

Audit Report

Austin Energy Cable Inventory Management

March 2018



Austin Energy has established procedures to ensure the tracking and safeguarding of cable. However, we found Electric Service Delivery crews did not consistently follow the documented procedures for returning cable and did not follow established procedures for processing scrap copper cable. Additionally, procedures related to the handling of scrap non-copper cable are unclear. As a result, cable may not be properly utilized and disposed, thereby increasing Austin Energy's operating costs due to unnecessary cable purchases based upon an inaccurate inventory. This also exposes Austin Energy to increased risk of loss or theft.

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Cover: Austin Energy Photograph, May 2013

Objective

The objective of this audit was to determine if Austin Energy is efficiently and effectively managing the return of issued cable and scrap cable.

Background

Austin Energy Electric Service Delivery (ESD) has a mission to safely deliver reliable electric service to Austin Energy customers by planning, designing, constructing, operating, and maintaining the City's Transmission and Distribution system. ESD crews are issued inventory items, including cable, from Austin Energy financial warehouses through work order job requests. The work orders list the items which are anticipated to be used for the job. There are two main financial warehouses which issue inventory to ESD crews: St. Elmo, located in south Austin; and Kramer, located in north Austin.

Based on six months of 2017 data provided by Austin Energy, cable issued comprised approximately 53% of the total items issued to ESD crews for the three ESD divisions we reviewed. Most of the cable issued to crews is used to transmit and distribute electricity to Austin Energy customers for use in their businesses and homes. The cable issued from warehouses to crews covers a variety of lengths spanning from a few feet to entire reels with more than 16,000ft of cable. Returns occur when crews bring unused cable back to the issuing warehouse for crediting the original work order and returning the cable to inventory. Exhibit 1 shows an analysis of cable issued from the warehouses and returned to the warehouses.

**Exhibit 1: Cable Issued and Returned
(January - July 2017)**

	ESD Division	Value of Cable
Issued	Distribution	\$2,812,395.61
	Network	\$785,824.86
	Substation	\$1,548,380.66
	Total	\$5,146,601.13
Returned	Distribution	\$769,297.62
	Network	\$152,173.45
	Substation	\$35,478.60
	Total	\$956,949.67

SOURCE: OCA analysis of the cable issued and returned provided by Austin Energy, September 2017

For the purposes of this audit, the term "cable" refers to both cable (e.g. insulated copper, aluminum conductor steel reinforced cable (ACSR) and wire (e.g. bare copper, aluminum). Cable is insulated and is generally underground. Wire is generally bare (no insulation) and is used for above ground applications sheltered from environmental conditions.

The Austin Energy Reclamation warehouse, located in central Austin, is responsible for handling scrap¹ cable. Austin Metal is the primary vendor responsible for the disposal of scrap generated by Austin Energy.

In 2014, a group of Austin Energy employees stole scrap copper cable from the Reclamation warehouse with an estimated value over \$100,000. This theft prompted Austin Energy to conduct an internal audit of scrap copper cable handling. The Austin Energy internal audit reported in 2015 identified areas where safeguards over the management of scrap copper cable should be strengthened to help mitigate the risk of loss and misappropriation of Austin Energy copper cable. Several recommendations were made. Austin Energy has implemented all but one of those recommendations and has stated they are currently in the process of addressing the remaining recommendation.

