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RELIABILITY CORPORATION

Physical Security

November 18, 2011

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Entity Copper Theft Solutions

Brian Smith, Progress Energy
November 28, 2011

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- Person with criminal intent or motivation to steal
- Obtainable reward
 - § Increased copper prices = valuable target
- Window of opportunity
 - § Quick, easy targets
 - § Low risk with high reward
- Victim(s)

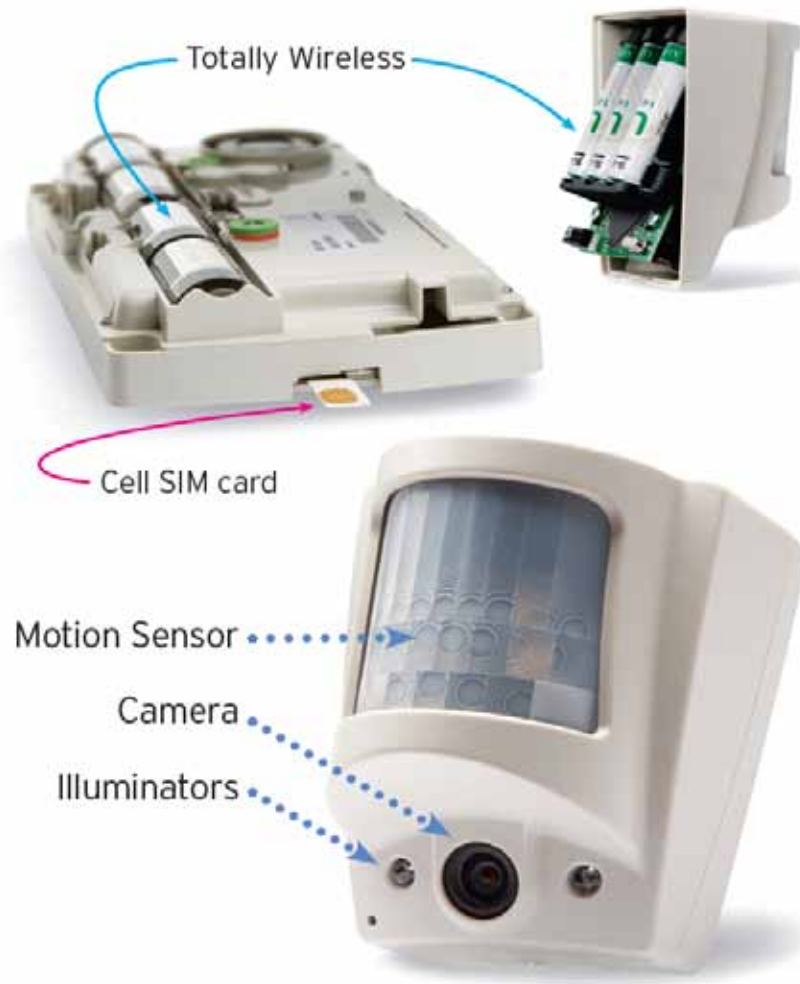
- Operations Centers
 - § Unstaffed after normal business hours
 - § Copper reels on the back of bucket trucks
 - § Scrap bins
- Substations
 - § Unstaffed the majority of the time
 - § Remote locations
 - § Copper grounds

- 2009 – 130 Investigated Copper Thefts
- 2010 – 111 Investigated Copper Thefts
- 2011 – 117 Investigated Copper Thefts
 - § Direct relationship between cost or value in copper and the number of thefts experienced
 - § PE has experienced an average loss per theft of \$3,800 not including loss revenue
 - § Estimated PE Copper Loss in past 2.5 years = \$1,360,400

- Harden the Target - Create an environment to make it difficult to steal
 - § Lighting
 - § Fencing
- Reduce the Opportunity
 - § Remove or conceal targets
 - § Increase traffic or occupancy
 - § Law enforcement patrols
- Add Risk to the Reward
 - § Increase the chances of being caught

