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## 2011 JOINT IURPA / NURPA FALL CONFERENCE & TRAINING SEMINAR

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## How Fast Time Flies

As the end of my two year term as IURPA Chairperson draws near, I wonder, where has the time gone? Leading a world wide organization such as IURPA has been a dream come true for me and I can only summarize it in this way: A most rewarding experience working side by side with the Board who I consider the experts in the industry, meeting new friends, and helping others learn about all the benefits of being an IURPA member. I really consider every Board member, paid member, any friends that I have met along the way, and other colleagues involved as close to me as family. It definitely has been one of the very brightest spots in my professional career.



Gary Signorelli  
IURPA Chairman

much about IURPA from my predecessors, that I can't thank each one enough.

IURPA has been fun for me. Among many, one of the funniest items worth mentioning was when our Board was introduced in Kansas City for the Midwest Energy Theft Association (META)/IURPA Conference. Our Director of Finance, George Balsamo was handling the introduction. We are, all standing in front of the attendees as George was talking about each and every one of us and our specific role in the organization. Now picture me at 5'8" among the rest of them at 6' or taller. When it came time for me to be introduced, George indicated that I would become Chairperson in a few years, "when he grows up". Well, needless to say, I think I made it and George may agree that I am all grown up. Still 5'8", but all grown up. How fast time flies.

Now, let me talk about you, the members. Today, the economic downturn has created more work for everyone involved in the Revenue Protection industry. I can see the difference between ten years ago and now. The numbers have become astounding. Our customers have become desperate, losing jobs, their family, hope, and the ability to pay their bills. They have resorted to stealing at a higher rate than ever before. Economists have said that times are getting worse now than when the era of the Great Depression hit our grandparents lives. This can be a good scenario for Revenue Protection personnel as I might tend to consider it as job security. But be careful, there are the hidden dangers that exist in such desperate situation.

I place a real high value on the ability for each of you to perform your work in safe fashion. Every day I'm in the field, I see the danger signs that present themselves. Electrically speaking, backfeeds, burning, thin gauged wire for jumpers, burnt and melted jaws inside the meter socket, and bypassed services are never good encounters when the situation confronts you. I'm sure for other types of utilities, there are numerous hazards that can be mentioned. Think about the people with criminal histories and angry personalities that are doing these dastardly deeds.

You will always need to stay focused on the job at hand. As I see it, no job has to be done where you put your life in danger without help. Realize, you are not the last resort to get the job done. You can always return to the scene and bring in the necessary resources to keep you stay safe. Perhaps a Police Officer or Line Department personnel can assist. These ideas come from my experience after 30 years of investigations. Your family and Company depend on you to return home after a hard day's work. The recovery of any amount of money can never replace you as a human being. Safety is and always will be number 1 with me. Can we count on you to stay safe?

continued on page 5

*I place a real high value on the ability for each of you to perform your work in safe fashion.*

From the time that I attended my first Regional Conference, I knew I wanted to be involved in a manner that I could help others. As I rose through the ranks of the Southeastern Utilities Revenue Protection Association (SURPA) and met with the dedicated officers of IURPA, I began my quest to be on the IURPA Board. After several years of waiting, I was then given the approval from my supervisor to get involved. From there, it was "game on". I have learned so

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## How Fast Time Flies (continued from page 1)

We know Smart Metering is the thing of the present and future. New technology is being perfected to help all companies sell our products without loss. However, all Revenue Protection personnel should be aware that these new meters can be compromised in some way or another. Never discount the tamper flags that these highly intelligent meters produce. Given a little time, word will spread quickly by the criminal and or curious element present in our communities. Books will be written and videos will be made demonstrating how to successfully get away with stealing from the utility. It's presently being done with the various barrel lock key applications around the United States and presents a difficult situation for us to stop it.

Now, for IURPA's good of the order. In the last 2 years, we have spread the word through the Revenue Protection industry about becoming an IURPA dues paid member. We have been more successful, but we're not completely satisfied. There seems to be a misunderstanding that some folks have informed me about. It is commonly thought that attending a Regional Conference where a Registration Fee is paid to attend automatically makes you an IURPA member.

That is not the case at all. To become an IURPA member, one must be in the Revenue Protection business and apply through [www.iurpa.org](http://www.iurpa.org). The annual fee is \$50(US). Once approved and paid, you are sent a member number certificate that entitles you exclusive information on the website that nonmembers can't get. It also gives

Conference details with dates and agenda topics of discussion are available too. Furthermore, two (Spring and Fall) professionally printed Newsletters are sent to you. The newsletters contain articles of interest to Revenue Protection people around the world as well as Vendor ads that may encourage you or your Company to invest in products that'll aid you in the job. And, last but not least, membership gives you a vast group of people, like yourself for networking capability when questions need answers. **Sign up today and make Revenue Protection and IURPA proud. You won't be disappointed. As you can tell, I'm convinced of the benefits and am a member for life.**

I would like to take this time to express my sincere thanks to everyone who has helped me become successful as your IURPA Chairperson. The Board is top-notch and it has been an honor for me to serve you, our members. Without everyone who has become a member in IURPA and without the vision of the IURPA Board, we would not be here today. I know I leave this position in the very capable hands of Ms. Pat Uhlman from NSTAR. She'll do an excellent job, guaranteed.

IURPA is the greatest, single organization in the world that has taken such a strong stance against Theft of Service.

Thank you again from the bottom of my heart.



