

An Updated Assessment of Copper Wire Thefts from Electric Utilities



**Infrastructure Security and Energy Restoration
Office of Electricity Delivery and Energy Reliability
U.S. Department of Energy
October 2010**



For Further Information

This report was prepared by the Office of Electricity Delivery and Energy Reliability under the direction of Patricia Hoffman, Assistant Secretary, and William Bryan, Deputy Assistant Secretary.

Specific questions about information in this report may be directed to Alice Lippert, Senior Technical Advisor (alice.lippert@hq.doe.gov).

Contributors include David Rout, John T. Ostrich, Jr., Robert Laramey, and Kateri Young.

Sources of cover photos:

Transmission Line: http://commons.wikimedia.org/wiki/File:Electric_transmission_lines.jpg

“Copper Has No Value”: http://www.treehugger.com/files/2007/12/meth_heads_copp.php

Copper Wire Scrap: http://www.kitv.com/2006/0513/9210071_240X180.jpg

Copper Wire Spool: <http://athensmidday.blogspot.com/2008/01/copper-thefts-spreading-throughout.html>

Substation: Microsoft Word Images

Contents

For Further Information ii

Executive Summary iv

Background 1

Electric Utilities and Copper Demand 2

Copper Prices and Copper Wire Theft..... 2

Costs to Utilities from Copper Wire Thefts 4

 Repair Costs 4

 Copper Replacement Costs 5

Reliability Issues from Copper Theft..... 5

Security and Safety Issues 5

Geographic Patterns of Copper Theft 6

Primary Targets of Copper Wire Theft 7

Copper Wire Theft Mitigation 8

 Utility Efforts 8

 Legislative Efforts..... 9

 Scrap Dealers’ Efforts 10

 Law Enforcement Efforts..... 12

Conclusions..... 12

Executive Summary

The U.S. Department of Energy (DOE), Office of Electricity Delivery and Energy Reliability (OE) monitors changes, threats, and risks to the energy infrastructure in the United States. As part of that responsibility, OE published research in 2007 on the theft of copper wire from electric utilities. Early in 2010 there was evidence of an increase in such thefts. Because of this increase, OE decided to update its 2007 assessment of copper wire thefts.¹

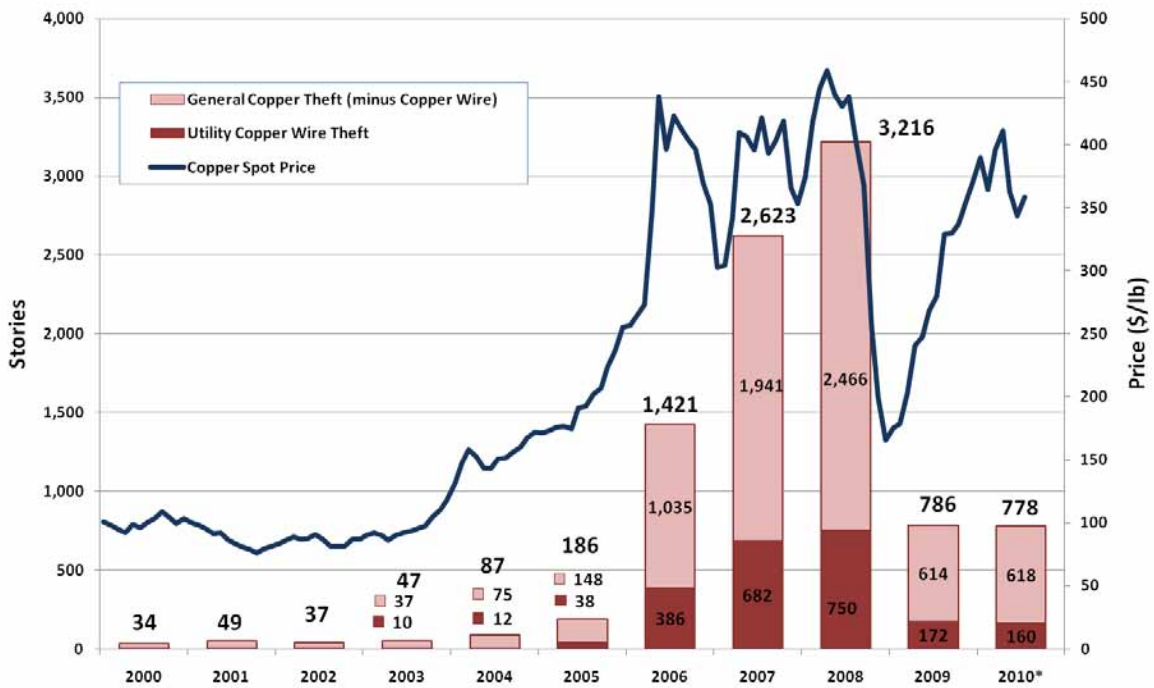
Copper wire theft continues today throughout the United States, but the magnitude of theft has been reduced considerably. The problem is not likely to cease as long as copper prices remain sufficiently attractive to would-be thieves. However, the combined efforts of electric utilities, lawmakers, scrap metal dealers, and local law enforcement have succeeded in reducing the problem and driving a wedge between copper price increases and comparable increases in copper theft.

