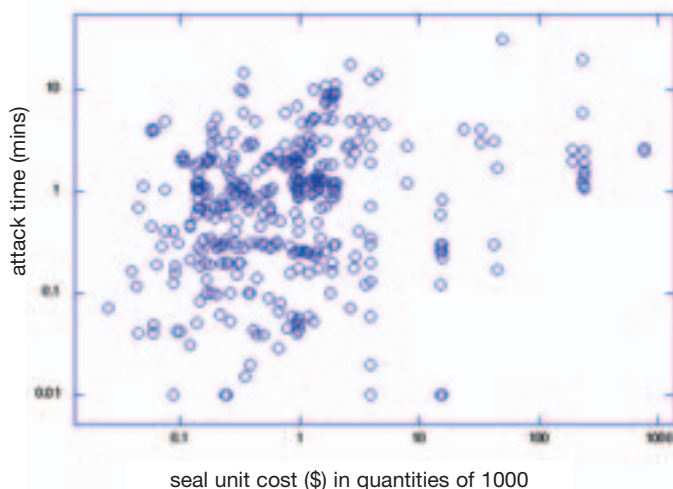


Fig 2 - Log-log plot of defeat time vs. seal cost (in quantities of 1000) for 393 different attacks on 244 seals, 1 to 8 distinct successful attacks per seal.

Figure 2 demonstrates that expensive high-tech electronic seals are not substantially better than low-cost mechanical seals—at least the way the seals are currently designed and used. Defeat time is plotted vs. seal cost. The correlation between defeat time and cost is very weak (linear correlation coefficient $r=0.10$). Moreover, adding an extra dollar per seal to the unit cost only adds 0.3 seconds to the defeat time on average.

Table 1 summarizes our findings. The average attack time for the fastest attack on each seal is 1.4 minutes, with a median value of only 43 seconds. The cost and marginal cost of the attacks are also quite low. Perhaps the most telling statistic is that we needed an average of 2.3 hours (12 mins median) to devise what ultimately proved to be a successful

attack-though it often took much longer to become proficient at the attack. In other words, these attacks are fairly obvious.

parameter	mean	median
attack time	1.4 mins	43 secs
cost of tools & supplies	\$78	\$5
marginal cost of attack	62¢	9¢
time to devise the attack	2.3 hrs	12 mins

Table 1 - Summary of the fastest attacks for 244 different seals. The mean is the average value.

The median is the midpoint-half the seals fall below that value, and half lie above it. The marginal cost of an attack is the cost to attack another seal of the same design by reusing the attack tools and supplies.

Countermeasures

60% of the attacks have simple and inexpensive countermeasures. These may involve minor modifications to the seal, but more often involve changes to the seal installation and inspection procedures. 27% of the attacks have countermeasures that are feasible, but not particularly simple or inexpensive.

In our view, effective tamper detection requires seal inspectors to fully understand the vulnerabilities associated with their application and the specific seals(s) they are using, and then look for the most likely attack scenarios. This requires effective training, multiple samples of attacked seals, and practice.

Better Seals

We also believe that much better seals are possible. Conventional seals have a fundamental design flaw. Once tampering is detected, they must store the “alarm condition” until inspection time. Adversaries, however, can too easily hide or erase the alarm condition, or replace the seal with a fresh counterfeit.

In our view, there is a much better approach: “anti-evidence” seals. With these novel seals, we store information in or on the seal when it is first installed that indicates that tampering has not yet occurred. When tampering is later detected, this “anti-evidence” information is instantly erased. There is thus nothing for an adversary to hide, erase, or counterfeit. The absence of the anti-evidence at inspection time indicates that tampering has occurred.

The VAT has developed nearly two dozen prototype anti-evidence seals, both mechanical and electronic. Some of their advantages include much better security, low cost, full reusability (even if mechanical), and the fact that no tools are needed to install or remove the seal. These anti-evidence seals also allow us to automatically verify that the seal inspector actually checked the seal, rather than just claiming to have done so.

Conclusion

For more information, contact the author or visit the VAT home page at <http://pearl1.lanl.gov/seals>.

Acknowledgements

The views expressed here are those of the author and should not necessarily be ascribed to LANL or the U.S. Department of Energy. Anthony Garcia, Jon Warner, Adam Pacheco, Ron Martinez, Leon Lopez, and Sonia Trujillo made major contributions to this work.