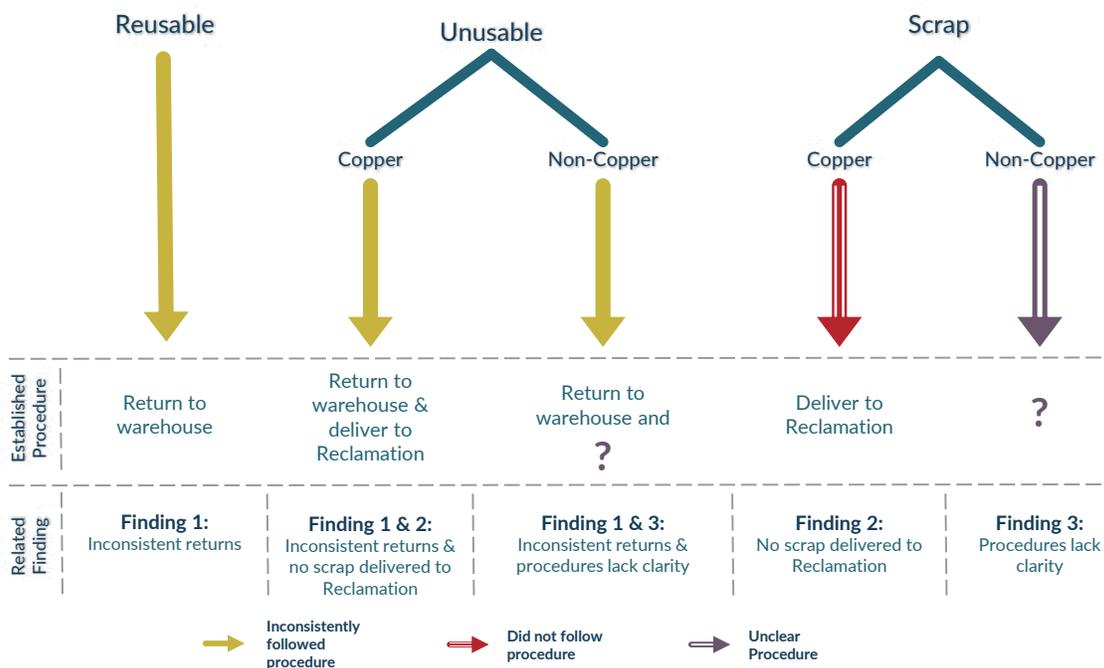
¹ Scrap is defined by Austin Energy as “material outside of specification...that makes rework impractical” and generated when existing cable is removed from Austin Energy job sites or when cable is below the usable length Austin Energy establishes for each type of cable.

What We Found

Summary

Austin Energy has established procedures to ensure the tracking and safeguarding of cable. However, we found Electric Service Delivery crews did not consistently follow the documented procedures for returning cable and did not follow established procedures for processing scrap copper cable. Additionally, procedures related to the handling of scrap non-copper cable are unclear. As a result, cable may not be properly utilized and disposed, thereby increasing Austin Energy's operating costs due to unnecessary cable purchases based upon an inaccurate inventory. This also exposes Austin Energy to increased risk of loss or theft.

Exhibit 2: Overall Summary of Established Procedure for Cable and Related Findings



Reusable Cable

Reusable cable is unused cable in excess of what was needed to complete a work order. This cable must be returned to inventory and can be reissued to additional work orders.

Unusable Cable

Unusable cable is unused cable after job completion, but cannot be used again for various reasons, including: cable under minimum length tolerance, cable with quality concerns, and cable that is damaged. This cable must be returned to inventory, but cannot be reissued to additional work orders.

Scrap Cable

Scrap cable is cable outside of specification that makes rework impractical and is generated when existing cable is removed from Austin Energy job sites. This cable cannot be returned to inventory.

SOURCE: OCA analysis of Austin Energy Guidelines and Work Processes, December 2017

Finding 1

Crews within ESD did not consistently follow established procedures for returning cable to financial warehouses, which could result in unnecessary cable purchases and increases the risk of loss or theft of these materials.

ESD crews are issued cable from financial warehouses through work order job requests. The work orders list the items which are anticipated to be used for the job. Each type of cable has an associated value when issued. The cable issued during the first half of 2017 ranged in price from \$0.07/ft to \$18.50/ft. Austin Energy has established procedures for the return of cable. We noted that the ESD crews within the three ESD divisions reviewed (Network, Substation, and Distribution) did not follow the documented procedures as detailed below.

ESD divisions did not consistently return reusable and unusable length cable to financial warehouses for recording in the inventory system.

ESD crews did not consistently return reusable and unusable length cable to financial warehouses as required by the established procedure. This procedure directs crews to return the remaining cable to the warehouse after job completion. The warehouse staff will then credit the original work order and process the return in the inventory system. After the return is completed, warehouse staff can issue the reusable cable to other work orders. The return of cable to work orders ensures that all cable is accounted for in the inventory system and work orders reflect the actual amount of cable used for the job. Instead of following procedures, ESD crews are storing surplus cable in ESD yards for use on other jobs, circumventing the established return and tracking process.