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## SARPA - EVOLVING TO COVER ALL THE BASES

By RENS BINDEMAN, SARPA TECHNICAL ADVISOR

The South African Revenue Protection Association (SARPA) has spread its wings in order to assist member Utilities to combat all types of crimes and issues that causes revenue losses.

When SARPA was founded in 1997, the main focus area was on revenue losses due to "electricity theft". However, over the years this interest has expanded to include water losses, financial credit control processes and remedial actions, data management fraud, unsafe leads and the latest "utility metal thefts", more commonly known as copper theft.

At first the goal of the project on copper theft was to only update members regarding best practices and new technology to combat this type of risk. SARPA started off by inviting at least one expert in this field as a guest speaker, to give feedback regarding progress in this regard at the SARPA Convention every year.



Rens Bindeman

*Where nobody knew about our existence before, we are now being treated as one of the major role players in the country.*

However, in 2006 there was a sharp escalation in the price of copper across the globe and the focus on this crime escalated due to losses running into the millions by member Utilities. Not only did the cost of the losses escalate due to the higher copper prices, but also there was an associated increase in the theft of copper, no doubt sparked by the value of the metal. SARPA immediately recognized the trend and decided to escalate their efforts. Mr. Rens Bindeman in his role as Technical Advisor to SARPA was tasked accordingly with the function of providing guidance to Municipalities in the country and represents the Association at National non-ferrous theft combating forums and conventions.

As a result of these interactions a specialized Non-ferrous Theft Task Team named "The Copperheads" was formed in the City of Cape Town in early 2007. This effort resulted in the minimizing of the Utilities losses due to metal thefts from \$ 3.1 million dollars in 2006/2007 to only \$ 73 000 in the next year namely 2007/2008. The operational model and "toolkit" which were developed for this project are currently accepted by all Utilities as the norm to follow in order to effectively combat non-ferrous thefts.

As a result of its successes and management as well as technical capabilities, SARPA has been recognized as the leader in the field of Revenue Protection and has subsequently increased its involvement in various processes of this kind in the country. SARPA's efforts are now combined with Law Enforcement Agencies, Utilities and Parastatels, in order to minimize consequential losses. The Society members are currently playing vital roles in the different NFCCC's (Non ferrous Crime Combating Committees) on National and Regional levels.

These members function mostly in the fields of Revenue Protection, Risk Management or Engineering and, in most cases, non-ferrous theft issues forms part of their daily tasks. Multi skilling challenges are been overcome through training provided by SARPA in each of the provinces, at no cost to the respective members.

Through these actions SARPA has become a recognized major role player in the country in this regard and Executive members are regularly requested to provide information and situational analysis to the newspapers and appear on radio Talk shows whenever the theft of Service Providers infrastructure have become newsworthy. This avenue of communication is viewed as an excellent opportunity to share information and promote revenue protection awareness throughout the country at no cost to the Association.

A visible sign in the increase of SARPA's recognized expertise and abilities is that the Executive members have in been invited to deliver papers at other Utility Association's Conventions in South Africa. The Technical Advisor has been invited to present papers and workshops at international Conventions in Africa, Middle East, Asia, Central America and Southern America. He has also presented several Revenue Protection Training courses and workshops in countries across Africa and Asia.

Due to this process we are strategically placing the Association right up with the major Crime fighting Organizations in the country. Where nobody knew about our existence before, we are now being treated as one of the major role players in the country.

The fact that SARPA is currently covering such a wide field of expertise also means that, we are on a constant learning curve. The interaction at the abovementioned events not only means that we have been placed us in the unique position to be able to assist all our members, as well as our sister Association's members with guidance and knowledge regarding revenue loss management, but also allows us to grow our knowledge base and capabilities, and not remain stagnant. An example of how our extended field of expertise is viewed internationally was the fact that delegates at the recent Metering Central America were very surprised at the fact that our representative could be presenting two papers at the Electricity as well as the Water Conferences. In South Africa this is normal practice, as SARPA address revenue losses at electricity, water and finance levels within a utility. These fields are addressed as individual disciplines internationally thus losing the capability of seeing the "big picture".

Our new flagship project namely the "Revenue Recovery Project" is one example of such an exercise, which will result in be a huge benefit to the Utilities we target. The Revenue Recovery strategy focuses on providing assistance to "ailing Utilities" (financially challenging) at no cost to the utility itself. A "toolkit" was developed to analyze the reason for revenue losses at utilities and experts are sourced from member utilities for a 3-4 day exercise at each utility. A "dry run exercise" and a pilot site have been completed and we are currently in the process of planning the second pilot site. Up until now all costs incurred



## SARPA - EVOLVING TO COVER ALL THE BASES (CONTINUED)

were self-funded by SARPA, but the Development Bank of Southern Africa has indicated that they would be interested to sponsor the next pilot site and, depending on results, maybe all future exercises.

At our recent Convention in Polokwane we requested Mr. Itzick Michaeli from Israel Electricity to present the keynote address. He did so in very good style by giving us a broad outline of IURPA, the international trends with regard to revenue protection and highlighted what SARPA should be focusing on in the future. One of these suggestions was that the Association should participate in more Revenue Protection Conventions in the USA and Europe thus improving our image internationally by providing visibility of our capabilities and sharing methodologies that have been proven to work. He also highlighted the threat of illegal connections and the impact of fraud on utilities across the globe. He stressed that the most effective way of combating these illegal acts was by sharing knowledge and best practices, as we were doing at the Convention.

The outgoing President Mr. Malesela Lelaka spoke about how we should be inspired by our icon Mr Nelson Mandela. He also presented 10 questions that revenue protection members should be asking themselves and said that if most of the answers are positive, it is an indication that they are doing the right things, but if it is negative, it will be a big challenge to get everything positive again.