THE OL' WATERING HOLE

By JEFF HARRIS • MISSOURI GAS ENERGY

Welcome back to The Ol' Watering Hole everyone! Come on in and "belly up" to the bar, because we have a special "Guest Bartender" this month, and he's serving it up "Revenue Protection Style"! Say hello to David Whidden of The United Illuminating Company in New Haven Connecticut. He accepted the challenge to dust off one of those old "war stories" that we have all collected and share it with us. Take it away David.



David Whidden

All right Jeff. I'll accept your challenge. I may have been out at the restroom when it was time for the next round at "The Ol' Waterin' Hole" but I had some good reading material along. Your story gave me a good chuckle but what occurred to me is that we all probably have a rash of

similar stories. This makes it more difficult to come up with an original tale. You'd think that some of these "Mutts" could come up with more creative tampering ideas but I guess if they could make a living as rocket scientists they would. I'll have to quote a good friend and mentor on this concept, "You can't fix stupid". Thank goodness because they keep us in business and make life interesting.

I like to call this story "The Blink" and it took place about three years ago. We received an anonymous tip that one of our "Rocket Scientists" had a drill hole in his electric meter. This information came our way because young Dr. Einstein pounded down copious amounts of alcohol and then proceeded to try and convince everyone in the bar of his superior intelligence (Never heard this one before did we?). They never learn. If you're getting away with something, keep your mouth shut.

It was a beautiful spring morning when my associate and I went to investigate the ensuing "anonymous tip". I always like to have a second person along in this type of situation because then there's no doubt as to what happened or was said. Needless to say we were shocked and appalled when we moved aside the bush covering the electric meter and saw not only a very clean drill hole but a foreign object pinning the disk (Obviously those pesky mud wasps had been at work again). We notified the tenant that she was going to have a temporary interruption in her service while we changed out the meter. We also told her that we would be doing a load check of the outside of the house and that once this was completed we would like to do the same on the inside of the house. She told us that she couldn't authorize

that because she was only a renter but that she'd be glad to call her landlord (a certain Mr. Einstein who lived nearby and apparently had the day off from the rocket lab). While we waited for the landlord we were able to remove and tag the meter for evidence. Install and lock a new meter in place and photograph and document the outside of the house. We were leaning against the front of one of our vehicles enjoying the sun when the good young doctor showed up. He went inside to talk to his tenant (and as we eventually found out, sometimes girlfriend and fellow marijuana sampler) and then came directly over to us (after what appeared to be 2 or 3 hits) to explain how wrong we were and how he had nothing to do with the current situation. He constantly looked away while he was spinning his yarn and I attempted to get him to look me directly in the eyes. He finally did and he blinked which made me snicker a bit. He asked me why I laughed and I explained that I interpreted his blink to be an indicator that he was being less than truthful. It was at this point that he "violated my personal space" and with his face about 4 inches from me said, "Oh yeah, Well I'm not blinking now!" Now, I'm sure we've all been in situations like this and there were several options I could take. I could see peripherally that my associate had his fists balled up already and I knew that Dr. Einstein was going to be taking a little unscheduled trip to the moon if he didn't back down. I chose to just continue to look him in the eye and I said something like "That's very nice, now take a step back". Thankfully for his sake and the sake of his Medical Insurance provider he did because the countdown had almost reached T minus 5 seconds. We convinced him that this was just a monetary thing and that the best way he could help himself was to allow us to continue on with our investigation and load check. It's always best to try to defuse the situation if you can and in the end we had the last laugh anyway because he got the bill. I sure hope he manages to keep those pesky mud wasps away from his new meter. You can rest assured that when and if he chooses to ventilate it and let the excess moisture out, one of our brother "Revenuers" will be invading his personal space. I hope he remembers not to blink this time.

Excellent job David! I definitely think that you have earned an honorary set of keys to The Ol' Watering Hole! You're welcome to come back and "tend bar" anytime you'd like. If anyone else has a story that they'd be willing to share, please send it to me at jeharris@mgemail.com.

LATEST DEVELOPMENTS IN THE UK

By DAVID BOWN • SIEMENS ENERGY SERVICES, UK

I am delighted to once more have the opportunity to say a big 'hello' to all members and supporters of IURPA and to update you on the latest developments in the UK.