- Electric utilities have launched public awareness campaigns, offered rewards for information leading to the arrest and conviction of thieves, marked copper wire for easier recovery from scrap metal dealers, and collaborated with stakeholders.
- Legislation to reduce copper theft has been introduced in every State and passed into law in all but five States as of August 2010.
- Scrap metal dealers are cooperating with utilities and lawmakers, reporting suspected thefts, and disseminating information through ISRI's Theft Alerts.
- Local law enforcement has become more responsive to electric utilities facing copper theft and is collaborating to recover more stolen copper and arrest those responsible.

Since the beginning of the 2004 spike in copper prices, copper theft and copper prices have been directly linked. Although this link continues today, the rate of thefts as a function of the upward pull of prices has been mitigated (see Figure ES-1).

¹ U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability, Infrastructure Security and Energy Restoration, *An Assessment of Copper Wire Thefts from Electric Utilities*, April 2007, <http://www.oe.netl.doe.gov/docs/copper042707.pdf>.

Figure ES-1. Copper Prices and Media Reports of Copper Theft



Note: 2010 data through August 31, 2010.
 Sources: Derived from LexisNexis® search of U.S. newspapers and U.S. newswires.

Background

The U.S. Department of Energy (DOE), Office of Electricity Delivery and Energy Reliability (OE) monitors changes, threats, and risks to the energy infrastructure in the United States. As part of that responsibility, OE published research in 2007 on the theft of copper wire from electric utilities. Early in 2010 there was evidence of an increase in such thefts. Because of this increase, OE decided to update its 2007 assessment of copper wire thefts.² This report is the result of that effort.

As in the prior study, OE staff searched and examined open-source references, news articles and press releases and calculated individual open-source report counts on copper theft in general, and in particular, copper wire theft from electric utilities.³ Duplicate reports or stories were eliminated, and various data sets were created, including the number of reports of copper theft by State, by assets affected, and by whether the theft was directed against electric utilities. In addition to examining thousands of news stories, OE staff investigated recent efforts by utilities, lawmakers, scrap metal dealers, and law enforcement to combat copper theft, and evaluated information on copper thefts from the utility, insurance, and scrap metal industries. However, given information and data limitations, this updated study makes no claim to be comprehensive in its coverage of all copper wire thefts at electric utility facilities.

With no comprehensive database available for copper wire theft from electric utilities or general copper theft from other locations, OE assembled several partial datasets to estimate the number of copper thefts and their associated costs. Three databases were used:

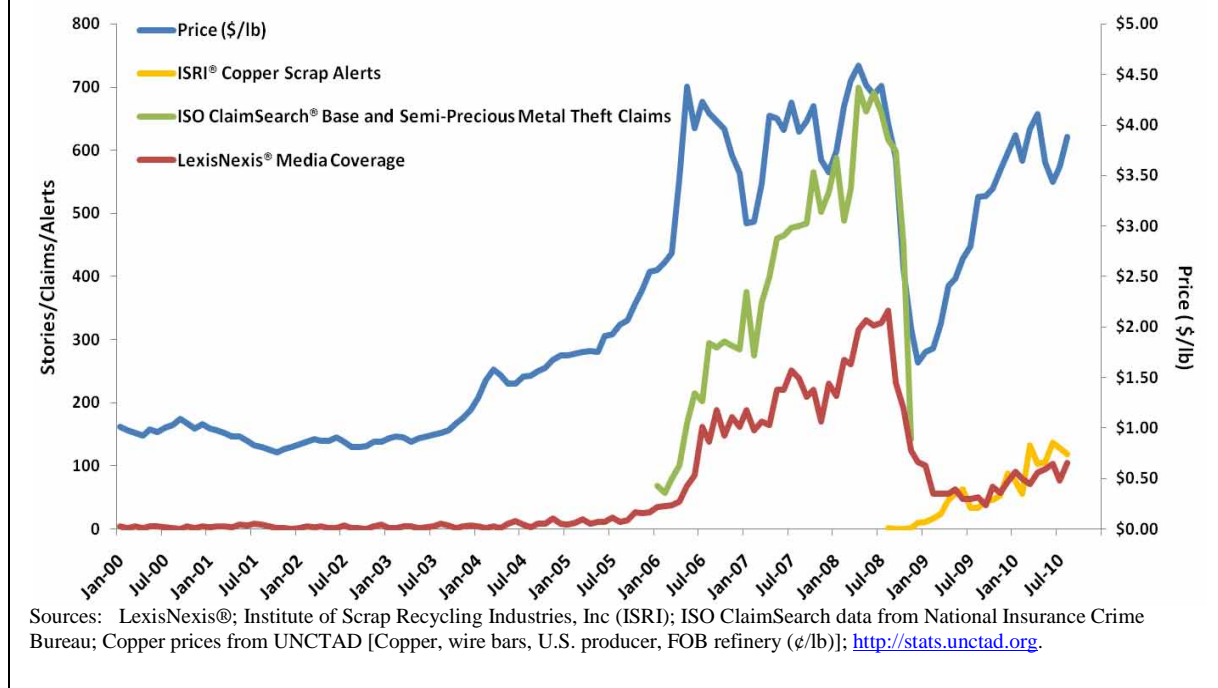
- LexisNexis® Media Coverage database (culled by OE) of open source media reports related to general copper theft over past decade.
- Insurance Services Office (ISO) ClaimSearch® database of reported insurance claims on semi-precious metal thefts (*January 2006 – December 2008 latest available*).
- Institute of Scrap Recycling Industries Incorporated (ISRI)® Copper Scrap Alerts database which started in late 2008 to track law enforcement reports of stolen copper.