ESD divisions did not physically return cable to the issuing warehouse on a consistent basis after the completion of each job for physical inspection by warehouse staff.

Austin Energy's return procedures state that:

- ESD crews must return reusable cable to issuing warehouse;
 - cable below minimum length (unusable cable) must be returned to issuing warehouse;
 - warehouse staff credit original work order and process returns in the inventory system.
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Exhibit 3: Cable in ESD Yard

Surplus cable in Kramer ESD Yard placed by crews. This cable is not tracked in the inventory system. Warehouse staff were unable to confirm the status of this cable.



SOURCE: OCA photograph, October 2017

Exhibit 4: Cable Delivered to ESD Yard

Two reels of cable not properly returned to warehouse inventory. Cable should be returned to the issuing warehouse, not to the ESD yard.



SOURCE: OCA photographs, October 2017

Austin Energy's return procedures state that:

- crews must return all unused cable to issuing warehouse;
 - warehouse staff should physically inspect cable returned to the warehouse.
-

ESD crews did not bring cable to the issuing warehouse on a consistent basis for the required physical inspection, and returns were based only on verbal communication with ESD crews. For example, division supervisors asserted that crews might be issued a full reel of cable that would be used across three different jobs. In this situation, crews do not physically return the cable to the warehouse after each of the three jobs is completed, rather they verbally inform warehouse staff of the amount of issued cable used on each of the three jobs. Warehouse staff is unable to perform a physical inspection in this instance. Physical inspection allows warehouse staff to confirm the actual amount of cable used for each work order.

ESD crew supervisors and superintendents from the divisions we reviewed asserted there was no formal instruction provided to the crews regarding the documented procedures for returning cable to the warehouse. ESD supervisors also mentioned that crews have autonomy to use their judgment regarding the return of cable to warehouses after the completion of jobs. Warehouse staff at both Kramer and St. Elmo indicated they did not track the status of issued cable left in the ESD yard. See Exhibits 3 and 4 for examples.

Not following the documented procedures on a consistent basis may result in the warehouse inventory system showing an inaccurate amount of available cable which could lead to AE unnecessarily purchasing additional cable. Cable in ESD yards is not considered inventory as it has already been issued to a job through a work order. Therefore, cable kept at ESD yards exposes Austin Energy to increased opportunities for misappropriation, including loss or theft.

Cable kept at ESD yards has a higher risk of misappropriation, including loss or theft.

Finding 2

Crews within ESD did not follow the established procedures for handling of scrap copper cable, which increases the risk of theft or loss of this high-value cable and does not allow Reclamation to properly process scrap.

Austin Energy has established procedures to ensure timely, accurate, and secure processing of copper cable. New copper cable becomes classified as scrap copper cable once it no longer meets required specifications and/or cannot be reworked to original specifications. For example, scrap may be generated in the course of a job by pulling existing cable from the ground. Also, copper cable can be classified as scrap when it falls below the minimum length established by AE after it has been returned to the financial warehouse.

Even in its scrap form copper cable retains a high value that is determined by the American Metal Market. For example, in August 2017 Austin Energy transferred over 30,000 lbs of copper to Austin Metal and received up to \$2.20/lb for scrap copper. Due to the value of scrap copper, current documented procedures require that ESD staff deliver full reels of insulated and bare copper to Reclamation. Adhering to documented procedures for the handling of scrap copper cable ensures proper processing for this high-value item.

We found the ESD crews have not delivered full reels of scrap insulated or bare copper cable to the reclamation warehouse in over two years. Austin Energy does not weigh the scrap metal bins in the ESD yards or their contents. As a result, Austin Energy may not know the weight of scrap copper cable transported and processed by Austin Metal. This has a direct relationship to the amount of the payment to Austin Energy from Austin Metal for scrap cable. Also, the time the cable remains in the ESD yard awaiting processing exposes cable to increased opportunities for theft or loss.

On our visits to ESD yards, we observed bins with signs for both insulated and bare copper. See Exhibits 5 and 6. Bins located in ESD yards are not secured and not weighed prior to transportation by Austin Metal. Reclamation staff is aware of these bins and manages the signage at the St. Elmo and Kramer warehouse yards.

