Exhibit No. ___ (HLR-8)

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-16 _______

DOCKET NO. UG-16 _______

EXHIBIT NO._____(HLR-8)

HEATHER L. ROSENTRATER

REPRESENTING AVISTA CORPORATION

2016

Substation System Review Asset Management

David Thompson
Rodney Pickett
Rubal Gill
February 12, 2016

Prepared by: ______________________ Date: 2/15/2016
David Thompson, Asset Management Engineer

Reviewed by: ______________________ Date: 2/15/2016
Rodney Pickett, Asset Management Engineering Manager

Reviewed by: ______________________ Date: 2/16/16
Michael Magruder, Substation Engineering Manager

Approved by: ______________________ Date: 2/17/2016
Scott Waples, Director of Planning and Asset Management

Table of Contents

Figures

Tables

Purpose

This report provides summary information relating to the annual review of Avista's electric substations operating in its Washington and Idaho service territory. The intent is to present a comprehensive overview of the substation capital assets, performance, risks, ongoing asset management programs, current and planned projects, and summary recommendations. Asset Management Plans are intended to serve a general audience from the perspective of long-term, balanced optimization of lifecycle costs, system performance, and risk management. A consistent sequence of asset management plans will provide the continuity required for continuous improvement of capital asset management, as well as historical information useful for rate case submissions.

With Avista's implementation of IBM's Maximo as its Asset Information System in 2014, a distinct reference point for asset data has been established. The Maximo implementation provides a comprehensive informational and historical repository for all asset data, applications, locations, inspection history, maintenance activity, and life cycle status. As such, the reportable data included in this report centers around activities in 2014 and 2015 in order to leverage the reference data within Maximo and to provide consistent and repeatable data from a single source for this and future reports.

Avista Utilities currently operates 162 substations consisting of:

- 21 transmission substations
- 30 transmission substations with distribution
- 109 distribution substations
- 2 foreign-owned substations.

In addition, there are 14 locations associated with generation.

Equipment Portfolio

From a perspective of key equipment as reference, the average age of the 162 substations is just over 31 years. Figure 1 shows the age distribution of the substation population.