It is the assumption of this report that these three sources reasonably represent copper theft, if not in terms of absolute numbers, at least in terms of trends. It is significant that although these three sources provided researchers with three very different sets of data, all three data sets illustrated nearly identical trends (see Figure 1).

² U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability, Infrastructure Security and Energy Restoration, *An Assessment of Copper Wire Thefts from Electric Utilities*, April 2007, <http://www.oe.netl.doe.gov/docs/copper042707.pdf>.

³ This study refers to both copper wire theft (from electric utilities) and copper theft in general. The terms are not used interchangeably. Copper wire theft refers to utilities and copper theft is the more general term referring to copper theft from any asset, not just electric utilities.

Figure 1. Copper Theft Trends, January 2000 – August 2010



Electric Utilities and Copper Demand

Copper is attractive to the electric utility industry because it is an excellent conductor of electricity, it resists corrosion, and in spite of recent price increases, it is inexpensive relative to alternate metals over time. Because of its properties of high ductility, malleability, and electrical conductivity, it has become the benchmark for almost all types of wiring.⁴ Utilities have become targets of copper theft because tons of copper are used in each electric utility substation, mostly in transformers. Utilities also maintain large concentrations of copper wire at utility construction sites and storage yards, in the back of utility trucks, and in transmission and distribution lines.

Copper Prices and Copper Wire Theft

The price of copper has been the major factor directly influencing general copper theft and copper wire theft from electric utilities. In 2004 and 2005, reports of copper thefts began to rise dramatically as copper prices increased. When spot copper prices rose above \$3.00/lb in 2006, the magnitude of thefts began to grow exponentially (see Figure 2). General copper thefts excluding copper wire (shown as light red bars) increased more rapidly than copper wire thefts (shown as dark red bars). As copper prices cycled up and down during 2006, 2007, and 2008, copper thefts moved in similar directions.

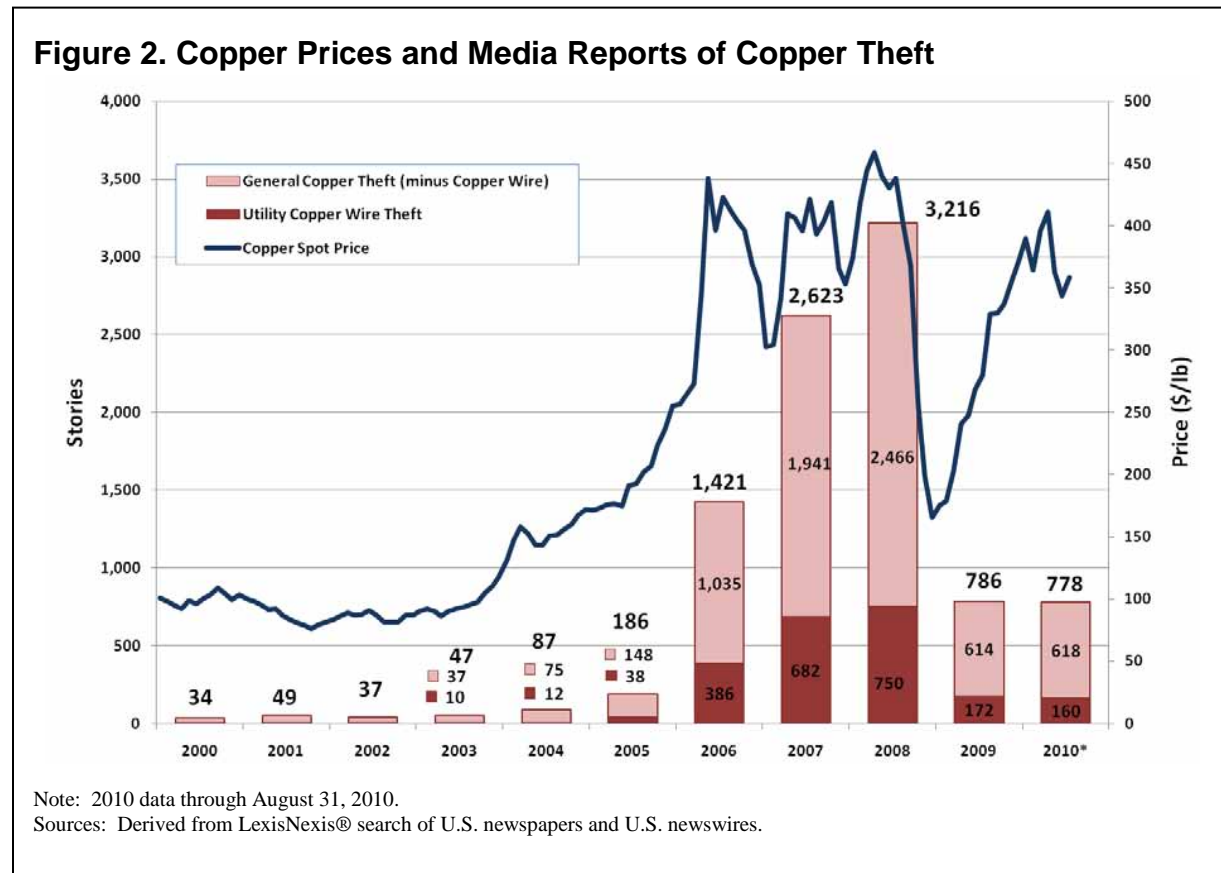
When the price of copper began to decrease in the summer of 2008 and continued falling throughout the year due to the recession, the number of reported copper thefts began to drop. In the spring of 2009, the price of copper began to rebound but the price was still too low to

⁴ http://www.copper.org/copperhome/Electrical/wiring_home.html.

encourage a resurgence of copper theft. It was not until the price began to average over \$3.50/lb that reports of thefts began to climb. Even so, a significant price increase did not occur until the end of 2009. For that reason, reports of copper theft in 2009 were down 79 percent from the peak year of 2008.

