

Performing Investigations for Analytical Revenue Protection Cases

Joseph Princiotta
Revenue Protection
Con Edison
New York, NY

Agenda

- Con Edison overview
- History of RP department
- Need for change
- Target high value cases
- Adjust investigations based on lead source
- Summary

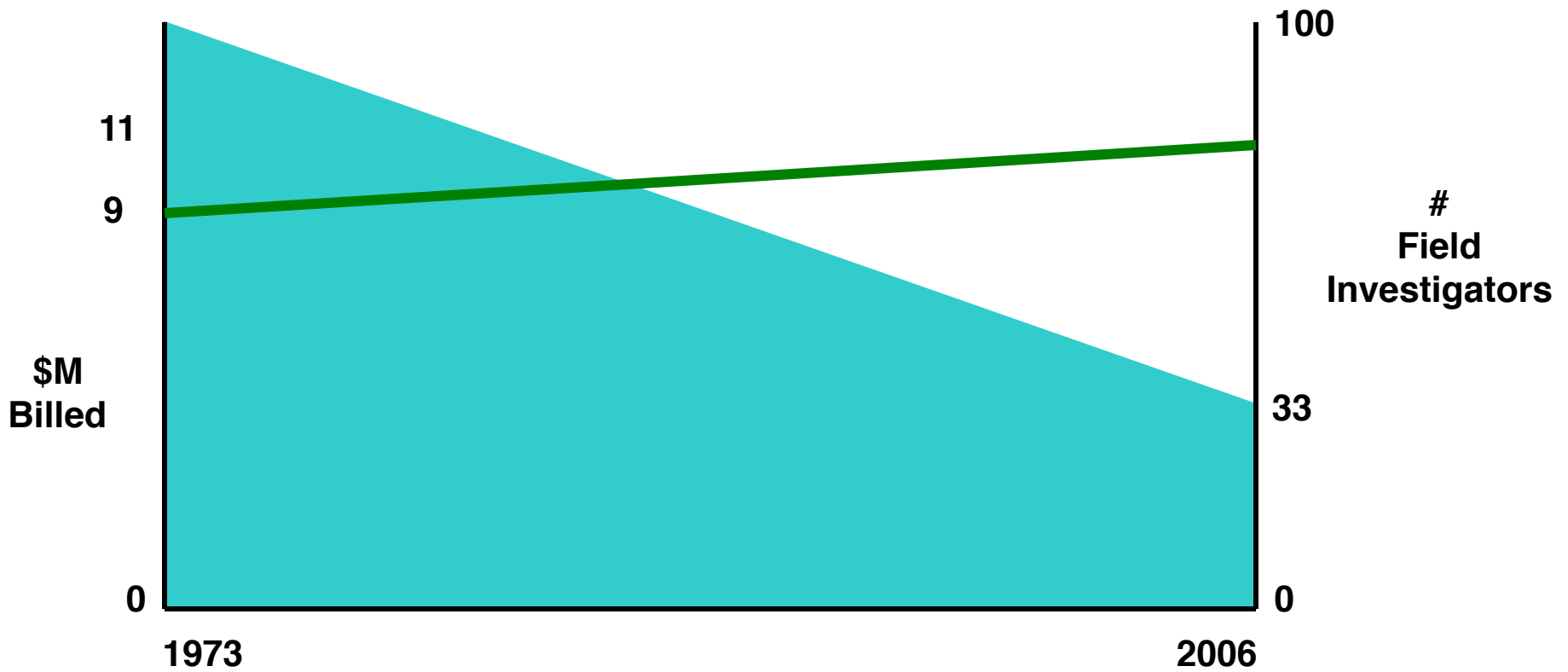
Who is Con Edison

- The Power of New York City, Westchester County and Orange & Rockland Counties
- Serving a population of 8,750,000 people
- Customer base of 4.1 million customers
- Annual Revenues of \$9 Billion
- Assets of \$19 Billion