The new President Mr. William Olivier presented his goals as follows:

- Enhancing of SARPA's image both international and locally.
- Obtaining cooperation from other Associates in the region.
- Providing assistance to Law Enforcement Agencies and inspire them to take the necessary actions, in order to minimize losses to all member utilities
- Through the implementation of the Revenue Recovery Strategy, ensure that services are sustainable in all Utilities in the region.
- Becoming involved in "Tariff negotiations", because the customers are paying for revenue losses and the excessive increase in tariffs are causing more thefts.

The conference itself was divided into three sections namely revenue protection processes, technology and non-ferrous theft.

Feedback was given regarding the revenue recovery pilot sites and the toolkit that has now been completed. The Department of water affairs highlighted the fact that "Non revenue water" is currently a big problem in Municipalities. They identified 11 KPI's against which Utilities are currently been measured. They also utilize a "toolkit" and the results are been made available in an annual publication. It was apparent that electricity and water distribution service departments both face the same challenges regarding revenue losses, but it was clear that the electricity officials are far more capable to deal with the challenges at this stage. The average electricity losses in a South African Municipality are 15%, whilst the average for water is 40%.

Other speakers declared that Utilities should commit themselves to minimizing losses and not tend to complain about their bad financial situation and then ask for more loans. The Development Bank supported this notion and highlighted all the challenges that a Municipality of today face to be financially viable.

The pros and cons of smart metering with regard to supporting revenue protection processes was also discussed in detail. It is clear that there are advantages in the fact that information regarding tampering is been flagged immediately, remote disconnection of supply can be made and a trustworthy customer databases will assist field audit teams. However, it is clear that reconnections have still to be done manually, meter audit team members need to be trained as "specialist" to detect problems and very expensive equipment will be necessary to conduct these actions. The costs and risks of the abovementioned issues will be a big problem for utilities in Africa.

The concept of "ghost vending" was also explained and discussed. This new phenomena in South Africa evolves around the usage of a stolen "CDUs" (Credit dispenser units) to illegally sell electricity for prepaid meters. Syndicates control the process from a central point and cell phones are been utilized to do the vending in communities. The concept of "buy one – get one free" are commonly used. The financial impact on Utilities in the region is not known at this stage. Some syndicate members have already been successfully prosecuted and sentenced to jail. This test case could now be used in court to prosecute other electricity thief's. The question is now - would it be wrong to call the investigators who catch these persons "Ghost busters"?

Recognition was also given to the SARPA NRS work group members, who have successfully updated or produced new quality guidelines on revenue protection processes, sealing procedures, substation earthing thefts and utility metal thefts in a very short period of time The guideline on how to calculate revenue losses, are still in the process of been updated.

Mr. Michaeli and other speakers also explained new technology regarding the capturing of data per cell phone and the revenue protection benefits as well as return on investment were also highlighted.

Several speakers at the Convention also discussed the abovementioned copper theft issues. The good news they brought was that we are managing to contain this threat, but the bad news was that we will only succeed in minimizing this threat, if every role player join the "fight", which is definitely not the case at present in Southern Africa.

What we have however learned from the Convention, training courses and reports received from locally and abroad, is that most Utilities worldwide are also experiencing huge revenue losses due to "copper thefts". SARPA is willing to advise other Revenue Protection Associations and Utilities worldwide regarding all the abovementioned projects by manner of training courses, workshops or presentations as and when needed.

Knowledge is a key to success – so lets join hands globally and spread our wings to share information across continents!

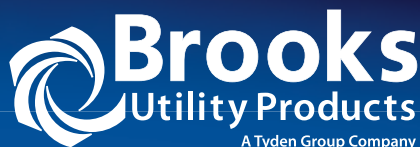
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## PERPETUAL JUSTIFICATION

BY EDDIE FEE, REVENUE ASSURANCE ADMINISTRATOR, ORLANDO UTILITIES COMMISSION

For those who have been close to utility revenue protection for several years, we've all seen how cyclical our importance to the company can be. This on-going cycle can be a result of many things including change in upper/middle management, industry trends, AMI implementations, budgets constraints, priorities or even self-induced questions regarding the effectiveness of our departments.



Eddie Fee

*...you may be able to achieve a strong, on-going department justification in your own utility.*

Some managers see revenue protection departments as a hassle due to the disputes and complaints sometimes associated with utility personnel catching thieves 'in the act', prosecuting customers and writing policies and fee schedules which aggressively deter further behavior. Sometimes revenue protection departments are asked to make significant cuts in budgets or staff. Sometimes industry trends show less of a need for revenue protection departments and managers are advised by consultants and other third parties to make cuts in revenue protection. Sometimes AMI implementations are sold to upper management with the widely discussed myths regarding elimination of theft or tampering and the ability to reduce staff. In addition, sometimes we do an inadequate job of showing our worthiness to the company. Regardless of the environment, it is our responsibility to perpetually justify the existence of the department to avoid cuts or even worse, elimination. Yes, it does happen and some of us have been unfortunate enough to see it first hand.

The purpose of this article is to explain how you may be able to achieve a strong, on-going department justification in your own utility. Furthermore, if you have the golden opportunity to create a new revenue protection department of your own, I hope some of these items are helpful. Some of the suggestions are obvious and widely accepted, others may not be...the point is, take what will work within your company's culture and management's mindset to show your worthiness to the organization.