Figure 2 shows the trend in thefts from 2000 to August 2010. Thefts in the first eight months of 2010 are about equal to the total number of thefts for 2009. If this rate continues through 2010, total copper theft reports are projected to be about 50 percent higher than in 2009.⁵ Although copper thefts in 2010 are trending upward, they are occurring at about one half the rate from years past with similar copper prices. This trend indicates that a number of factors may have contributed to inhibiting copper thefts despite very high copper prices.

Utility copper wire theft, as a portion of all copper theft, is also shown in Figure 2. It is noteworthy that in 2009 and 2010, copper wire theft is a much smaller portion of all copper theft reported. Likely, this phenomenon is further evidence that measures to reduce the thefts at electric utilities are having a positive impact.



⁵ OE estimated the last four months of 2010 to get a full year of copper theft for 2010. An examination of futures prices indicated the rate of thefts in the first eight months of 2010 would continue for the remaining 4 months.

Costs to Utilities from Copper Wire Thefts

Repair Costs

OE analysis for this study reflects approximately 9,000 media reports of copper theft over the past decade. A review of these reports found that the vast majority of the thefts result in very minor monetary costs to the utility. A thief typically steals an amount of copper valued at several hundred dollars; the utility normally spends just over one thousand dollars to make the repairs.

Although most repair costs are low, there have been reports in the press (in the past ten years) of very high costs associated with copper wire thefts from electric utilities across the country. For example:

- A spokesman for AEP's Appalachian Power, which services large portions of West Virginia, reported in September 2010 that the utility spends about \$1 million annually to replace stolen copper wire.⁶
- Michigan utility DTE Energy reported that its thefts had cost the utility \$10 million in 2007, and referred to the issue in 2008 as "the most significant threat we have."⁷
- Pacific Gas & Electric said in 2007 that thefts had cost it more than \$3.2 million in damage,⁸ or about \$1 million per year.⁹
- Sierra Pacific Power Company reported in April 2007 costs of \$1.5 million to repair and replace stolen copper wire from its Truckee-to-Verdi power line in California and Nevada.¹⁰
- Entergy Louisiana reported that it suffered \$1 million in material thefts in 2006 alone, and that copper theft escalated after hurricanes Katrina and Rita.¹¹

It appears that although such instances of significant loss have been well publicized, the average loss to most utilities has been minor. The annual 10K financial filings of several large utilities¹² were reviewed (for the years 2008 and 2009) and none of these financial reports mentioned copper wire theft.

In 2008, the Electric Safety Foundation International (ESFI) collected data on copper theft from 618 electric utilities, which corroborated OE's analysis of media coverage. ESFI found the overall costs to utilities from copper thefts to be low, averaging about \$1,200 in repair costs per

⁶ <http://wowktv.com/story.cfm?func=viewstory&storyid=86129>.

⁷ <http://www.networkworld.com/news/2008/052908-dte-energy-cso-coppe0r-theft.html>.

⁸ <http://www.bizjournals.com/sacramento/stories/2007/09/10/daily37.html>.

⁹ <http://nl.newsbank.com/nl->

[search/we/Archives?p_product=MC&s_site=montereyherald&p_multi=MC&p_theme=realcities&p_action=search&p_maxdocs=200&p_topdoc=1&p_text_direct-0=117C123B60322830&p_field_direct-0=document_id&p_perpage=10&p_sort=YMD_date:D&s_trackval=GooglePM](http://nl.newsbank.com/nl-search/we/Archives?p_product=MC&s_site=montereyherald&p_multi=MC&p_theme=realcities&p_action=search&p_maxdocs=200&p_topdoc=1&p_text_direct-0=117C123B60322830&p_field_direct-0=document_id&p_perpage=10&p_sort=YMD_date:D&s_trackval=GooglePM).

¹⁰ 'Scrapping' for copper, other metals, helps feed meth habit, Reno Gazette Journal, April 3, 2007 from LexisNexis Search.

¹¹ Michelle Millhollon, "Copper wire thieves could get prison shocker," Advocate - Baton Rouge, La., May 10, 2007, <http://pqasb.pqarchiver.com/theadvocate/access/1268703651.html?FMT=ABS&FMTS=ABS:FT&date=May+10%2C+2007&author=MICHELLE+MILLHOLLON&pub=Advocate&edition=&startpage=6&desc=Copper+wire+thieves+coul+d+get+prison+shocker>.