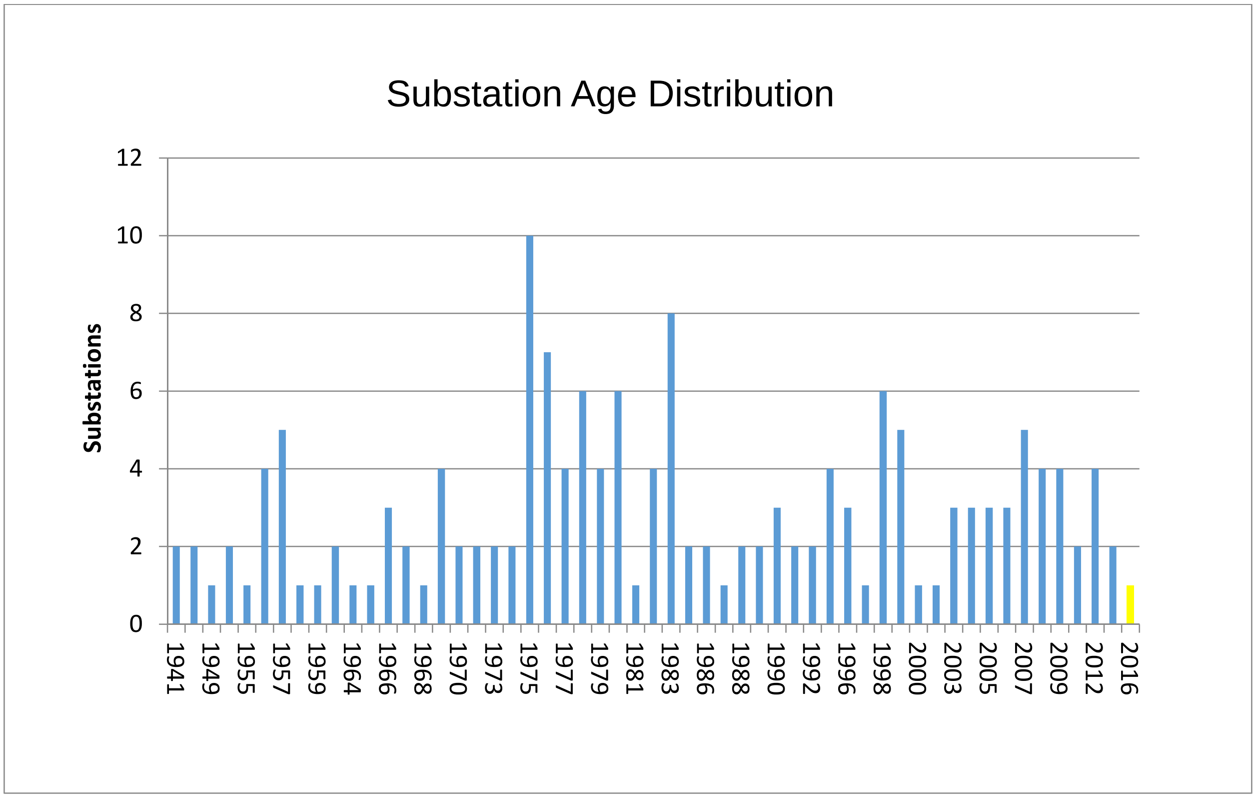


Figure 1: Substation Age Distribution

Substations are typically classified by voltage and function. The number of sites in each of these categories is included in Figure 2. In addition to the standard population of 230kV and 115kV substations, Avista continues to operate six substations at lower system voltages. These include the Kooskia substation at 34kV, the St. John substation at 24kV, and four substations at 13kV including Coeur d'Alene Shaft Mine, Sunshine Mine, and two at the Washington State University campus in Pullman.

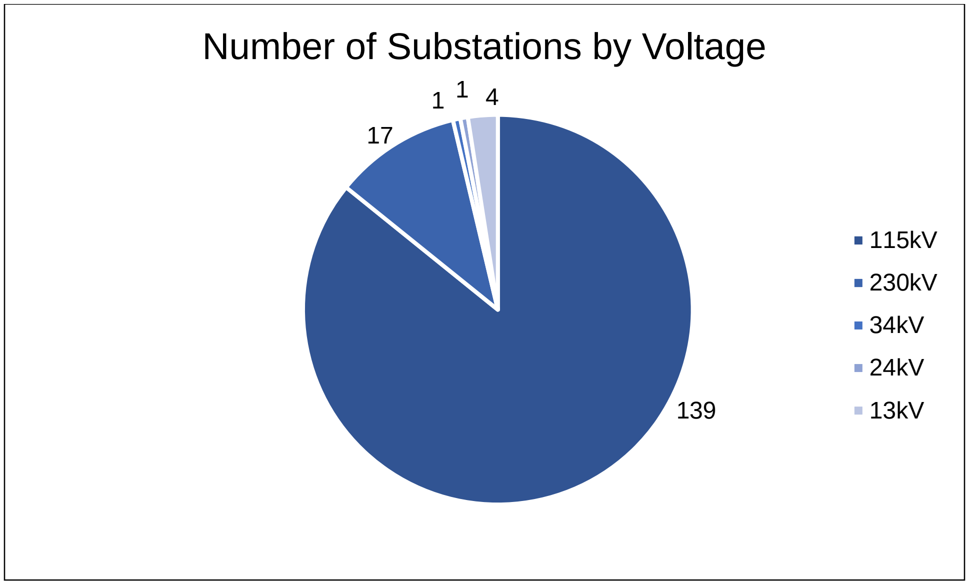


Figure 2: Substations by classification

Included in the totals above are 13 switching stations, 11 in the 115kV group and two at 230kV, that do not incorporate voltage transformers or regulation. Standard interconnect and protection services are provided at these locations, supporting their inclusion in the general substation reporting.

Each substation is comprised of major assets that coordinate to serve the principal regulation, switching, and protection activities of each site. Each asset class has unique maintenance, lifecycle, and operational considerations. Within the greater population of substations, the quantity of each asset is shown in Table 1.