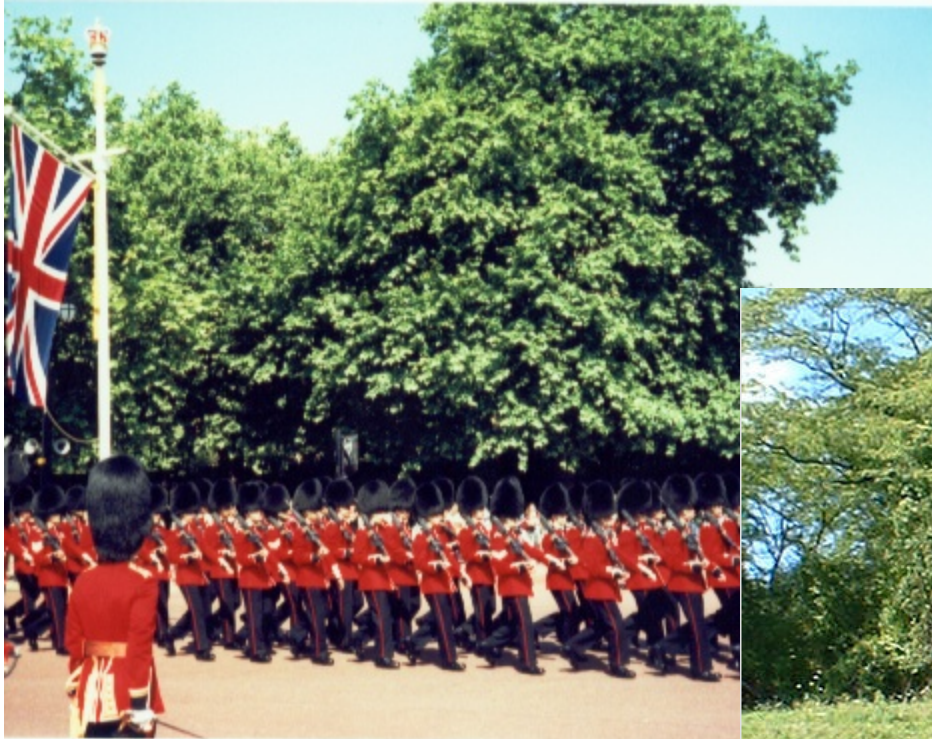
History of RP Department

- Con Edison first established a formal Revenue Protection department in the mid 1960's
- Over 100 field investigators at peak
- First database system dedicated to revenue protection in 1988
- Turnkey operation through billing and collection
- Productivity has continually increased over our 30 year history