- CCTV
 - § Power and network infrastructure
 - § Costly installation
 - § Resources required to monitor
 - § Video of crime being committed but no detection
 - § Minimal deterrent
- Intrusion Detection
 - § False alarms
 - § Costly installation
 - § Questionable responses from law enforcement

- Wireless
- Self-Powered
- Portable
- 128 Encryption
- *Cost Effective*



- **It is NOT surveillance**
 - § Event-based video/intrusion detection security system
 - § Cameras are on only during an alarm event
- **Wireless & Battery Powered**
 - § No A/C power , phone or network connection
 - § Cell reporting to Command Post or Monitoring Station
- **Fast Installation/Deployment.**
 - § No holes, no wires, and no waiting

Radio Transceiver

- 2 way encrypted



- Self-powered
- No AC connection
- 4 year battery life



Motion Sensor

Night vision
digital camera

Infrared illuminators

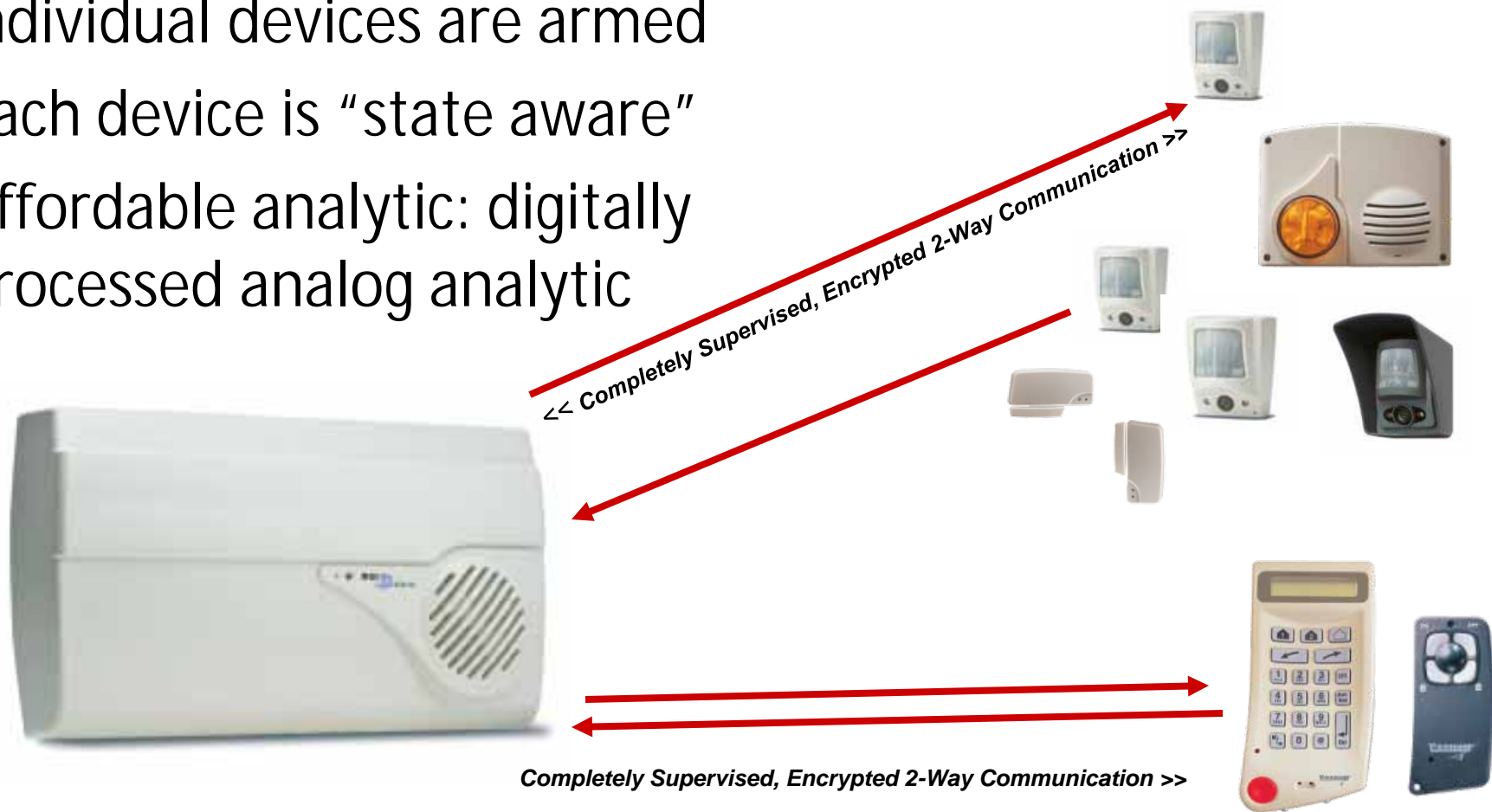
- Range
 - § RF transmission
 - 2,000 foot “line of sight” range between devices/panel
 - § Motion detection to 40 feet
 - § Night vision to 20 feet
- Battery Life
 - § Approximately 4 years (Varies depending on activations)
 - § Lithium AA
- Video
 - § compressed 200K MPEG 1 for universal reading
 - § 240 x 320 resolution, 15 frames/sec.