Capital Asset	Quantity
Air Switch	1,175
Disconnect Switch	1,171
Bushings	1,890
Circuit Switcher	120
High Voltage Circuit Breakers	318
Low Voltage Circuit Breakers	353
Reclosers	309
Switchgear	95
Autotransformers	17
Power Transformers	211
Voltage Regulators	1,341

Table 1: Substation asset quantities

Within the current implementation of the Maximo asset database, fields that provide the manufactured date, in-service date, and last-installed date continue to be updated and populated with the data available from the database integration. As such, succinct reports providing age profiles for these substation asset families are not included at this time.

Capital Replacement and Maintenance

Projects with current approved Business Case proposals are included in this Capital Replacement and Maintenance section, including a brief description of the project's scope and purpose. In summary, specific project evaluation metrics are included in Table 2.

	Internal Rate of Return	Benefit/Cost Ratio	Risk Reduction Factor
Asset Management Capital	5% to 9%	N/A	0.027302
Capital Spares	5% to 9%	N/A	0.015362
Distribution Station Rebuilds	9% to 12%	N/A	0.010633
Garden Springs	5% to 9%	N/A	0.004268
New Distribution Stations	5% to 9%	N/A	0.009185
Noxon Switchyard	5% to 9%	N/A	0.004268
South Region Voltage Control	7%	N/A	0.000798
Westside Rebuild	7%	N/A	0.017570

Table 2: Capital Project Metrics

Substation Asset Management Capital Maintenance

The Substation Asset Management Capital Maintenance program installs, replaces, or upgrades substation apparatus based on Asset Management planning or emergency replacement determinations. All obsolete, end-of-life, or failed apparatus, based on the Asset Management analysis, are included under this program. Apparatus includes panel houses, high voltage breakers, relays, metering, surge arresters, insulating rock, fence work, low voltage breakers and reclosers, circuit switchers, SCADA systems, batteries and chargers, power transformers, high voltage fuses, air switches, capacitor banks, autotransformer diagnostic equipment, step voltage regulators, and instrument transformers.

Substation Capital Spares

The Substation Capital Spares program maintains Avista's inventory of power transformers and high voltage circuit breakers in order to manage the long lead time of the procurement cycle for these system-critical items. These components are capitalized at receipt and placed in service in response to both planned and emergency installations. The program expenditures may vary significantly year to year due to the specific equipment purchased and deployed in any given year.

Distribution Substation Rebuilds

The Distribution Substation Rebuild program supports either the complete replacement or rebuild of existing substation infrastructure as the site nears the end of its useful life, a need to support increased capacity requirements, or to implement modifications necessary to accommodate equipment upgrades. Included in the program are Wood Substation rebuilds as well as upgrades to substations to comply with current design and construction standards. Some substation rebuilds are necessitated by external requirements, including obligation to serve, customer or load growth, or technology improvement projects such as Smart Grid. Substation rebuilds currently planned to be completed under this program in the next five years include Big Creek, Kamiah, and South Lewiston (Wood Substations), 9th & Central, Ford, Sprague, Davenport, and Northwest (Lifecycle), Deer Park, Gifford, Lee & Reynolds, Huetter, Dalton, and Southeast (Equipment Additions), and Hallett & White (Growth).

Garden Springs Substation Integration

The Garden Spring Substation Integration project will construct a new 230kV/115kV substation at the existing Garden Springs property that will terminate the existing Airway Heights-Sunset, Sunset-Westside, and South Fairchild Tap 115kV transmission lines. Options being considered to energize the 230kV bus include the possibility of a new interconnection with the BPA Bell-Coulee #5 230kV transmission line and a new 230kV feed from the Westside Substation following the completion of the Westside Substation Rebuild Project. Both of the newly designated Garden Springs-Sunset 115kV transmission lines will require upgrades to 150MVA capacity conductors.

New Distribution Substations

The New Distribution Substation program provides for new distribution substations in the system in order to serve new and growing load, increased system reliability, and operational flexibility. New substations under this program will require planning and operational studies, justification, and approved Project Diagrams prior to funding. Current plans for new substation projects include Tamarack in northeast Moscow, Greenacres in the Spokane Valley, and Hillyard and Downtown West in Spokane. Design and construction phases will be coordinated to achieve one new substation per year depending on need and justification.