¹² OE reviewed the financial reports of American Electric Power, Duke, DTE, San Diego Gas & Electric, Southern California Edison, and Pacific Gas & Electric.

incident.¹³ The ESFI data for 618 respondent utilities indicated that there were 18,400 individual copper theft incidents, with overall repair costs of \$22 million. Total repair costs for 2008 from all copper theft ranged from \$1,500 to \$20,000 for half of the respondent utilities. Several very costly thefts drove the average cost per utility to \$57,000. The highest repair cost for a single utility in 2008 was \$2 million.¹⁴

Copper Replacement Costs

According to the 2008 ESFI study, approximately one-third of the cost to make repairs after a copper wire theft was related to the replacement cost of the stolen copper wire. The remaining two-thirds of the cost was typically associated with paying the repair crews, but also included replacement cost of other equipment damaged in the theft.¹⁵ In 2008, the price of copper was at an all-time high, peaking at \$4.59/lb in April of that year. In 2009 copper prices dropped, and as a result, replacement costs for the stolen copper wire represented a smaller percentage of the repair cost. For example, when the price of copper was about \$2.00/lb for most of 2009, the overall replacement cost of copper was only about one-fifth of the overall repair cost.

Reliability Issues from Copper Theft

Copper wire theft *can* affect the reliability of electricity service and cause customers to lose power, but the amount and duration of the outages to date has been minor. OE's *Energy Assurance Daily* reported 2,021 outages of more than 10,000 customers each over the past five years, and only 25 of these (or about one percent) were attributed to copper wire theft.¹⁶ Power outages due to copper wire theft are typically in the 2,000-3,000 customer range. Of all outages due to copper wire theft, the largest event left 19,000 customers without power, according to OE's *Energy Assurance Daily* reports. However, in that case, the customers had their power turned off by their utility to make repairs to grounding wires cut at a substation by a copper thief.¹⁷ Utilities lost on average 420 total minutes of electricity service during the entire year, due to copper wire theft, according to 2008 data collected from 618 utilities by ESFI.¹⁸ It is important to reiterate that during each minute of service interruption, only a few thousand customers were affected. With the current systems and procedures in place to safely operate and protect the bulk electric grids, the loss of a single substation due to copper wire theft has not threatened the entire power grid.

Security and Safety Issues

The OE study has not uncovered any evidence that copper wire theft at electric utilities has ever been initiated specifically to render an asset (typically a substation) inoperable, or to target or impact the bulk electric system. Nor has OE found any information indicating that copper

¹³ ESFI surveyed 3,100 utilities and 618 completed its survey. ESFI Copper Theft Baseline Survey of Utilities in the United States, January 2009, <http://www.esfi.org/index.cfm/page/Copper-Theft-Baseline-Survey-of-Utilities-in-the-United-States/cdid/10983/pid/10272>.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ <http://www.oe.netl.doe.gov/ead.aspx>.

¹⁷ Ibid.

¹⁸ Op. cit., ESFI study.

thieves might be members of terrorist groups or working as foreign agents. To date, copper wire theft has not posed a national security threat to the United States. It appears that the motives behind copper wire theft are merely economic.

Copper wire theft can endanger the safety of the utility employees who may touch ungrounded wires and equipment. However, OE analysis found no reported cases of workers being injured or killed as a result of damage caused by copper wire thefts. It is possible that holes cut in fences and grounding wires stolen could increase the risk that a person may wander into a substation and be injured. However, there have been no reported cases of such injury. Copper wire theft poses the greatest risk for the thieves who endanger their lives by cutting wires from energized equipment. Utilities reported 13 such fatalities on the ESFI survey due to copper wire theft in 2008.¹⁹

Geographic Patterns of Copper Theft

Copper theft is a global problem affecting many industries and many nations. Within the United States, the electric utility industry specifically listed copper wire theft as a “major concern” by about 44 percent of respondents on the ESFI survey. Another 48 percent of respondents were “somewhat” concerned.²⁰ The number of thefts varies by geographic region. Distribution of copper theft in the United States over the past five years²¹ is shown in Figure 3.

Reports of copper theft have been most prevalent in California and Florida, but have also been significant in Ohio, Alabama, Pennsylvania, Michigan, New York, Texas, and Tennessee. Several factors appear to contribute to rates of copper theft. Drug use (particularly crystal methamphetamine), moderate climates, proximity to scrap metal dealers (willing to buy), population density, unemployment, and poverty have been important factors contributing to increased copper wire theft. While many of these factors exist to some degree in each of the States, more of these factors are evident in California, the State with the highest total of copper thefts reported. The greatest number of copper thefts was reported in California in four out of the past five years. Florida had the greatest number of media reports of copper theft in 2009.