### *Billings and Collections*

Tracking of billings and collections related to a revenue protection department may seem as the most obvious necessity. However, I'm going to take this suggestion a step further. I've seen before in my own company and others as well,

it seems like most revenue protection departments do extensive, manual tracking when it comes to billings and collections. First, I suggest meeting with your CIS/Billing System experts to discuss creation of a way to separate the billing and collection of receivables associated to your department. Take this opportunity to think about anything else you may want to track and add as a characteristic in your host system (i.e. specific tamper types, back-bill reason, sources for leads, and write off amounts). Once this is achieved, you can build robust reporting and dashboards that accurately show the billed and collected dollars coming from your efforts without extensive manual updates.

### *Future Loss Prevention*

There are many inter-changeable terms for this concept including Restored Revenue, Re-secured Revenue, etc. I've always been an outspoken proponent of this concept and recently received buy-in from my management to track this item. Ideally, you should have a 12 month (1 year) projected loss prevention for each revenue leakage case that is discovered and resolved. This is the purest form of departmental justification, because it shows the additional revenue leakage your company would incur for another year if they decided to shut down revenue protection operations and fail to discover these items. Furthermore, this becomes even more important when your department becomes progressively proactive in identifying revenue leakages early in that the future loss prevention may be greater than the back-billed amount. Therefore, when considering cuts within a revenue protection department, management must not only consider the billed and collected revenues but also the future losses prevented by departmental operations.

### *AMI & MDM Implementations*

Many companies have already started the process of AMI or MDM implementations. I challenge each of you involved with revenue protection functions to make yourself a stakeholder in the requirements and implementation phases of such projects. Although AMI and MDM applications will never completely stop revenue leakage, they many times have the capability of providing revenue protection staff helpful tools in identifying issues in a timely manner. Think about the frequency of reads that would be stored in the system as well as the tamper or outage events and how they could be used to identify theft or tampering. It would be a shame for any company to implement an AMI or MDM system without involving revenue protection. Using AMI and MDM tools to proactively identify revenue leakages and increase future loss prevention to further prove your effectiveness and necessity.

## ENERGY THEFT: THE DUTCH APPROACH

By JAN ARENDSSEN BSc, PROJECT MANAGER AND FRANS PROVOOST Ph.D, MSc, SCIENTIST

In The Netherlands 95% of the energy-theft is caused by hemp growers.

Therefore Dutch energy theft investigators are specialized in detecting hemp grow houses.

Since grow houses use lamps that turn on and off in a specific pattern, that specific pattern is being looked for.

Power-Quality meters are used which are positioned in a secondary substation when fraud is expected.

Usually these measurements last for one week.



Jan Arendsen



Frans Provoost

Also Power Quality-meters were connected on strategic points in the network.

A container with a grow house simulation was placed and connected in the district.

The collected data was used to develop an algorithm which makes it possible to detect the simulation.



Figure 1 Partial output of PQ-meter

Figure 1 shows the partial output of such a measurement.

What can be seen is the sudden increase of power consumption at 03:00 AM and the sudden decrease at 03:00 PM. The 12 hour cycle strengthens the suspicion of a grow house.

Also we can see that the difference in power consumption is approximately 4 kW, which implies the use of six grow-lamps of 645 Watt.

Although this method works quite well it does have some disadvantages.

- Someone has to install and remove the PQ-meter. That usually takes a lot of travel time.
- If the switched power is relatively small it is not possible to detect the power consumption due to a low signal-to-noise ratio.
- It is not possible to see whether the hemp grower steals the electricity or that all usage goes via the meter.

### Experiment

In a test district smart meters were installed on all the outgoing feeders of the secondary substation. Almost all households had a smart meter.



Figure 2: Specific load; a growhouse simulation

Some of the methods are described below.

### Energy balance

Theoretically the best way to determine grid losses is to compare the total amount of energy consumed by a set of customers with the amount of energy used to provide these costumers. This is the so called energy balance.

In practice however this is not feasible due to several complications like connections without a meter and the inaccuracy of the network administration.

Figure 3 shows an example of using clustering techniques to detect changes in the energy balance. The measurements are divided into two classes. The red colored points show normal behavior, the green colored points show anomalous behavior. From the figure it becomes clear that around measurement number 700 the anomalous behavior disappeared.

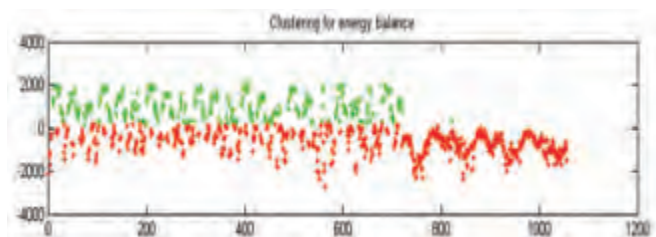


Figure 3: Changes in energy balance made visible by means of clustering

### Switching transients

Repetitive switching at fixed times can be detected by summing the daily profiles of the changes in load over several days;



## ENERGY THEFT: THE DUTCH APPROACH (CONTINUED)

Specific user patterns can be found by measuring harmonic currents in a feeder and comparing them with known fingerprints;

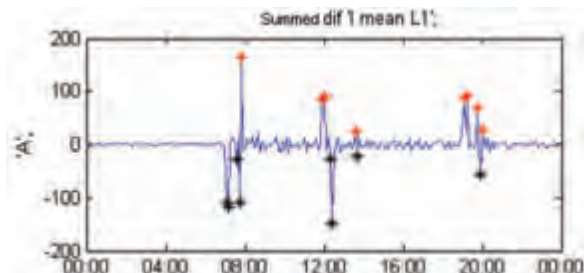


Figure 4 Visualizing repetitive switching activities

Figure 4 shows how switching activities at fixed times can be visualized. First the differences in current between two successive measurements are calculated. Hereafter these differences are summed for every time stamp. As many changes are random, only the ones at fixed times will be emphasized. The positive spikes indicate switching on. The negative ones indicate switching off.