30 Years of Learning



30 Years of Learning



0

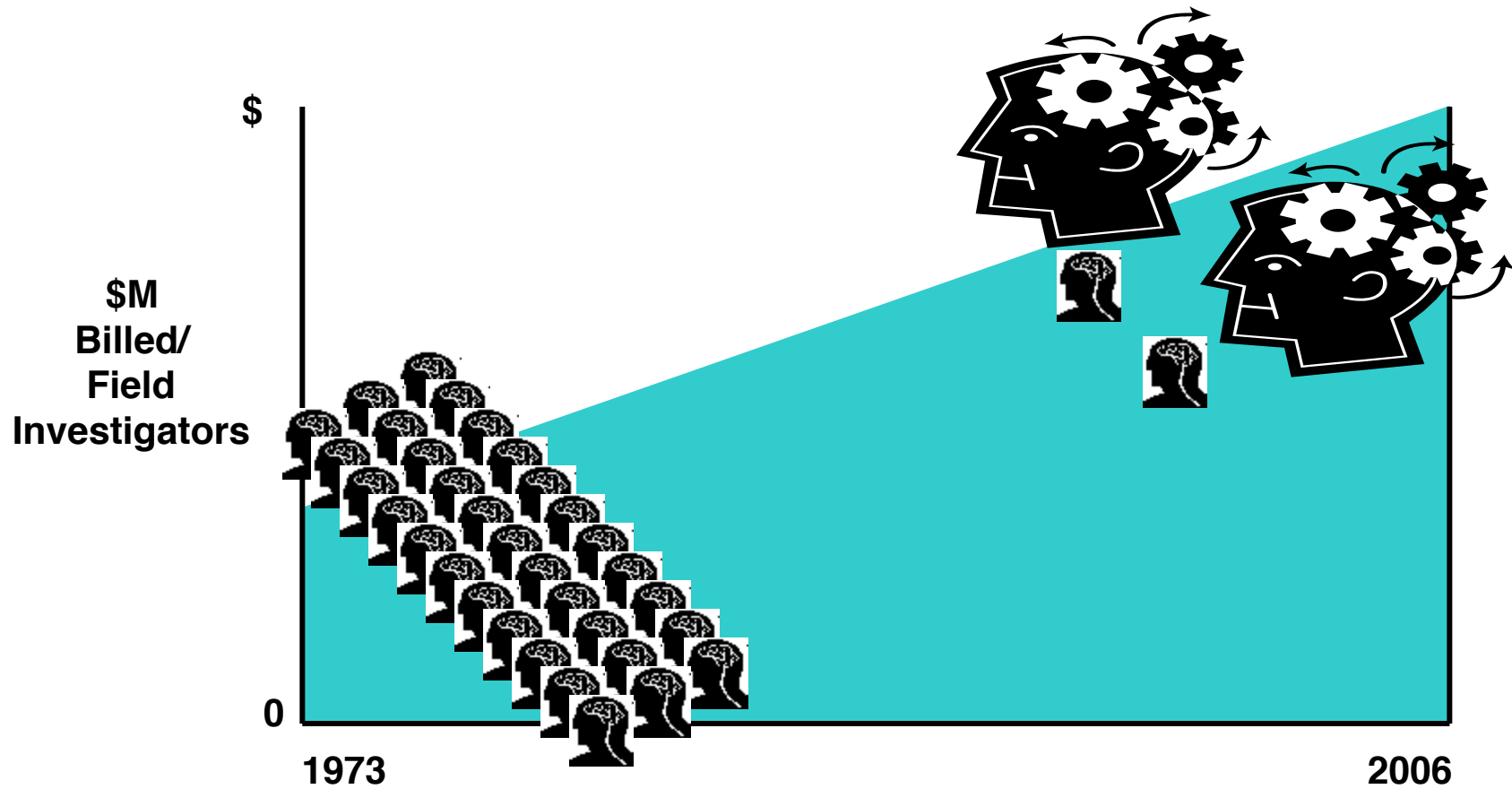
1973



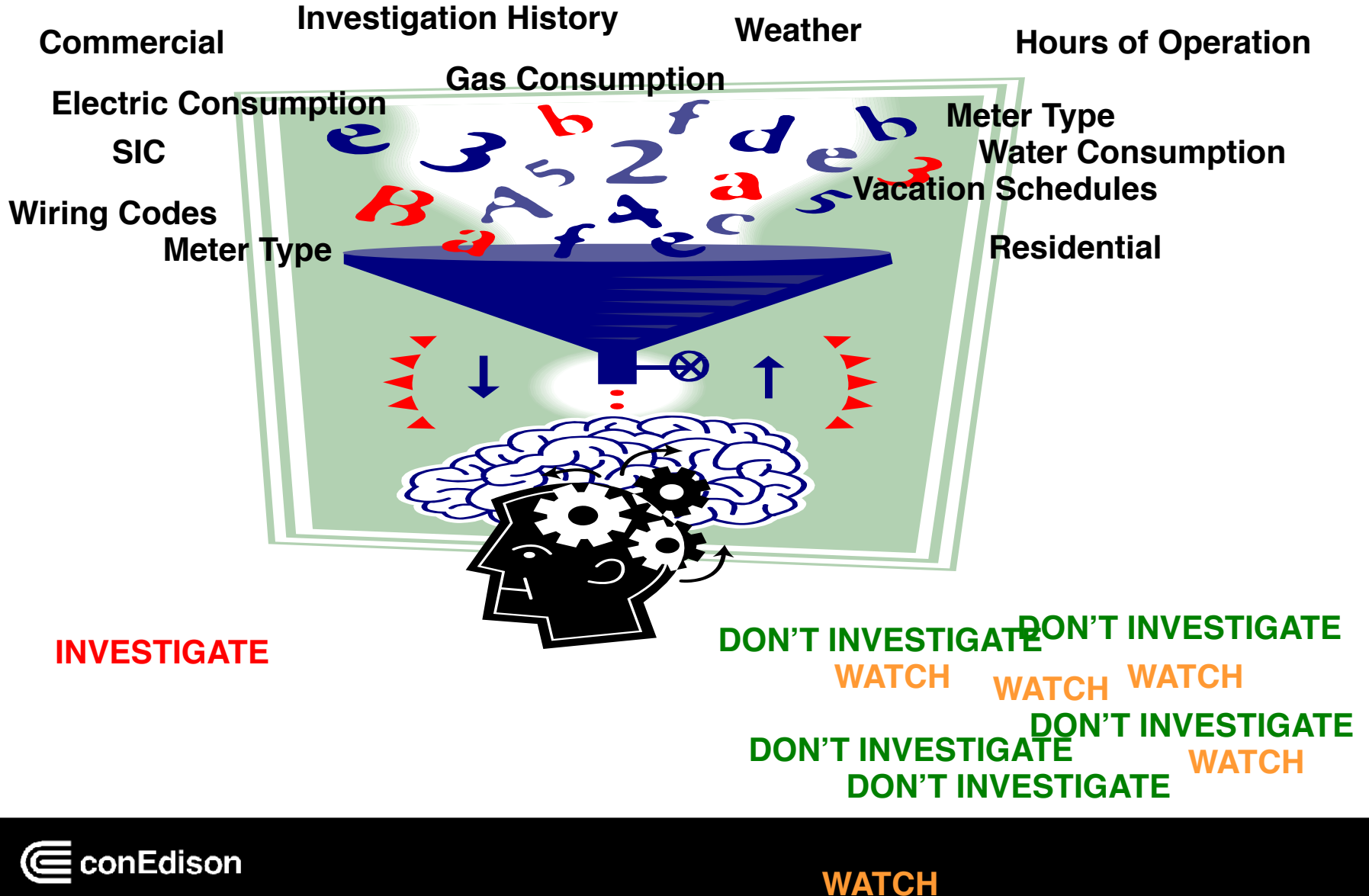
#

eld
igators

30 Years of Learning



30 Years of Learning



The Need For Change

- The current utility workforce is nearing retirement
- These experienced employees possess much unique, undocumented knowledge
- The continued decline in number of investigators has not provided for the same level of OJT
- Supervisors no longer have time to review internal reports
- Must rely on new tools, methods and services

Target High Value Cases

- Focus on commercial customers
- Analytical approaches look at businesses
- Pre-screening of cases adds efficiency
- Identifying patterns helps direct efforts