ESD crews have not delivered full reels of scrap insulated or bare copper cable to the Reclamation warehouse in over two years.

During our site visit and through interviews with ESD and warehouse staff, we noted that ESD crews do not deliver full reels of bare and insulated scrap copper cable to the reclamation warehouse for processing. Instead, scrap copper removed from job sites² is transported by the ESD crews to the ESD yard for disposal. Reclamation is not always notified when crews deliver this cable to the ESD yard and are not present when this cable is dropped off in the Kramer or St. Elmo ESD yards. Consequently, reclamation staff does not process copper (e.g. weighing the copper cable and verifying the type prior to its transfer to Austin Metal). If the copper were returned to Reclamation by ESD crews per current procedures, reclamation staff would have the opportunity and resources (e.g. scales, staff, facilities) to properly process the copper cable. Austin Energy management has asserted that full reels of scrap are stored at ESD yard awaiting final implementation of the new copper reclamation process.

² Used cable removed from existing infrastructure or unused cable in excess of what was necessary to complete the job.

Exhibit 5: Insulated Copper Bins at Warehouses

Bins labeled for insulated copper were present at both the Kramer (left) and St. Elmo (right) warehouses. They are not secured or weighed prior to pick up.

Austin Energy's reclamation procedures state that:

- ESD crews should deliver scrap copper cable to Reclamation;
 - reclamation staff should frequently transport scrap copper to scrap metal contractor to sell and should know the weight of the scrap metal.
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SOURCE: OCA photograph, October 2017

Exhibit 6: Bare Copper Bins at Warehouses

Bins designated for bare copper were present at both St. Elmo (left) and Kramer (right). They are not secured or weighed prior to pick up.



SOURCE: OCA photograph, October 2017

Austin Energy's Internal Auditor released a Copper Wiring Audit report in 2015. The audit recommended ESD and Finance management develop a directive requiring scrap copper amounts be quantified and documented following the completion of a project. The audit also recommended that scrap copper quantities documented by ESD crews should be provided to reclamation staff in advance or at the time of the transfer. Austin Energy management concurred with this recommendation and submitted an action plan which stated that they would implement in 2015. While we found that AE had developed minimum length tolerances and associated procedures for converting returned cable to scrap, at the time of this audit in 2017 the recommendation regarding documentation of scrap copper amounts by ESD crews has not been implemented.

Finding 3

Austin Energy has established clear procedures for the return and handling of scrap copper cable, however the procedures for scrap non-copper cable are unclear.

Austin Energy has established procedures to guide staff on how to return reusable and unusable cables to the financial warehouse and how to handle scrap copper cable as stated in Findings 1 and 2 above. However, the documented procedures do not include specific guidelines for staff related to scrap non-copper cable. ESD crews may be delivering scrap non-copper cable to the ESD yard due to the absence of clear guidelines. As stated previously, ESD crews are not delivering any scrap to the reclamation warehouse.

Exhibit 7: Full reel scrap non-copper cable delivered to ESD Yard



SOURCE: OCA photograph, October 2017

Austin Energy's reclamation procedures state that:

- ESD should deliver full reels of copper cable to Reclamation for processing.
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Our interviews with ESD crew supervisors indicated crews were not clear on the definition of “full reels.” Procedures state full reels of used cable will be delivered to the reclamation warehouse for processing.

Procedures are in place to prevent theft or loss and to help to ensure the timely, accurate, and secure handling of scrap. However, if the procedures are unclear or incomplete, the actual practice may be ineffective. We observed that a sizeable portion of the ESD yard is currently occupied by various reels of unspecified cable possibly resulting from the unclear procedures.

Additional Observation

Austin Energy current practices for management of cable inventory may have resulted in forfeited deposits for steel reels.

Austin Energy pays deposits on steel reels when they are delivered by the vendor. These deposits range in value from \$900 to \$4,000. Austin Energy is refunded the original deposit according the Steel Reel Deposit Refund Schedule (Exhibit 8) below.