This algorithm is being implemented in the operational process in order to detect energy fraud.

### Changes in load profile

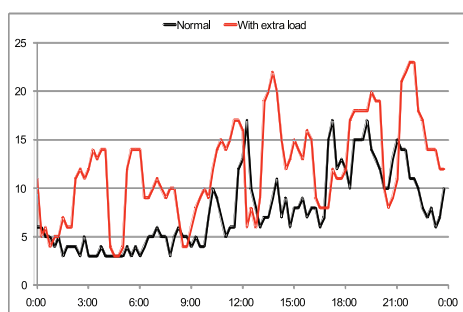


Figure 5 Visualization of changes in load profile due to extra load

Figure 5 shows an example of how the extra load influences the normal load profile. The extra load does not only increase the maximum, but also the shape of the profile.

### Implemented

In order to let administrative employees work with the switching transients algorithm (figure 4) user friendly software was developed.

It is successfully used in daily practice.

The algorithm detects on- and off-switching loads and can also be used as input for an analysis of the changes in voltages measured with individual smart household meters. The smart meter that indicates a voltage variation which is synchronous with the detected switching times is the meter of the consumer

with the large consumption. If the meter does not reflect this consumption the client has probably made an illegal tap.

If the police and our fraud inspectors dismantle an illegal grow house it is usually difficult to establish the period the client was stealing energy. If the smart meter in the secondary substation is constantly active the data can be used to establish the exact day and time the theft started.

Until now approximately 500 smart meters have been installed in secondary substations. The data they generate is being stored. As soon as a hemp grow house is dismantled that data can be used to establish the starting day and time of the energy theft.

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## A FUNNY THING HAPPENED TO ME ON MY WAY TO THE SARPA 2011 CONFERENCE

By ITZICK MICHAELI, REVENUE PROTECTION MANAGER, ISRAEL ELECTRIC CORP.

It's Wednesday, July 20. My South African friend DJ and I, are cruising the 300 Km highway, from Pretoria to the city of Polokwane, where the annual SARPA conference will take place starting the next day. DJ's mobile rings, and on line is Rens Bindeman, SARPA's technical advisor and my dear colleague, that wishes to have a word with me.



Itzick Michaeli

"I have some good news, and some less good news for you" says Rens. "The good news is, that you are going to have as much presentation time as you wish. The less good news is, that beside your Friday presentation, you are going to deliver tomorrow, the Conference Keynote Address". Rens explained shortly, that both the Keynote Speaker, the Premier of Polokwane Provenca, and his replacement were summoned for an emergency meeting regarding the fuel crisis, that threatened to stop all petrol pumps in the country. "As IURPA board member, you are our best choice for the job" said Rens.

*... electricity theft is a matter of international concern.*

I wasn't really keen to deliver such an important speech at short notice, mainly because I had some sightseeing ideas for the afternoon, but DJ offered to lend a hand, and since I am familiar with his literary capabilities (he is busy writing his first novel), I started considering several ideas that would be worth discussing.

I felt, that it was important and necessary, to deliver topics important to IURPA ideas and integrate them with SARPA's initiatives. I went into the IURPA's web site, and downloaded a few of the last Newsletters. I browsed the articles, and copied some information from various articles written by my IURPA colleagues. DJ diligently started to type and stitch the materials together, and form the speech. Many cups of coffee, a few home made rusks and many slices of South African delicious biltong (cured beef) later, and the SARPA 2011 Keynote Address was ready.

After delivery of the speech and opening of the SARPA 2011 conference, I was thanked and congratulated by members of the SARPA executive on my presentation. They were especially pleased to hear more from the international arena and IURPA goals in particular.

I am honored to be able to share the address with all of you:

"Up until yesterday afternoon, I was in the position of attending this conference, as one speaker among many.....and

representing the Israel Electric Corporation, as well as IURPA, the International Utilities Revenue Protection Association.

One telephone call received, somewhere on the road to Polokwane yesterday, however, changed that, as well as the intentions to tour this beautiful city during the afternoon.

This morning, I feel both surprised, and honored, to deliver this keynote address to you, as the delegates to the South African Revenue Protection Association 2011 conference.

In view of the time allocated for the preparation of the delivery of this address, I can safely promise, not to bore you with a lengthy delivery, but to try to stick with the core issues that we all find ourselves loaded with.

I am sure that you are all aware, that electricity theft is a matter of international concern. Not only because of the value of the theft, but also the requirement for additional generation of electricity lost to theft.

This additional generation, leads to huge cost to the planet in terms of pollution, at a time when mankind is starting to realize and minimize its footprint on the planet.

So, we are starting to count the cost, not only in Dollar and Rand terms but in the very real position of realizing what quality of life will exist on earth, twenty years from now.

Water theft is as important, and has as big an impact on the world ecosystem, and is more and more addressed together with electricity and gas.

During my extensive time in the field, I have experienced thousands of cases of theft, for various reasons, not all logical and clearly understood. In some cases, the theft appears senseless in nature, by individuals who could well afford to pay for the services they use.