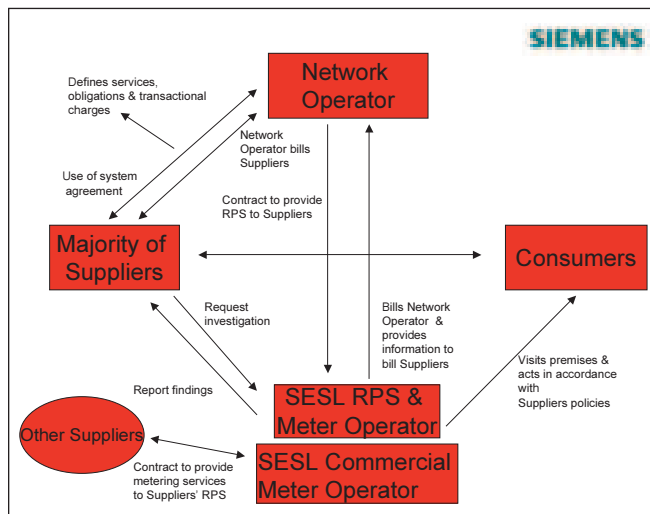
Firstly, I must pay tribute to Alan Dick who has been your UK and European liaison for many years as well as an active member of the IURPA board. I'm pleased to say that Alan is, though semi retired, still involved in Revenue Protection, being retained as the UKRPA's consultant. His wealth of experience and range of contacts are proving invaluable to us as we do our utmost to help prevent the UK energy supply industry falling into the abyss of insolvency.

The challenges facing UK revenue protection practitioners continue to mount. As one of the first countries out of the blocks with opening up our energy market to competition, we are continuing to have to adapt to the lessons learned and to recover situations where in the writers opinion adherence to the gods of 'business separation' and 'customer choice' have created a haven for those who wish to avoid paying for their energy consumption. We have made a ridiculously complicated business out of providing people with energy and getting them to pay for it. On a positive note though the industry has become wise to the fact that there is an imbalance between responsibilities and incentives for dealing with 'theft' and that something should be done about it. I shall return to this subject in more detail later but first more about the challenges for those of us in the front line.

Competition has now entered the world of revenue protection service provision to energy suppliers in the UK. Whilst all of the network operators (bar one, which sub contracts the service via the major supplier in their area) still offer a service to all suppliers in their geographic area, some suppliers are now choosing to meet their obligations by alternative means, e.g. insourcing with the help of their "commercial meter operator". This adds to the challenge for the 'in area' revenue protection service who are still trying to operate effectively in liaison with other agencies in their patch. With customers still able to switch suppliers every 28 days and many consumers not knowing (often conveniently!) who supplies them, it all makes for a recipe of various scenarios. The company that I work for (Siemens Energy Services) will sometimes be engaged as the RP service

provider, as well as in its role as the meter operator but sometimes solely as the suppliers 'commercial' meter operator. This diagram will, I hope, serve to illustrate the position.

We are experiencing an increase in the number of 'cannabis factories' in the UK and the number of those that are stealing electricity. These are often major operations, involving direct illegal connections to the incoming mains cable before it is terminated in the consumers premises, thereby out of site to the meter reader, or anyone else carrying out a visual inspection at the supply point. Losses are substantial, sometimes running to millions of kWh. The chances of recovery are remote as those behind the crimes are well organised and leave it to their front line troops, what they call gardeners, to cop the responsibility. The police and ourselves are doing a great job in tracking these 'factories' down, often helped by the crooks themselves. There is a saying that there is no honour amongst thieves. Well, this certainly appears to be the case amongst the cannabis cartels. They 'grass' their competitors up by reporting burglaries at those competitors' houses. The police visit and find (you've guessed it) rooms full of hydroponics equipment and dodgy plants. These photographs show a typical operation and the illegal service 'tap'.





Another group of criminals who are often stealing power are those involved in the production of pirate DVD's, CD's and the like. We are building on our relationships with HM Customs and Excise and FACT (Federation Against Copyright Fraud) to help combat this.