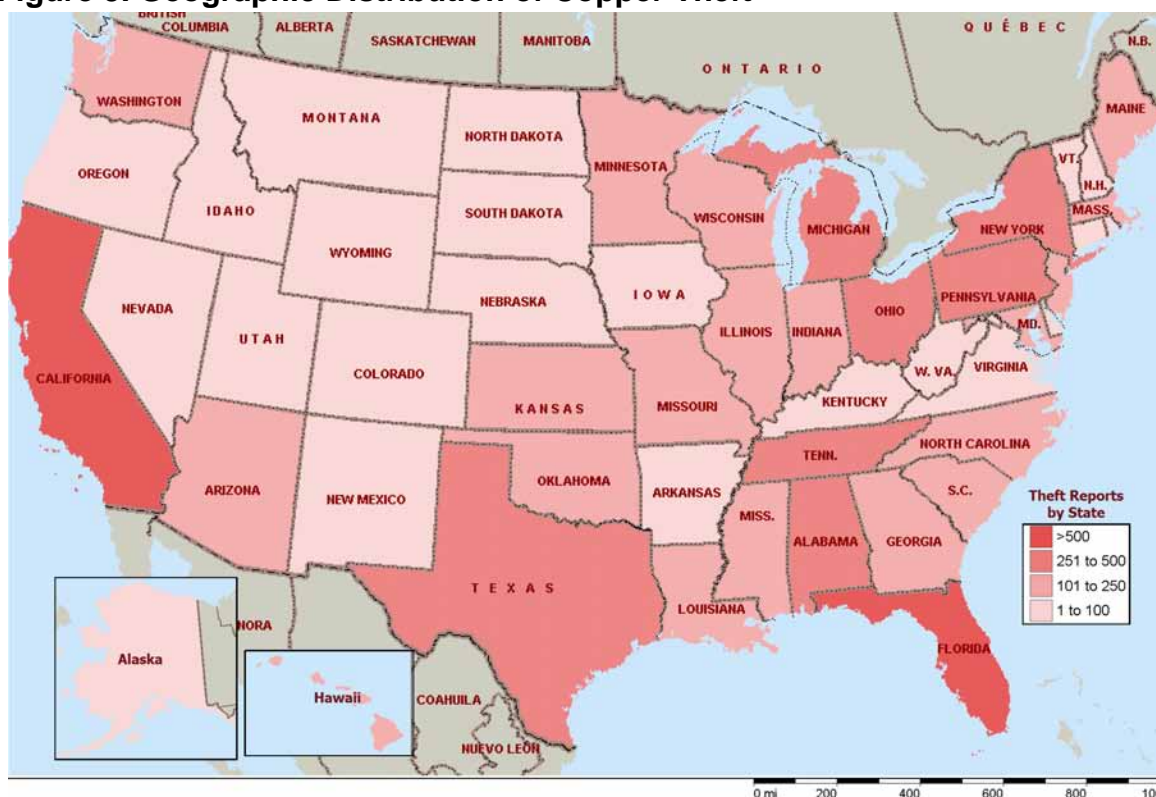
As noted earlier, police departments around the country have reported a strong link between crystal methamphetamine use and copper wire theft. In addition, OE’s analyses of physical attacks on electric infrastructure indicate a pattern of increased theft in densely populated areas, and often, close proximity to a scrap dealer contribute to higher copper theft rates.

¹⁹ Ibid.

²⁰ Ibid.

²¹ Articles published from January 2006 through August 2010.

Figure 3. Geographic Distribution of Copper Theft



Copyright © and (P) 1988–2009 Microsoft Corporation and/or its suppliers. All rights reserved. <http://www.microsoft.com/mappoint/>. Certain mapping and direction data © 2009 NAVTEQ. All rights reserved. The Data for areas of Canada includes information taken with permission from Canadian authorities, including: © Her Majesty the Queen in Right of Canada, © Queen's Printer for Ontario. NAVTEQ and NAVTEQ ON BOARD are trademarks of NAVTEQ. © 2009 Tele Atlas North America, Inc. All rights reserved. Tele Atlas and Tele Atlas North America are trademarks of Tele Atlas, Inc. © 2009 by Applied Geographic Systems. All rights reserved.

Note: The total number of stories over the period January 2006 – August 2010.

Sources: Calculated from about 9,000 media reports from LexisNexis®.

Primary Targets of Copper Wire Theft

OE analysis of press data suggests utility poles are the primary target of copper wire theft. Substations also appear to be an important target of copper wire theft, as do storage facilities and construction sites.²²

The ESFI survey corroborates the press report data. According to the survey, thieves targeted the copper grounding wires on utility poles, inside transformers and in substations in 2008. Thieves have also taken large amounts of copper wire from spools at unguarded or unlocked construction sites, warehouses, and storage sites. Press reports and the ESFI survey data indicate that thieves do not usually try to steal wire from energized equipment, but when they have tried to do so, they have been successful. In other words, thieves have rarely been injured or killed during copper theft attempts.²³

²² Ibid.

²³ Op. cit., according to the ESFI Survey results, about 16 percent of incidents involved energized equipment which in 2008 totaled 2,900 thefts. Only 19 thieves were reported injured as a result of copper wire theft from electric utilities in that year. ESFI reports 13 died during the 18,400 reported thefts.

Copper Wire Theft Mitigation

The next four sections describe measures taken by utilities, legislators, scrap dealers and law enforcement that appear to have mitigated the increase in copper thefts.

Utility Efforts

Utilities have launched public awareness campaigns to explain the dangers of copper theft:

- American Electric Power established copper-theft web pages on seven of its subsidiaries' websites.²⁴
- San Diego Gas & Electric posted a “Copper Grounding Safety Alert” and asked residents to report thefts to the company.²⁵
- Southern California Edison, Colorado Springs Utilities, and other companies have established similar websites.

The ESFI study reported that to increase public awareness and to work closely with potential stakeholders, utilities have used radio, local television, local magazines and newspapers, newsletters, bill stuffers, websites, word of mouth, school class demonstrations, press conferences, City Council and Fire Department meetings, and letters to scrap dealers and law enforcement.²⁶ Some utilities have provided the public with hotline numbers for reporting suspicious activities; others have encouraged the public to call the police when they see potentially unlawful actions at utility sites.