Many other thefts, occur out of economic desperation by the less fortunate. Yet, others tend to treat it like a game, and tamper with our facilities, just to see what they can get away with.

No matter what the reason, the specific act of tampering has had many diverse results.

For example, the very real safety issues at the core, that has resulted in large numbers of lives lost or changed, by permanent injury. Whilst it may not be readily appreciated, these events also have a very real financial impact on the economy.

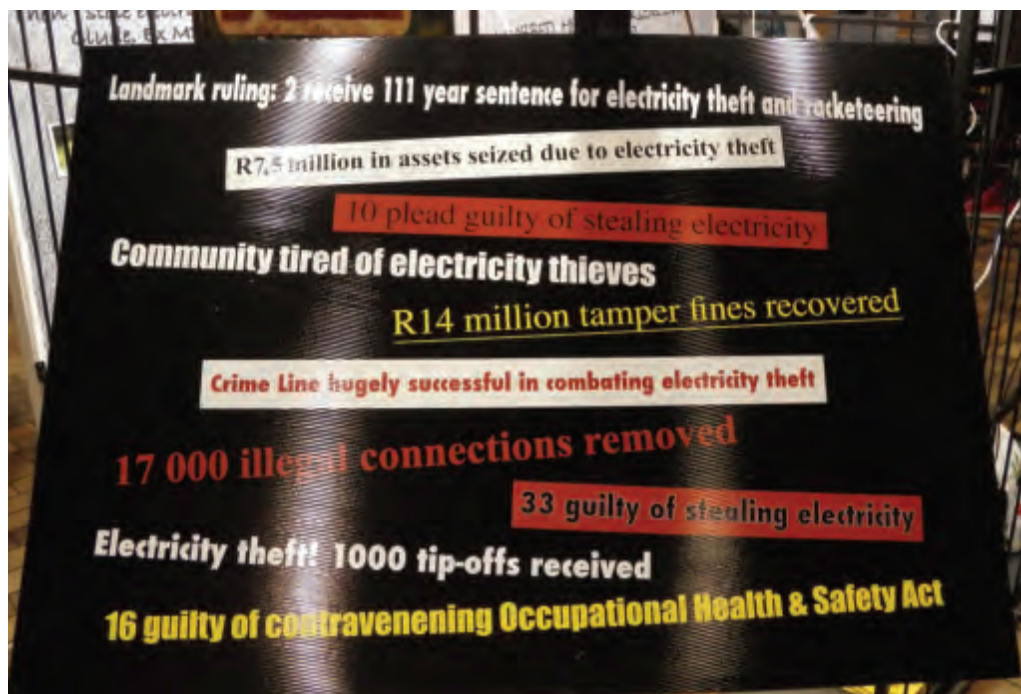
Tampering has also led to damage to many homes by fire, as well as company equipment and assets.

Whether you can pay for it or not, there is no excuse or justification for stealing such a valuable commodity. We all know the bottom line. Rate payers, like you and I, have to "foot the bill" for the individuals who steal.

Higher rates are the result of the thefts we're unaware of, or the ones we investigate, but are unable to collect on.



## A FUNNY THING HAPPENED (CONTINUED)



The IURPA Board members, are dedicated and committed to spread the message of the importance globally of protecting utility revenues, and the need to lead the worldwide effort against utility theft.

IURPA is the greatest, single organization in the world, that has taken such a strong stance against Theft of Service. Twenty years ago, IURPA's founding fathers established the organization with the general idea, of supporting the regional organizations around the world, through speaking engagements, training and certification classes, providing networking capabilities, and by identifying and publishing newest trends and techniques on the IURPA website.

IURPA is an impressive group of men and women, loaded with a wealth of experience, knowledge, and talent. The Board consists of members from as far away as the United States of America, South America, the United Kingdom and Israel.

It is unfortunate, that the need to be part of this organization, has not been fully supported by the rest of the European countries. I am very sure, that the larger European countries such as France, Germany and Italy, would become part of this organization, once they realized the value of the body of knowledge contained within the IURPA member organizations.

Last year, the IURPA Board was very excited about the significant increase in the number of members we enlisted. The word is getting out that IURPA is here, and a major player in the world of Revenue Recovery, and it has never been more important than right now.

In the United States more than 40 per cent of managers interviewed, have seen an increase in incidents of tampering and theft in recent years.

These include the usual array of problems, from illegal wiring, using sophisticated bypasses, jumpers and cables, to meter tampering, to stolen meters.

Given current economic conditions, the most prevalent problem reported by nearly every manager, was the illegal reconnection of service due to non-payment. Almost all commented that the number of incidents reported, is also affected by how aggressively, individual utilities pursue fraud.

Nearly 60 per cent of respondents, were almost evenly divided between those who do not see theft and

tampering as a major problem at their utility, and those who acknowledge that "these problems have always been there," even though they have not noticed an increase in the number of reported incidents.

In Canada and the United Kingdom, the theft of electricity is rocketing, and the ability of authorities to detect the theft is decreasing, as the theft is starting to occur at the High Tension level in order to escape detection. This theft is largely attributed to the illegal growing which uses hydroponics, of Cannabis for the marijuana markets.

The IURPA Board recognizes that communications between member states and countries, is a vital part of the process in solving the problems we all face today.

To think that problems can be solved in a vacuum, is a pipe-dream. Furthermore, why should anybody need to re-invent the wheel?

We cannot more strongly urge IURPA members from all participating countries, to take a more active role in attendance, and as speakers, sharing information, knowledge and lessons learnt.