Adjust Based on Data

- The basics
 - Last actual reading projection

LAST ACTUAL READING PROJECTION

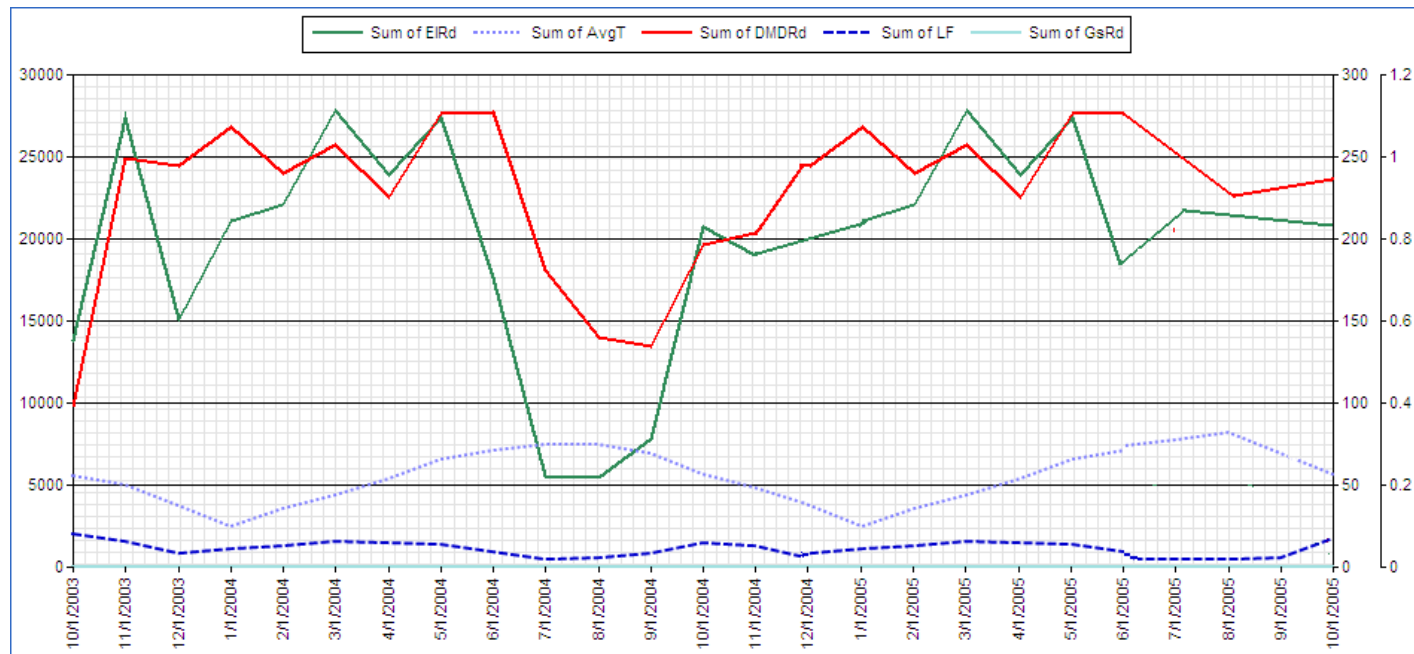
Date: 06/05/2006 KWH RDG 438 DMD FND 1.48 DMD LFT 2.04 GAS RDG TIME ARR 9:35
Last Actual Date: 05/16/2006 Last Actual Reading: 273 TIME LEFT 1:50
DAYS 20 DIFFERENCE 163 MULTIPLY BY 18 KWH USED 2934 ÷ DAYS = 146.7 x 30 30 DAY USE
PER DAY USE 4401

LOAD AT CALL

ROTATIONS: 1 PHASE 1: 13 PHASE 2: 33 PHASE 3: 22
SECONDS: 8.1 TOTAL AMPS: 68 X.12 =KW LOAD: 8.16
METER Kb: 21.6 SEC/REV: 8.1 CT QUOTIENT: 1 KW METER: 9.6 %DIFFERENCE: -15
4/19/2006 NC49:Elec Load Factor
DATE RECEIVED SOURCE

Load Factor Deviation

- What the analyst saw and said



Load factor is extremely low for type of business and pattern is very erratic. Please determine if this location is still being actively used. This customer has three accounts in the immediate vicinity. Other 2 look normal. Suspect intermittent tampering, most likely with CT equipment.

Load Factor Deviation

- What was found at site
 - Very large facility, too large for the consumption
 - Needed to confirm meter carried all the load



Load Factor Deviation

- What was found at site
 - Brought in Inspector Clouseau (a k a Eddy)
 - Performed energy audit of all equipment



Load Factor Deviation

- What was found at site
 - Large CT equipment
 - Locks and seals intact
 - Needed to look further because of data



Load Factor Deviation

- What was found at site
 - Lock on CT cabinet showed signs of tampering
 - Seal was removed