Some utilities have collaborated with other stakeholders to reduce copper theft. For example, several electric companies partnered with an insurance company to form the East Texas Copper Theft Task Force in September of 2007. The partners mount public awareness campaigns, collaborate with law enforcement and scrap metal dealers, and discuss legislative ideas with lawmakers. The members include AEP SWEPCO, Farmers Electric Cooperative, Insurance Network of America, Rusk County Electric Cooperative, Upshur Rural Electric Cooperative, and Wood County Electric Cooperative.

Some larger utilities have offered rewards of varying amounts for information leading to the arrest and conviction of anyone stealing or attempting to steal materials from their facilities. Duquesne Light, for example, announced a reward of \$10,000 on June 26, 2010.²⁷

Utilities have also marked materials for identification, making it harder for thieves to sell the material. For example:

- Oncor uses nanotechnology to mark company-owned items; the marking is only visible with special equipment.²⁸
- Kentucky Utilities began using a similar technology – a “micro-encryption system” – in September 2008.²⁹

²⁴ <https://www.aepnationalaccounts.com/safety/CopperTheftKills.aspx>.

²⁵ <http://www.sdge.com/safety/electric/copperTheft.shtml>.

²⁶ Op. cit., ESFI report.

²⁷ <http://www.duquesnelight.com/News/NewsReleases/2010/nr100626.pdf>.

²⁸ <http://www.pegasusnews.com/news/2007/aug/03/oncor-uses-nanotechnology-fight-against-copper-wir/>.

- Puget Sound Energy has marked its copper wire.³⁰
- Other utilities have painted wires to disguise them and make them less marketable.

In addition, utilities have installed detection or alarm systems and surveillance equipment (including fake cameras). These systems appear to be the most cost effective option to prevent theft at the substations that are likely to be targeted by thieves. These types of systems work best when they involve constant monitoring of high risk sites, instant alert to local law enforcement when a human intruder is detected, and quick response by law enforcement to catch perpetrators (possibly before they damage electric systems).

All substations have warnings and barriers to keep out intruders, but determined thieves can get access to the facilities. More expensive and sophisticated fencing can be installed (at a high cost) to keep thieves out of high value substations or sites that have been damaged repeatedly. Puget Sound Energy did this and notes success.³¹

Other measures used by various utilities to combat copper theft include:

- Improving lighting at company-owned facilities.
- Using infrared detectors and security cameras.
- Establishing roving patrols.
- Storing copper wire in steel storage pods, away from substation fences, or indoors.
- Encasing grounds in concrete.
- Using alternatives to copper (copper weld, for example).

Legislative Efforts

Although both Federal and State lawmakers have been active in considering possible copper-theft legislation since 2007, Federal efforts have stalled. In August 2008, the United States Senate and House of Representatives introduced Federal copper-theft legislation. U.S. Representative Bart Stupak (D, MI) introduced the Copper Theft Prevention Act of 2008³² and U.S. Senator Amy Klobuchar (D, MN) introduced companion legislation.³³ The laws would have required secondary copper recyclers to maintain purchase records for at least two years, banned recyclers from cash transactions exceeding \$500 for the purchase of copper, and established fines of up to \$10,000 for violators. Neither bill left committee.

By contrast, State lawmakers have been far more effective in pursuing and enacting copper-theft legislation. Starting in 2007, eight States signed legislation primarily targeting scrap metal dealers and the way in which they do business. Alabama, Arkansas, Arizona, Colorado, Connecticut, Louisiana, Texas, and Washington were the first to sign such laws, which focused on requiring scrap metal dealers to obtain identification from scrap sellers and keep records of all transactions. Other States were active as well; by the end of 2008 at least 33 States had enacted legislation related to copper theft, according to the National Conference of State Legislatures.

²⁹ <http://www.kentucky.com/2008/09/09/517415/ku-is-marking-power-lines-to-deter.html>.

³⁰ <http://www.bizjournals.com/seattle/stories/2007/11/26/daily2.html>.

³¹ Ibid.

³² http://www.opencongress.org/bill/110-h6831/show#bill_list.

³³ <http://www.opencongress.org/bill/110-s3666/show>.

As in 2007, the majority of these laws required scrap metal dealers to obtain identification from potential sellers, and keep detailed records of all transactions. Many expanded the scope of these laws from copper only to more general nonferrous metals. Other laws established distinctions for copper and metal thefts as either misdemeanors or felonies, and laid out minimum and maximum fines and penalties.³⁴ Additional examples include the following:

- In Hawaii and Michigan, dealers must obtain a written statement from sellers certifying sellers' lawful right to sell materials.
- In Minnesota, Nevada, and Oregon, dealers must install security cameras to photograph sellers.

State legislative efforts appear to be effective at curbing copper theft. In Mississippi, for example, law enforcement and State officials said that a 2008 law had led to a decline in copper thefts in 2009. The law required metal sellers to show identification, and required recyclers to electronically record that identification and photographs of the sold materials.³⁵

Similarly, copper theft declined in Georgia after the State passed relevant legislation in May 2009, according to the Coalition Against Copper Theft. Georgia's law requires scrap metal dealers to keep records of transactions, and to provide those records to law enforcement officers for inspection.³⁶

By early October 2009 a total of 43 States had passed legislation, according to Recycling Today magazine.³⁷ According to OE's research, by early 2010 every State but Alaska, Iowa, North Dakota, Vermont, and Wyoming had passed some form of copper theft legislation (see Figure 4).