Energy prices are rising at an alarming rate in the UK, with increases in excess of 20% becoming the norm. It is a subject of much debate in the media and government and whilst it is generally accepted that the escalating wholesale price of gas in Europe is the largest contributory factor and that this is largely outside of the industry's control, there must also be an element (whether it be intentional or otherwise) of increased losses due to bad debt and 'theft' being hidden in these price rises. This all serves to alienate the British public, the vast majority of whom do not steal energy. Or so we think? I'm sure they don't but how far can people be tempted before they 'give in'? It is the writers belief that what is still a relatively contained problem, perhaps accounting for 1.5% of the nations energy, could rapidly escalate once the habit is adopted by those that no longer feel a loyalty to the industry or think that they might get caught. It may take us a few years to double our 1.5% but the situation could then rapidly deteriorate and we all know how hard it would be to reverse such a trend.

Fortunately, the industry work groups refereed to by Alan in his last article recognise the need to put in place effective processes and incentives to deter, detect and recover losses. We are now at the stage where a report has been produced for review by a larger industry audience. This covers proposals for review of the settlement system and financial incentives to encourage responsible behaviour and proactive revenue protection without changing the fundamental principles upon which our industry now operates. A new Code of Practice has also been drafted. From a practitioner's perspective, the main benefit to me that has come out of this activity is that we now have a much larger group of 'supporters' of RP within the industry. I am far more assured than I was at one time that decisions that will affect all of our futures will be made by people who are in possession of all of the information that they need to make those decisions.

There's a lot going on and I can't finish without touching on two other areas, that are linked and which should be of great interest and concern to RP professionals. These being AMR / I (Automated Meter Reading and its Infrastructure)



and the frequency of meter inspections. I'll deal with the second first, as it may be more specific to the UK.

There is a License Condition that obliges suppliers to use all of its reasonable endeavours to ensure that, at least once in every period of two years, it inspects any non-half-hourly meter at premises at which it has at all times during that period been the supplier. *{This means that if the customer changes supplier within the two years the meter may never get inspected but that's another issue that's being reviewed by the regulator}*. Some industry participants argue that the 'two year' inspection is not necessary as very few anomalies are reported, that meters function reliably for many years and that with the possible advent of reading 'domestic' meters remotely, this requirement will become an unnecessary expense. The prospect of some meters and supply points not getting inspected for many years is one that generally alarms those of us who work in RP and a consensus view is being formed by UKRPA members that it is hoped will be listened to by the industry's legislators, a view that supports innovation but seeks to protect against financial risk and treats safety as paramount.

AMR is coming, in one form or other, whether we like it or not. It has many conceptual benefits, mainly in the writers view linked to billing accuracy and frequency and credit management but there are risks too. These risks have been well documented by Kurt and others amongst you so I won't repeat them, suffice to say that (just like computer viruses) we will all be affected by those who find ways to 'cheat' the system as they surely will. I think that our strategy for the future should be to visit the supply point by exception, not routine. This could mean some folks getting an RP visit every week, whilst others can be left for say five years but what we'll hopefully be doing is using the experience of the RP services to determine this strategy.

Finally, we are proud to be holding our ninth UKRPA conference on 10 and 11 May 2006 at Bromsgrove, Worcestershire, in the heart of England. I would urge as many of you to attend as possible. For more information, including site of the programme and a registration form, please visit our web site at www.ukrpa.co.uk

David Bown has more than twenty-five years experience in combating the problems caused by fraudulent interference with energy supplies. He was Eastern Electricity's Revenue Protection Manager, prior to heading up Eastern (now Siemens) Energy Services Revenue Protection Service.

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Company: _____ Title: _____

Mailing Address: _____

City: _____ State: _____ Country: _____ Zip: _____

Telephone: _____ Fax: _____ E-Mail: _____

Utility Type: Gas _____ Electric _____ Water _____ Cable _____ Other _____

Payment Method: Check Enclosed _____ Credit Card _____

Credit Card Payments Information:

Name as it appears on the card: _____

Billing Address: _____

City: _____ Zip Code: _____

____ VISA ____ MC ____ / ____ / ____ / ____ / ____ Expires: ____ / ____

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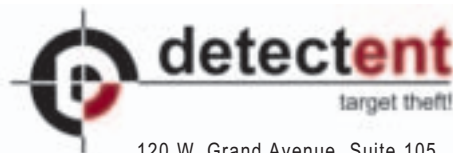
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