Load Factor Deviation

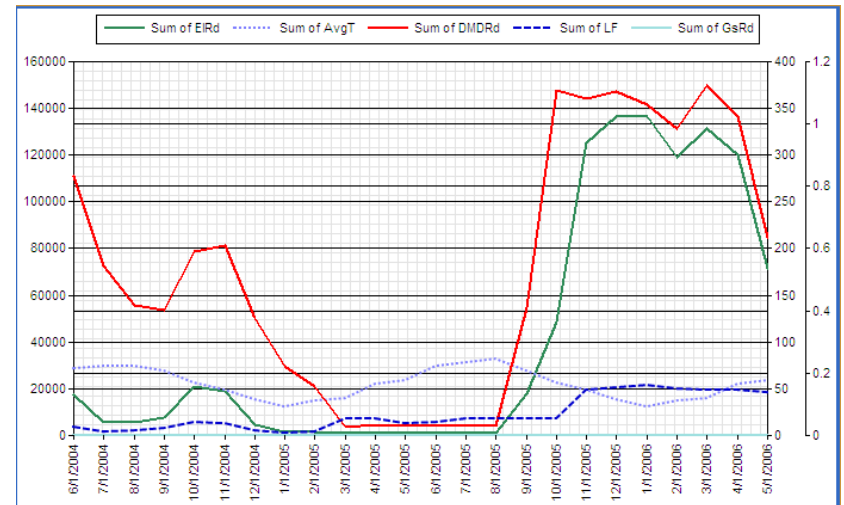
- What was found at site
 - Coil wires and nuts showed signs of wear
 - Obviously secondary wires were removed often



Load Factor Deviation

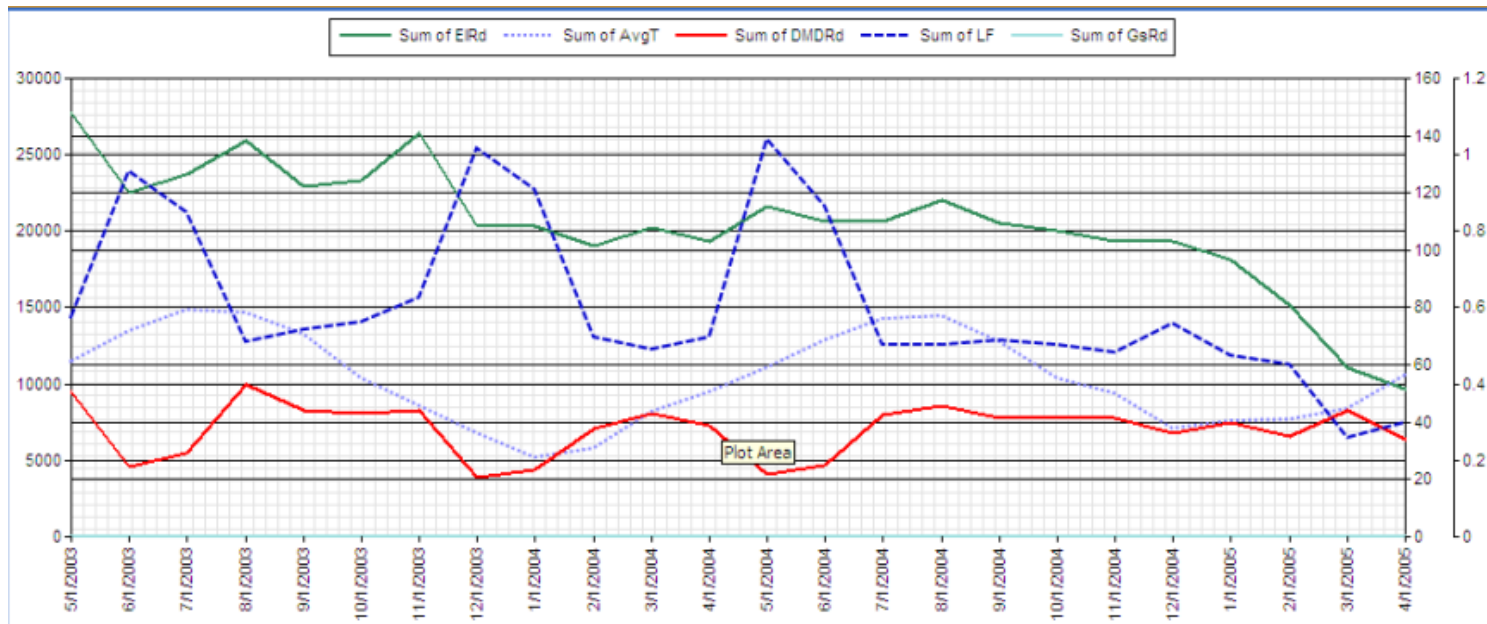
- Outcome of investigation

- Customer back billed for \$400K + \$200K LPC
- Equipment locked and sealed
- Consumption went from 20K/mo to 140K/mo



Electric Slope Deviation

- What the analyst saw and said



Investigate per elect slope drop. Current consumption down to 10K. Historically, consumptions was 20K. Corresponding drop in LF indicates that condition is intermittent but just began.