As an example: In my role as a member of the board of IURPA I am aware that SARPA has initiated an initiative known as the Revenue Recovery Project, where the members of SARPA has extended a helping hand to ailing municipalities, in order to assist them in the primary areas of electricity and water loss control, as well as establishing sound and sustainable management guidelines.

I would like to urge the members of SARPA to seriously consider more involvement at international level, by joining IURPA as members and attending international conferences to share the experiences.

## A FUNNY THING HAPPENED (CONTINUED)



Another field where SARPA could contribute, is in the field of possibly extending their training capabilities to other countries, where these capabilities do not exist.

I would like to mention, for example that during recent talks with a Nigerian delegation visiting Israel Electric, I strongly recommended that they approach SARPA in connection with Revenue Protection issues.

We are already aware, that Smart Metering is NOT the ultimate solution for loss control, but the marketing penetration has already reached such a high proportion, that we have to be prepared to meet the new challenges that it brings.

Unfortunately, even with 21st Century technology generating reliable, trusted data and protecting against tampering and utility theft, Revenue Protection is still a challenge.

So, what is the solution?

That is exactly why every one of you are here today, and why we have these conferences at international level.

The achievement of solutions, should be the goal of the conferences and the distribution of knowledge amongst the world delegates, either by attendance, or publishing, the goal of every SARPA member.

On behalf of IURPA I wish you a successful and fruitful conference.

Thank You. "

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## UTILITIES, LAW ENFORCEMENT AND SAFETY

By WAYNE WOHLER, LA DEPT. OF WATER AND POWER

**T**heft of utilities occurs as a result of many factors including the economy, illegal drug activities, and the misconception that no one will ever know! As the current unemployment figures continue to rise, the temptation to tamper or bypass utilities also increases. This results in lost utility revenues and public safety issues. Many cities attempt to deal with this challenge having only limited resources available from both the utility and law enforcement. Developing a good working relationship between the two can increase effectiveness exponentially.



Wayne Wohler

Within the City of Los Angeles it would be impossible to file criminal charges against every theft of utility case identified because of existing court caseloads as well as staff hours needed to testify in court. As a result, guidelines for filing criminal charges have been developed. These include filing criminal complaints for all narcotic related cases, utility fixer's, employees threatened or assaulted, repeat utility theft offenders, and/or if the amount of loss exceeds \$5000.00.

Since the 1990's at Los Angeles Department of Water and Power the Revenue Security Unit (as well as internal security) have worked together to develop a relationship with law enforcement which allows an effective response in a timely manner whether theft or threat.

Also, as part of Revenue Security outreach to law enforcement, materials have been developed for

training during roll call. Revenue Security personnel are available as well to provide utility theft / safety recognition training for the narcotics officers of LAPD. This training has broadened the city's ability to both identify and process utility theft cases more efficiently and with a greater degree of safety.

When safety issues are identified (and rectified when possible) by Revenue Security personnel in the field, law enforcement is able to work more safely in the areas where theft or tampering with utilities is occurring, and the utility theft investigators can properly document and accurately identify the utility losses for possible recovery.

Partly as a result of Revenue Security's on-going training in both safety and theft recognition, LADWP (in conjunction with various law enforcement agencies) has identified and taken steps to recover revenue of over \$984,000 (during the period July 2010 thru January 2011) that would have been otherwise lost due to the theft of utilities at illegal indoor marijuana grows alone. The Department has had over a 98% success rate in all criminal filings with the majority of all cases usually paying full restitution within three years from the date of conviction. Is this a perfect way to get the utility company paid? No. But, in many cases sentencing includes full court ordered restitution.

Developing a relationship with law enforcement can allow for increased revenue to the utility. A safer working environment benefits utility staff and law enforcement personnel as well as the general public. The city is therefore a safer place for everyone to live and work.



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## WHAT A LONG STRANGE TRIP IT'S BEEN, EMBRACE CHANGE AND CHANGE WITH IT.

BY ROBERT ENGLE, PPL ELECTRIC UTILITIES

I recently received an e-mail requesting articles for the fall IURPA Magazine.

As I pondered what I could write about that would be new and interesting I thought about how much things have changed since I came to Revenue Protection 11 years ago.

At the time Revenue Protection wasn't my choice. I and 85 other employees had just been displaced from the sales department. As I looked over the available positions I found an opening for a Revenue Protection Specialist? The opening was relatively close to my home and I wouldn't have to relocate so I thought what the heck.

In my former position I dealt with the decision makers from many large industrial/commercial companies, had expense account lunches, and wore a suit to work every day. Was I in for a culture shock!

*Revenue Protection performs an important function, maybe even more today...*

PPL-EU covers 10,000 square miles and has 1.4 million customers. The customer base is very diverse from very rural to mid sized cities like Scranton and Allentown.

At first I thought, you've got to be kidding me, you want me to investigate theft of service in garbage infested urban back yards and in rural areas where at the entrance to a dirt lane is posted "Keep Out, Protected by Smith & Wesson".

Luckily for me I had a good mentor who started the revenue protection department at PPL in 1994.

Specialists would receive leads and a field investigation followed. Most of what we did at the time was reactive. The department based its existence on how many dollars we were able to recover from theft, fraud, equipment failures, and yes human errors. You know, dollars recovered, future gain and cost ratio, 3 to 1, 4 to 1, wow, maybe 5 to 1. How could any company ignore the benefit of a 9 person organization bringing in 5 dollars for every dollar it cost them. Unlike sales this was a very secure department to be in?