Primary and Back-up Battery Power Systems on Panel

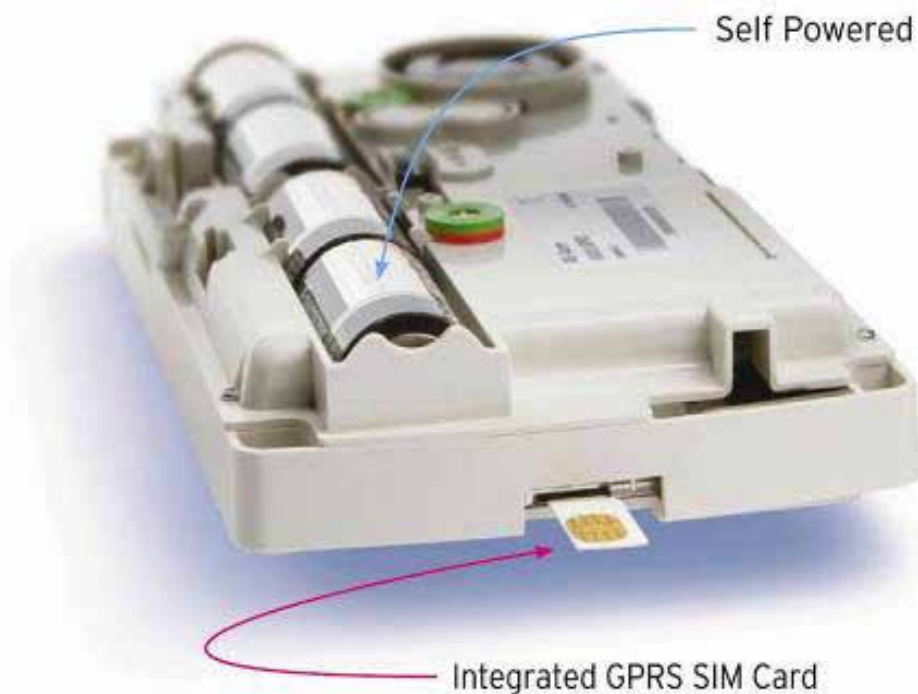


- The Panel is not armed:
individual devices are armed
- Each device is "state aware"
- Affordable analytic: digitally
processed analog analytic



- System features combinations of 3 methods of communication (PTNS plus 1 or 2)
 1. Optional Internal GPRS Cell
 2. Optional Ethernet - Intranet and Internet
 3. Telephone PSTN Dial-Up

- Certified ATT Partner
- SIM cards



- Keypads
- P-Cams
- Exterior Siren
- Interior Siren
- Contacts
- Key-Fobs
- Smoke
- GPRS Communicator