Electric Slope Deviation

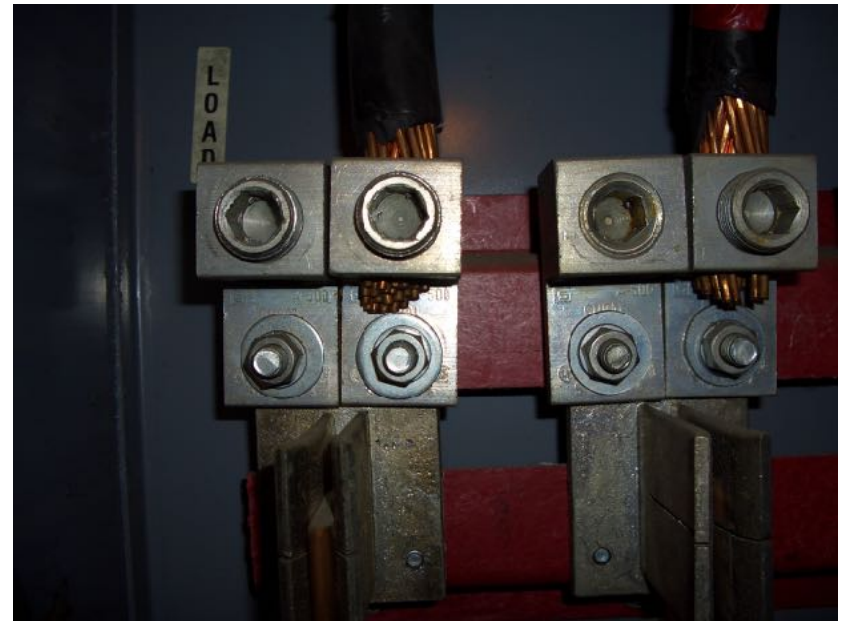
- What was found at site

- Room locked, waited 1 hour to get in
- Meter set, locked, sealed & recording
- Service switch box & breaker panel open
- Flashed service, all went out
- Cables in picture were not there



Electric Slope Deviation

- What was found at site
 - Consumption drop could not be explained
 - Set new meter and returned in 1 week, locked again but waited
 - Reading OK



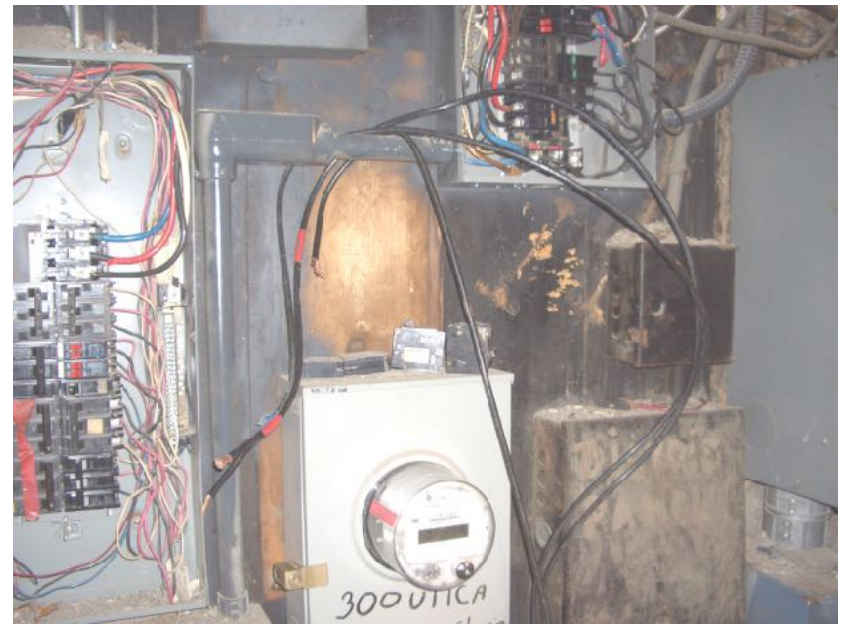
Electric Slope Deviation

- What was found at site
 - Looked around and found cables with color coding on ends
 - Found marks on service switch terminals
 - Found marks on breaker panel



Electric Slope Deviation

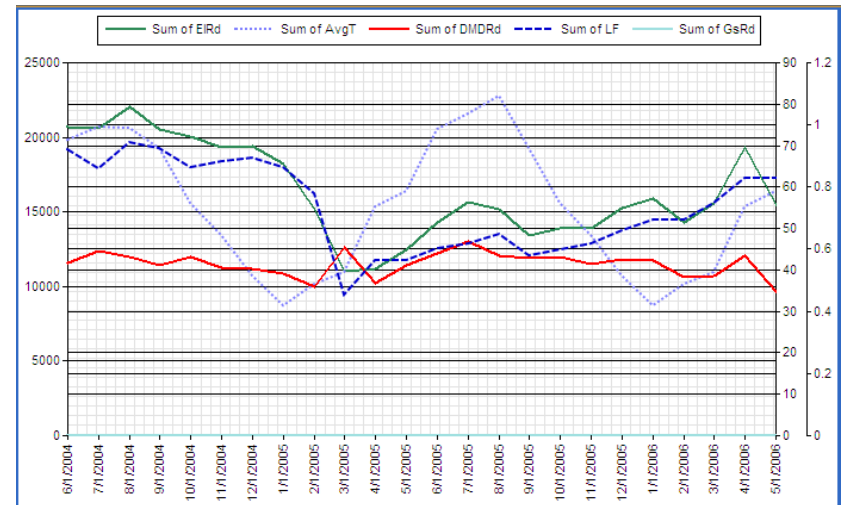
- What was found at site
 - Customer was periodically connecting cables from service switch to breaker panel
 - Took confidence in analysis and good investigative skills to keep looking