Noxon Switchyard Rebuild

The existing Noxon Rapids 230kV Switchyard requires reconstruction due to the age and condition of the equipment within the station. The existing bus, constructed as a strain bus with a number of recent failures, is configured as a single bus with a tie breaker separating the East and West bus segments. This station is the interconnection point of the Noxon Rapids Hydroelectric generation as well as a principal interconnect point between Avista and BPA. As such, this is a crucial asset for the reliable operation of the Western Montana Hydro Complex. Equipment outages within the station, either planned or unplanned, can cause significant curtailments of the local generation output. Due to the key role of the station, a complete rebuild will require coordination with Avista's Energy Resources Department and affected utilities, including BPA. The Noxon Switchyard Rebuild Project is a greenfield design incorporating a double bus-double breaker 230kV switching station as a complete replacement of the existing Noxon Switchyard.

South Region Voltage Control

Avista's 230kV transmission system in the southern area of its service territory, generally located around the cities of Lewiston and Clarkston, experiences excessive high voltage during periods of low power loading. Voltage levels exceed equipment ratings over approximately 35% of the time. Continued operation of equipment outside its specifications and ratings exposes Avista to potentially significant legal and regulatory risks. This is in addition to increasing the probability of large-scale outages due to equipment failure. The installation of 230kV Reactors at North Lewiston substation will eliminate existing overvoltage conditions in Avista's southern region, which includes the 230kV buses at Dry Creek, Lolo, North Lewiston, Moscow, and Shawnee substations.

Westside Substation Rebuild-Phase One

Phase One of the Westside Substation Rebuild will extend the existing Westside Substation and the 115kV and 230kV buses and will support design and installation options in consideration of a new 250MVA autotransformer and other substation equipment. This installation will eliminate overload potentials for certain bus outages and tie breaker failure contingencies in the Spokane area. Following the completion of Phase One, the second phase will replace a second autotransformer with a new 250MVA unit. The final phase would extend the 230kV yard to a double breaker-double bus configuration. In addition, alternatives for the 115kV configuration would be considered to achieve either a breaker-and-and-half or a full double breaker-double bus implementation.

Capital Spending

For 2015, the major capital expenditures associated with substation construction or equipment activities are included in Table 3. As most capital projects extend over multiple calendar years, the summary expenditures listed may represent only a portion of the overall project's expenses. In total, these projects represent $24.4 million in capital spending during 2015.

ER	Project	Capital Expenditure	Status
2532	Noxon 230kV Substation Rebuild	$10,162,871	Partial in 2016
2000	Substation - Capital Spares	$3,267,594	Ongoing
2589	Mobile Substation - Purchase New Mobile Substations	$2,539,571	2015
2443	Greenacres 115kV/13kV Substation New Construction	$1,661,927	2016
2215	Substation Asset Management Capital Maintenance	$915,677	Ongoing
2001	System - High Voltage Circuit Breaker Replacements	$580,324	Ongoing
2278	Replace Obsolete Reclosers	$530,128	Ongoing
2484	Moscow 230kV Substation Rebuild Switchyard	$527,614	Complete
2275	Rock and Fence Restoration	$450,226	Ongoing
2449	System - Substation Air Switches Replacements	$447,733	Ongoing
1006	System - Distribution Power Transformers	$394,856	Ongoing
1107	Lewiston Mill Road - 115kV substation construction	$369,980	2015
2493	Replace/Upgrade Voltage Regulators	$343,358	Ongoing
2446	Irvin Substation- New Construction	$296,734	Ongoing
2590	Deer Park 115kV Substation - Minor Rebuild	$247,956	2016
1108	Hallett & White Substation Expansion	$142,621	Ongoing
2294	System - Batteries	$140,538	Ongoing
2546	Blue Creek 115kV Rebuild	$104,669	Complete
2592	Sprague 115kV Substation Minor Rebuild	$96,304	2016
2204	Wood Substation Rebuilds	$89,274	Ongoing
2571	Clearwater 115kV Substation Upgrades	$85,695	Complete
2573	Little Falls 115kV Substation Rebuild	$66,485	Ongoing
2341	Ninth & Central Substation - Increase Capacity and Rebuild	$54,960	In progress
2569	Gifford 115kV - Rebuild Substation	$28,251	Ongoing
2538	College & Walnut Substation Yard Expansion	$27,473	2016
2425	System - High Voltage Fuse Upgrades	$25,135	Ongoing
2112	Beacon 230kV Substation Bus Conversion	$14,286	Ongoing
2505	System-Replace Current and Potential Devices	$13,262	Ongoing
2531	Westside 230kV Substation Rebuild	$12,598	In progress
2274	New Substations	$11,088	Ongoing
2561	Lewiston Mill Road 115kV Substation	$8,912	2016
2343	System - Replace/Install Substation Structures	$8,702	Ongoing
2336	System - Replace Distribution Power Transformers	$7,939	Ongoing
2572	Noxon Construction Substation - Minor Rebuild	$2,471	Complete
2591	Davenport 115kV Substation - Minor Rebuild	$2,275	Ongoing