- Sensor Reliability - False Alarm Suppression
 - § IR Energy Complications
 - Sunrise/Sunset
 - Reflective Energy
 - Spurious IR Sources
 - § Environmental Complications
 - Weather (snow, sleet, rain)
 - Small Animals
- Camera Optical Complications
 - § Lens Obscuration
 - § Illumination



- Outdoor/Harsh Environment
 - § Transceiver/sensors/illumination/camera from -20F to +140F
 - § Mechanical design sheds water/dust
 - § NEMA Enclosure survives direct water jet
 - § Special Lens Coatings shed dust and water
- Analytics & Compensation
 - § Adaptive PIR sensitivity from -20F to +140F
 - § Dynamic filtering of outside light/energy
 - § Automatic Ambient Light Change Compensation
 - § On-board illumination to 40 feet
 - § Adaptive Background and Target/Time/Motion Algorithms
- Delivers >3,000 videos on one set of batteries



- Improved transmission/reception in difficult environments
- Resistance to jamming
- Deterrence to hacking and eavesdropping
- Easy installation
 - § PE has customized a mounting gimble for use on poles

- Every device is supervised by control panel every 8 minutes to validate communications and status.
- Enables capture of Serial #, manufacturing date, firmware and revision from each device by the panel with no manual input during installation.
- Facilitates installation with Roaming Keypad for range testing, validate detection, device locator.
- Enables AES encryption to secure communications and prevent hacking.

- Encryption Key between devices is changed every second.
- Eliminates eavesdropping.
- Eliminates hacking into the panel or devices.
- Eliminates crosstalk and interference from other alarm systems/devices in close proximity and overlapping RF.

- 146 interrupted copper thefts since deploying systems in 2009
- Estimated averted loss = \$544,800 (excluding saved revenue)
- Apprehensions
- Prosecutions
- Retributions













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Presenter Information

November 28, 2011

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NERC CIP Training and Exercise Coordinator. Contact: ralph.anderson@nerc.net, (321) 247-5687 (Work), (609) 218-3395 (Cell)

Ralph Anderson is the CIP Training and Exercise Coordinator for the North American Electric Reliability Corporation (NERC) joining NERC in August 2008. In this capacity he is responsible for conducting training both internal and external to NERC as well as coordinating drills and exercise both at the national level and those sponsored by NERC. He also provides technical expertise on the grid as needed for various government agencies. Ralph has over 27 years experience in Power System Operations, compliance, training and planning having worked at Florida Municipal Power Agency (Regulatory Compliance Officer, Transmission Planning Manager), SERC Reliability Corporation (Senior Compliance Auditor), Midwest ISO (Senior Operations Manager, Reliability Coordinator), Exelon Corporation (Shift Manager Bulk Power Operations, Distribution Systems Operator, Project Management and 12 years in nuclear operations, maintenance and procedure writing). Ralph has a BS (Management), from the University of St. Francis in Joliet, IL, and AAS (Mechanical Technology) from Joliet Junior College, Joliet, IL. He is also certified as a Reliability Coordinator and has maintained that certification since 1999. He is also certified in Certified in Risk and Information Systems Control (CRISC) with the ISACA. Prior to joining NERC, Ralph was very active in the American Public Power Association (APPA), and represented the state/municipal sector on the NERC Operating Committee. He is also a member of the Institute of Internal Auditors.

British Transport Police - National Metal Fusion Intelligence Unit & Operational Team - Protective Services

Contact: christopher.hearn@btp.pnn.police.uk, 020 7084 5442 (48442) (Work), 07920 856313 (Cell) Note: review dialing codes to the UK, varies by country.

Chris has 19yrs military background behind him and a further 15 yrs Police service having joined the British Transport Police in 1996. He is a career detective having worked in general duties, squads and Major Crime.

Since 2006 Chris has held a portfolio in Metal Theft for BTP which has covered training, intelligence, strategic and operational policing. He holds key roles and has extensive knowledge of the subject with International articles and presentations being given to both law enforcement and industries.