Electric Slope Deviation

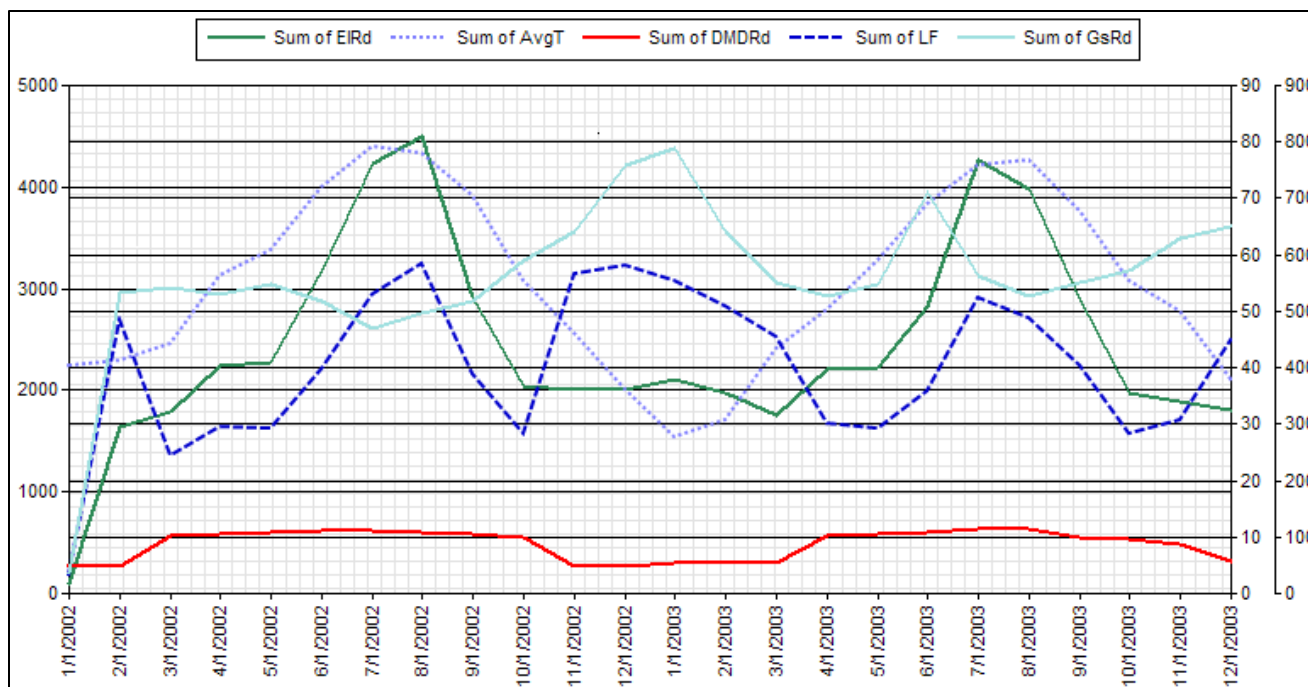
- Outcome of investigation

- Customer back billed for \$3K + small LPC
- Value of case was large since it was caught early
- Customer tried to show no theft by conserving but is now creeping up



Energy Ratio Deviation

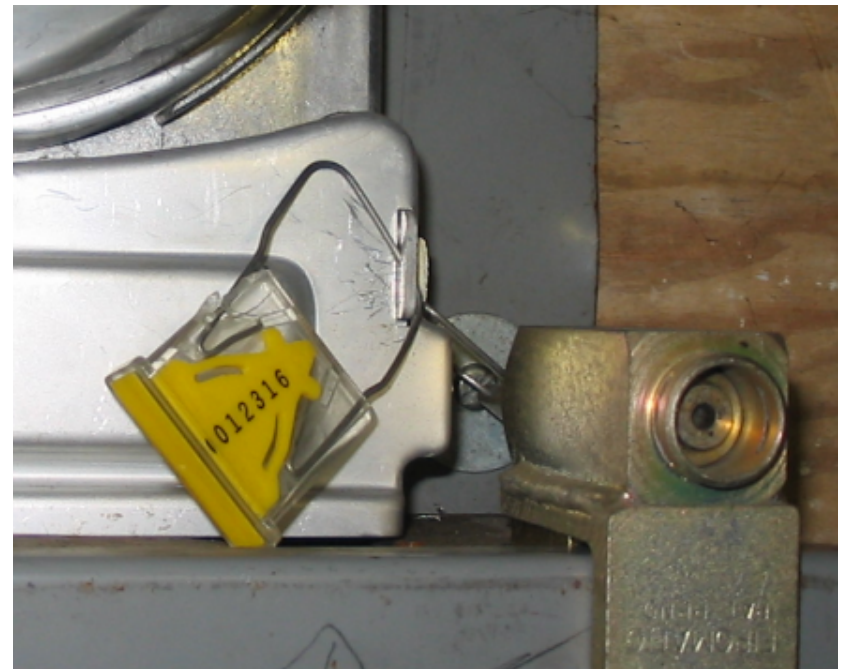
- What the analyst saw and said



Open 7 days. Pasta, seafood, pizza, variety of food. Very consistent seasonal pattern but the base electric consumption is too low compared to the base gas consumption for this type of business. Suspect one phase not registering or part of load being bypassed.