Exhibit 8: Steel Reel Deposit Refund Schedule

If reel is returned to vendor within:	0- 12 months	13-24 months	25-36 months	36 + months
% of deposit refunded	100%	75%	50%	0%

SOURCE: OCA analysis of steel reel deposit and refund procedure, December 2017

Austin Energy has a process in place which requires staff to perform an inventory of all reels in the warehouse and ESD yards to identify the reels with outstanding deposits. As mentioned in the findings, ESD crews are not consistently returning cable to financial warehouses. Crews are also not properly returning scrap cable to the reclamation warehouse. Based on the information tracked by Finance staff, Austin Energy forfeited \$418,000 (approximately) from FY 11 to FY 14. The above conditions may contribute to the forfeiture of reel deposits. However, we were unable to determine the deposit amount forfeited due to the non-compliance of procedures by ESD staff and those caused by other reasons such as delayed project starts, canceled projects, or other uncontrollable events.

Recommendations and Management Response

1 | The Austin Energy General Manager should ensure established procedures provide consistent guidance to staff for return and handling of all types of cable used by Electric Service Delivery crews.

Management Response: Agree

Proposed Implementation Plan: Proposed Implementation Plan: Austin Energy will update existing procedures to match current and best practices optimize cost effectiveness, efficiency, and productivity while reducing the risk of loss or theft. Procedures will be revised by a cross-functional team made up of ESD (Distribution, Network, and Substation) and Finance (Warehouse, Reclamation, Asset Accounting) personnel. The final documented procedure will be reviewed and approved by senior management.

Proposed Implementation Date: June 1, 2018

2 | The Austin Energy General Manager should ensure formal training is provided to all staff on the established procedures for the return and handling of scrap cable.

Management Response: Agree

Proposed Implementation Plan: Proposed Implementation Plan: Austin Energy's Finance Team will conduct training to all ESD (Distribution, Network, and Substation) and Finance (Warehouse, Reclamation, Asset Accounting) personnel.

Proposed Implementation Date: August 31, 2018

3 | The Austin Energy General Manager should consider relocating reclamation operations to a location more convenient for all Electric Service Delivery crews, including the Electric Service Delivery yards located at Kramer and St. Elmo warehouses (co-locating reclamation staff and resources with the warehouses at Kramer and St. Elmo).

Management Response: Agree

Proposed Implementation Plan: Proposed Implementation Plan: First phase of this recommendation will be to establish secure reclamation areas at each Service Center. Second Phase is to ultimately establish a centralized warehousing location with a co-located Reclamation Center.

Proposed Implementation Date: Phase 1 – August 31, 2018 Phase 2 – TBD (contingent upon current real estate activities to locate suitable facilities and/or land to achieve this objective)

4 | The Austin Energy General Manager should implement the remaining part of the recommendation regarding documentation of scrap copper quantity made by Austin Energy Internal Audit in the Internal Control Audit – Copper Wire FY2015.

Management Response: Agree

Proposed Implementation Plan: Austin Energy to install scales located at each Service Center, revise and document existing processes/procedures, establish secure Reclamation areas at each Service Center, and train personnel (See response to Recommendations 1-3 above).

Proposed Implementation Date: August 31, 2018

Scope

Austin Energy's current practices for the return of issued cable to warehouses and the handling of scrap cable.

Methodology

To complete this audit, we performed the following steps:

- interviewed Austin Energy staff and management;
- reviewed Austin Energy Guidelines and Work Processes (i.e. established procedures) including Returning Inventory Items and Managing Reclamation;
- evaluated the risk of fraud, waste, and abuse with regard to Austin Energy activities regarding return and handling of cable;
- analyzed inventory issue and return data provided by Austin Energy;
- selected three ESD divisions (Distribution, Network, and Substation) to review cable return and handling procedures;
- observed cable handling procedures at Austin Energy warehouses;
- performed a site visit to reclamation warehouse for handling of scrap cable; and
- evaluated internal controls related to Austin Energy return of cable and handling of scrap cable.

Audit Standards

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

The Office of the City Auditor was created by the Austin City Charter as an independent office reporting to City Council to help establish accountability and improve City services. We conduct performance audits to review aspects of a City service or program and provide recommendations for improvement.

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