Scrap Dealers' Efforts

ISRI, the trade association representing scrap metal dealers and recyclers, responded to the legislative avalanche. ISRI declared its support for pragmatic legislation that effectively combats the issues surrounding metals theft. However, ISRI has opposed the kinds of laws that require businesses to "tag and hold" suspected theft, warning that such laws are onerous to business and ineffective in fighting metals theft.³⁸

ISRI has worked closely with State and local law enforcement, launching a website, <http://www.scraptheftalert.com> that allows more than 1,700 law enforcement members to notify the scrap metal industry of material thefts in the United States and Canada. Specific metal thefts (copper/brass, ferrous (iron), aluminum, nickel/stainless steel/alloys, and other precious metals) are reported separately by the utilities, local law enforcement, and other locations suffering the loss. The thefts are reviewed and validated by ISRI before being broadcast to all subscribed users within a 100 mile radius of the affected area.

³⁴ <http://www.ncsl.org/default.aspx?tabid=13001>

³⁵ <http://picayuneitem.com/local/x1048564642/Metal-law-debate-continues>

³⁶ <http://www.gainesvilletimes.com/news/archive/27359/>

³⁷ http://www.recyclingtoday.com/scrap_theft_legislation.aspx

³⁸ http://isri2.org/fly-in/metals_theft_talking_points.pdf

Figure 4. State Copper Theft Legislation, January 2006 – August 2010



Copyright © and (P) 1988–2009 Microsoft Corporation and/or its suppliers. All rights reserved. <http://www.microsoft.com/maps/>
 Certain mapping and direction data © 2009 NAVTEQ. All rights reserved. The Data for areas of Canada includes information taken with permission from Canadian authorities, including: © Her Majesty the Queen in Right of Canada, © Queen's Printer for Ontario. NAVTEQ and NAVTEQ ON BOARD are trademarks of NAVTEQ. © 2009 Tele Atlas North America, Inc. All rights reserved. Tele Atlas and Tele Atlas North America are trademarks of Tele Atlas, Inc. © 2009 by Applied Geographic Systems. All rights reserved.

Sources: National Conference of State Legislatures, State Penal Codes, and press reports.

To reduce the number of metal thefts, ISRI recommends the following practices:³⁹

- Requiring photo identification for every retail transaction and recording the license plate of the vehicle the seller is driving.
- Keeping good records so information can be provided on materials, should police suspect that materials have been stolen.
- Keeping a list of suspicious materials and consistently questioning the ownership of these materials if they are brought to a scrap recycling facility.
- When paying cash for a transaction, requiring the seller’s signature on a receipt for each transaction and including a certification on the receipt that the seller is the owner or authorized seller of the materials.
- Utilizing security video systems with time stamps to help track transactions.
- Requiring a contract or letter of authorization for the purchase of certain items such as new production scrap, manhole covers, guardrails, historical markers, certain cables used only in high voltage transmission lines, etc.
- Training employees on how to identify suspicious materials.

³⁹ http://isri2.org/fly-in/materials_theft_issues_brief.pdf.

Law Enforcement Efforts

Copper theft is a crime and as such, it is a law enforcement issue. When copper prices were at their highest, a number of law enforcement officials were quoted as saying that copper theft is the number one reported crime in their jurisdictions.

Utilities have encouraged the public to report suspicious behavior. Utilities, however, do not report their thefts directly to the ISRI scrap theft alert system. Rather, they alert local law enforcement authorities, who in turn report ISRI theft alerts.

Most utilities surveyed by ESFI have partnered with law enforcement and felt that the partnerships with police have been most effective. Best practices for utilities include:

- Informing local law enforcement of particular areas and sites of concern.
- Briefing law enforcement on anti-theft measures, including the utility's warning and response systems.
- Explaining how quickly thieves can enter and remove copper wire from a threatened facility/area.
- Describing to law enforcement how best to approach a facility to increase chances of making an arrest.
- Ensuring that officers understand safety procedures (including firearms handling and use) when entering and traversing a utility facility such as a substation.

Conclusions

Copper theft is a widespread problem closely linked to economic circumstances. There is no evidence that sabotage or the destabilization of the Nation's electrical grid has been a motivation in any of the copper theft cases to date. Although copper wire theft continues throughout the United States, the magnitude of theft has been considerably reduced from its peak in 2008. Copper wire theft is not likely to cease entirely as long as copper prices remain sufficiently attractive to would-be thieves. However, the combined efforts of electric utilities, lawmakers, scrap metal dealers, and local law enforcement have succeeded in reducing the problem and driving a wedge between copper price increases and comparable increases in copper theft.

- Electric utilities have launched public awareness campaigns, offered rewards for information leading to the arrest and conviction of thieves, marked copper wire for easier recovery from pawn shops, and collaborated with stakeholders.
- Legislation to reduce copper theft has been introduced in every State and passed into law in all but four States as of August 2010.
- Scrap metal dealers are cooperating with utilities and lawmakers, reporting suspected thefts, and disseminating information through ISRI's Theft Alerts.
- Local law enforcement has become more responsive to electric utilities facing copper theft and is collaborating to recover more stolen copper.