Energy Ratio Deviation

- What was found at site



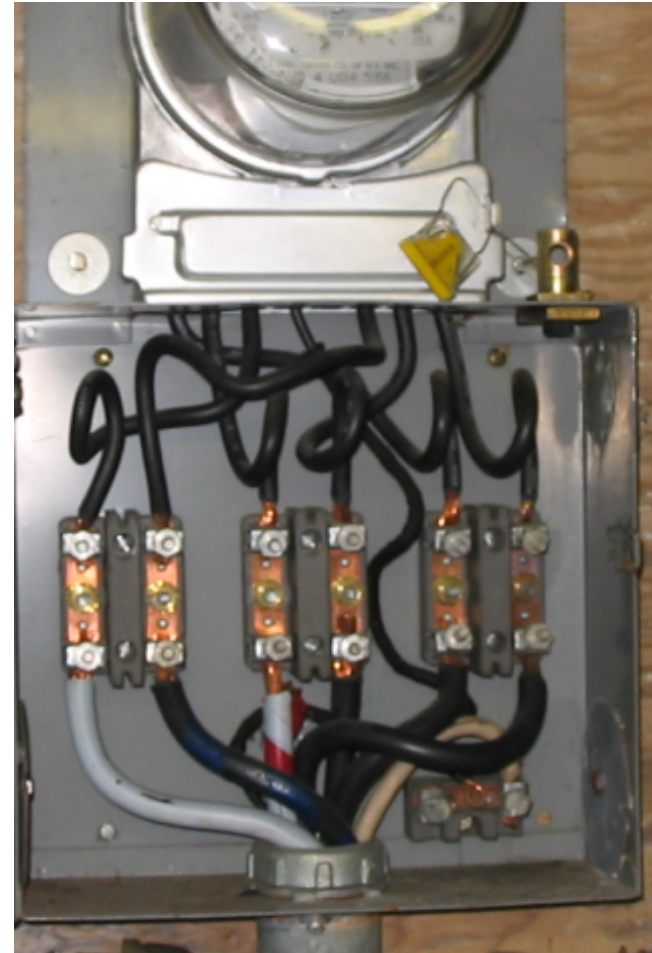
Energy Ratio Deviation

- What was found at site
 - Base seal was wrong color
 - No seal on terminal cabinet



Energy Ratio Deviation

- What was found at site
 - Terminal blocks appeared normal
 - Load at call (meter comparison to amps)



Energy Ratio Deviation

- What was found at site
 - Further investigation identified neutral wire screw missing
 - Caused 40% reduction in all readings

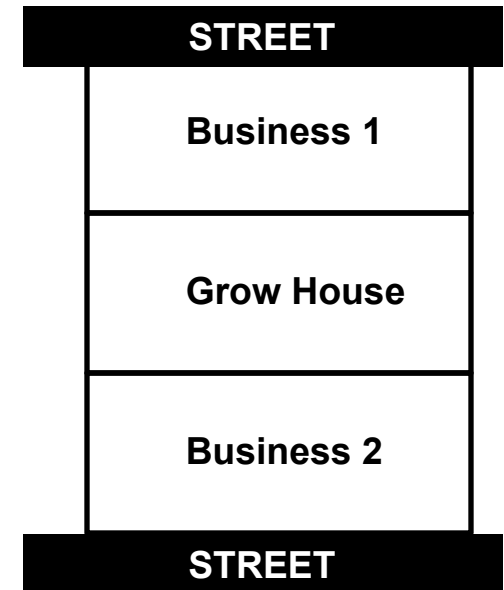


DEA Tip

- Facts leading to the investigation:
 - DEA asked if there was an account for this location; CIS review did not show active account
 - Assumed a grow house based on DEA inquiry
 - Found active accounts for businesses on either side of block

DEA Tip

- Approach at site:
 - DEA met offsite and brought to grow house (hidden between active businesses)
 - Performed energy audit to determine load
 - 80 1000W lights, pumps, AC, heaters, etc
 - Large consumer
 - Found fire damaged inactive meter, thorough investigation did not locate taps



DEA Tip

- Approach at site
 - Investigated meters of active business
 - Found professional electrician had wide line side taps from each of the active services to the to the abandoned center space
 - Measure current usage and compared with active load to confirm that source of electric serves was correct

Summary

- RP departments will be forced to do more with less
- Establish detailed and formal investigation techniques
- Use all available tools and services to improve the quality prescreening of your leads
- Use pre-investigation analysis to provide confidence in the lead and to look for the specific type of issue in the field if it is not obvious