Approximately 2 years after I began business was booming and the department added 3 new specialists, great! Less than 6 months later PPL-EU had a reorganization. As many of you know that's never good. Sure enough we needed to downsize and everyone was required to reapply and interview for their jobs. I survived another one!

About a year later PPL-EU embarked on converting their entire customer base to AMR. He we go again, do they need

us if the meters report errors? The day finally came when the system was ready to go and the error flags were activated. Wow, 7000 flags in the first minute. What do we do with all that information? We turn it off! Oh by the way, the meter readers had already been eliminated. No more eyes in the field checking the services monthly for anomalies.

By now we were down to 7 field investigators, how can we replace 90 meter readers?

With the help of the department analyst we developed queries that allowed the specialists to utilize technology and eliminate many false leads and field visits.

As we progressed, revenue protection began reviewing processes and procedures that effected revenue flow for the company. We continued to perform our core functions and branched out with special projects identifying and correcting gaps in collections, service connects, equipment failures etc. Our goals also changed from how much money we identified for rebilling to determining the causes of revenue loss quickly and correcting the anomalies. Our ultimate goal is to have no rebilling to the customers for unregistered kWh. We realize this is virtually impossible but it a nice "stretch goal". Also finding and prosecuting theft cases quicker limits the exposure of lost revenue.

The utility business is changing rapidly. Mergers, buy-outs, acquisitions, rightsizing, reorganizations are common today. Utility employees are no longer exempt from layoffs, displacements or forced early retirements.

This magnitude of change today can prompt a doom-and-gloom vision, or it can be seen as an opportunity for a shift in how we define ourselves, where we are going, and how we can accomplish our goals. We all can make a difference in the course of events affecting us and our company both today and in the future.

Revenue Protection performs an important function, maybe even more today than prior to AMI. By using the technology available, PPL-EU's 6 field specialists and analysts have reviewed 7100 accounts for some type of registration failure or theft of service so far this year.

The ability to change and adapt to today's corporate environment has helped the Revenue Protection Department sustain its standing as a valued asset to PPL-EU.

Eleven years after starting in revenue protection I can say this is by far the best job and department I've had the pleasure of working in during my 27 years with PPL.



Robert Engle

## **“WHEN IN DOUBT.... SEND IT OUT”**

BY BILL KEENAN, SR. REVENUE ASSURANCE SPECIALIST, NSTAR ELECTRIC & GAS CORPORATION

This past July wasn't unlike any other hot summer day here in Boston. The air was thick, temperature and humidity high and I was swamped with cases to investigate in the field. Not straying too far from my usual procedure, I looked through my impending cases the day before to familiarize myself with the cases. I was going to be with a vendor that NSTAR works with that looks for suspect usage patterns on our energy accounts and the vendor was requesting the cases we would be investigating.

At the last minute an e-mail was sent to Revenue Assurance from the vendor requesting a last minute addition to the daily mix. The vendor wanted to visit this location due to a drop in use. The customer's average bill was approximately \$892.00 a month. We were able to verify they had taken advantage of some energy efficiency measures offered by NSTAR at their location in 2009. This resulted in an annual savings of 3,395 kWh. The investigation suggests the answer to the drop in use is clearly due to the energy efficiency measures. I added this location to the lists of jobs I was going to visit the next day just to satisfy our vendor.

I gathered the jobs for the day and organized them based on location. I thought we might as well go to the job as I thought we were not going to find a problem and get it out of the way. I entered this family owned market and explained I was from NSTAR and needed to verify the metering equipment in the basement. The man behind the counter stated he had to contact the owner because the basement area was locked. He also stated that it could take up to a half hour for the owner to arrive. We decided we would return in approximately a half hour.

Upon returning to the market the gentleman with a “key” in hand greeted us and escorted us downstairs. As we went down the backstairs I noticed there wasn't a locked door in sight. Fact of the matter was there were no doors at all. Questions of why a key was needed filled my mind. Finally I could see our meter and all the electrical equipment in a large opened area of the basement. (NO KEY NEEDED).

The first thing I wanted to do was verify this was indeed the meter we were looking for. The meter was tilted sideways and I needed to slant my head in order to verify the

meter number. To my surprise there wasn't an NSTAR seal to be found! The socket cover seal was missing, the reset lever seal gone and the cover to base seal was missing as well. The thought of energy efficiency was now taking on a whole new meaning.

As the socket cover was lifted over the meter the cover to the meter fell off. A heavy load on the meter promoted us to turn off the breaker to avoid injury. To our dismay we observed heavy wear on the legs of the meter. How could this be? The customer had energy efficiency done at their location in 2009, “they wouldn't steal”. There we stood in a dark basement taking pictures of the meter and documenting the details. With the meter on the floor we decided to turn the customer's breaker panel on. After all, nothing should go on when the customer's breaker panel is turned back on without a meter in the socket. When we turned the customers' main breaker back to the on position the basement remained dark.....which is a good thing. However I heard something make noise upstairs. To our disbelief all the refrigeration was up and running! Upon further investigation we discovered a line side tap feeding directly from the service entering the building to a breaker in the customers' circuit panel. This line feed the refrigeration all while bypassing the meter!!!

They weren't kidding when they went forward with the energy efficiency program.....look at all the savings! The customer has been cooperative in moving forward to correct the situation. Once we monitor the account and back bill for unmetered usage I wonder what they will think of their energy efficiency measures.



# IURPA – 2011

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Clearwater, FL 33760  
Gary.Signorelli@pgnmail.com



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wayne.wohler@ladwp.com



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265 Central Avenue, Bridgeport, CT 06607  
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