Chris sits on the National ACPO Metal Theft Working Group and the similar Network Rail Group he has day to day responsibility for the National OP LEOPARD FHQ operation team and the newly formed National Metal Theft 'Fusion Intelligence Unit' (industry and police working together). He is involved in cross industry and government policy and legislation review from FHQ in Camden, London.

E.ON Head of Business Resilience Contact: Barrie.Millett@eon-uk.com, 011 44 2476 192000 (Work), Note: review dialing codes to the UK, varies by country.

Barrie Millett has over 20 years security leadership experience, from policy and strategy development, tactical implementation of security and crisis management initiatives and development of effective fraud risk management programs. Following service as a Royal Marine Commando successfully transitioned in to the corporate environment, gaining specialist corporate security risk management experience with National and Multi National organizations holding senior security positions with Fraud Management Limited, Britannia Building Society and GE. Barrie is currently employed by E.ON UK as Head of Business Resilience, with responsibility for all security, business continuity, crisis management and fraud risk management programs. He has successfully managed a number of risks to the business including sustained direct action from various single issue action groups, effectively minimizing business interruption. A strategic results oriented security risk management leader with a proven track record of success in developing and implementing risk management strategies with a demonstrated readiness to make decisions and take the initiative in crisis situations, awarded several Leadership Awards for strategic development and implementation of a number of global key initiatives in diverse geographical locations. He is involved in a number of security associations and forums including; past Chairman of the ASIS International UK Chapter 208, a member of the Security Institute and sits on the UK Energy Security Managers Forum. Barrie is a risk management champion who ensures that “Business Resilience” becomes a key business enabling strategy.

Lead Security Specialist, Progress Energy-Corporate Security. Brian.Smith@pgnmail.com

Mr. Smith has over twenty (20) years of combined experience in security system design, security system installation/service, security management and security consulting. Since 1999 he has worked directly with power/utility clients throughout the East Coast such as: Progress Energy, Dominion Resources, Duke Energy, Orlando Utilities Commission, SCANA, Fayetteville Public Works and NASA. He has earned Applied Associates degrees in both Business Administration and Electronics Engineering. Mr. Smith has served in roles such as Project Manager, Project Engineer and Consultant for numerous industrial security projects. He developed and successfully operated an electronic security systems company for 6 years that specialized in CCTV, Access Control and Intrusion/Fire detection systems. His security experience includes the areas of utility companies, manufacturing, banking, vulnerability analysis, and security surveys. He has extensive liaison experience with local Fire Marshals, installation vendors, and general/electrical contractors. Current primary responsibilities are to design, specify, and project manage the installation of complex electronic surveillance, alarm and access control systems and manage all physical security systems and programs for Progress Energy. He is a Certified Protection Professional (CPP) and member of the American Society for Industrial Security. He has also achieved a Certification in Homeland Security (CHS). By qualifying with extensive experience in directly protecting portions of the nations critical infrastructure, Water Treatment and Electrical Utilities, the American College of Forensic Examiners Institute granted him a Level I certification. This high level certification demonstrates Mr. Smith's knowledge and expertise in physical security as it applies to Homeland Security.

Manager, CIP Compliance Monitoring , SERC Reliability Corporation. Contact MStryker@serc1.org, Office - (704) 494-7773, Cell - (704) 975-9326

Matt Stryker is the Manager of CIP Compliance Monitoring at SERC Reliability Corporation, a nonprofit corporation responsible for promoting and improving the reliability, adequacy, and critical infrastructure protection of the bulk power system in all or portions of 16 southeastern and central states. He serves as an Audit Team Leader or team member during audits of compliance with NERC Reliability Standards in the SERC Region.

Previously, Mr. Stryker held positions as an Associate Compliance Auditor, CIP Compliance Auditor, and Senior CIP Compliance Auditor at SERC Reliability Corporation. Prior to that, Mr. Stryker was the Financial and Operations Manager for a campus ministry in Puebla, Mexico working for CMF International. Prior to that, he was employed by IBM Global Services in Atlanta, Georgia as a Network Support Engineer and as a database designer.

Mr. Stryker has a BS in Management from Georgia Tech with a concentration in Information Systems.