Table 3: Substation Capital Expenditures – 2015

Maintenance and Operations (M&O) Spending

During 2015, a total of nearly $4.7 million supported Maintenance and Operations activities relating to existing substations. As shown in Figure 3, approximately 85.1% of the maintenance and operation expenses were associated with planned services, while the remaining 14.9% was in response to unplanned or reactive activities. Figure 4 shows the total substation maintenance and operations spending by calendar month throughout 2015.

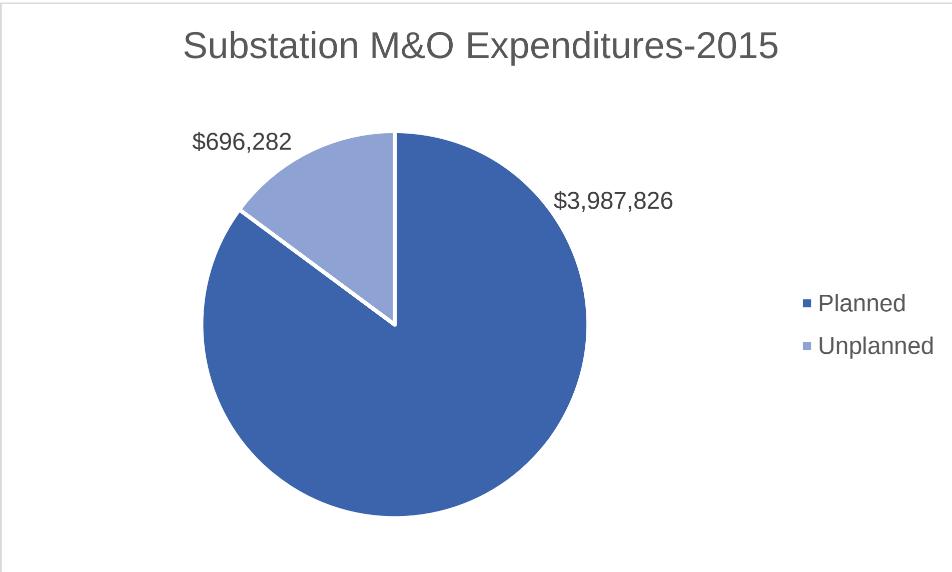


Figure 3: Substation M&O Expenditures

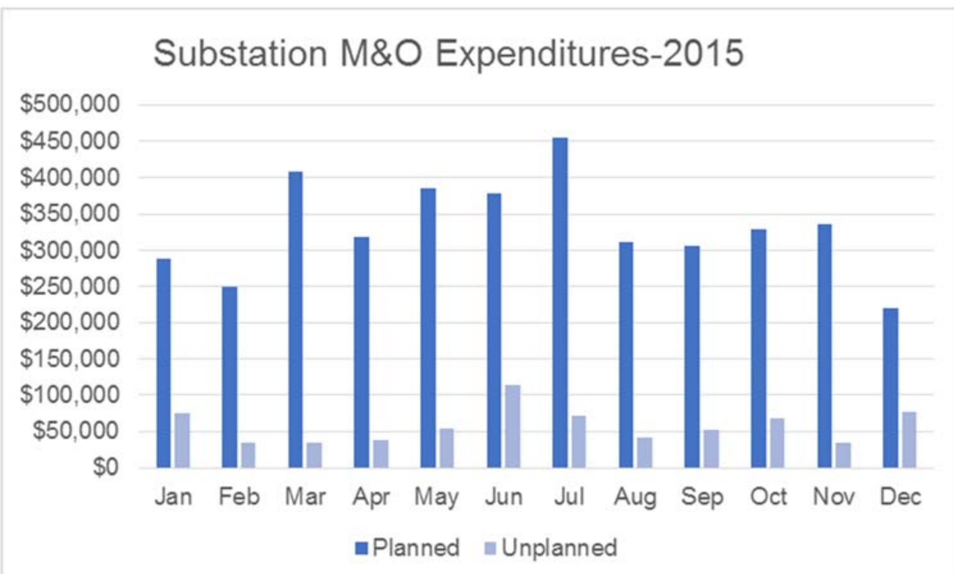


Figure 4: Substation M&O Expenditures by Month

Substation maintenance activities are tracked by both distribution and transmission tasks. As noted earlier, many of the substation locations provide both distribution and transmission services. For 2015, the allocation between transmission and distribution expenses, both maintenance and operations, along with unplanned expenditures, are shown in Figure 5.

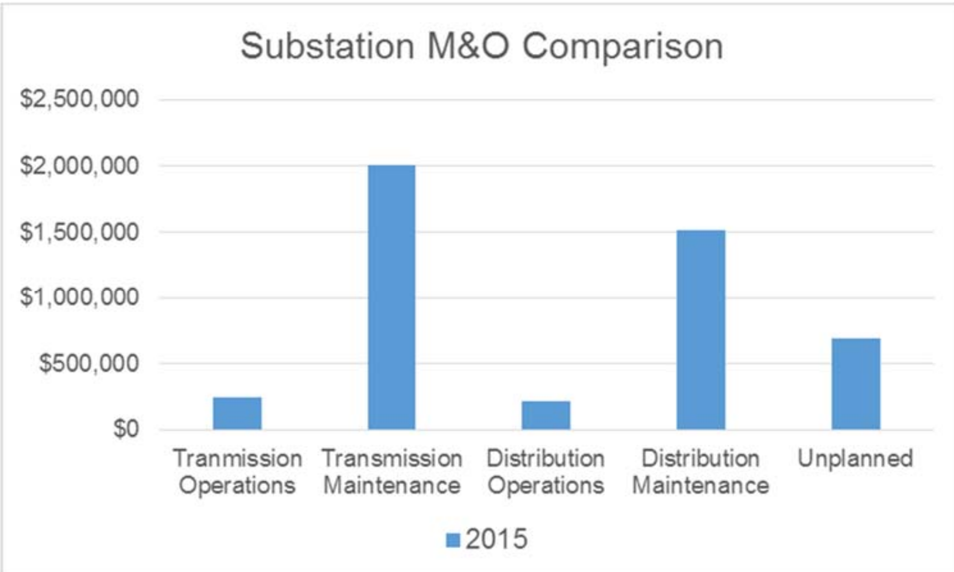


Figure 5: Substation M&O Comparison

Key Performance Indicators

Key Performance Indicators (KPIs) have been identified for tracking and review of key activities. These KPIs continue to be refined relative to the metrics monitored. The metrics are published on a monthly basis, providing a perspective about the implementation and use of Maximo, system reliability, and progress towards particular key project goals as linked to substation performance. A combination of lagging and leading indicators are tracked in order to provide both retrospective and prospective views. It is generally expected that the proper focus on the correct leading indicators will guide satisfactory results after a defined lag period. When this does not occur, deeper investigation and root-cause analysis may help to identify other factors affecting the expected causal relationship.

One of the primary goals of Asset Management is to optimally manage risk and performance relative to capital investment and maintenance expenditures. The nexus of planned maintenance and capital replacement activity compared to emergency repair costs, outages, lost profits and other possible outcomes over time should be clearly identified. Additional reviews of predicted activity versus actual outcomes for a variety of scenarios should also serve to help determine the continuation of or adjustment to ongoing programs and projects. The availability of sufficient reliable data to support these analytic opportunities continues to be a challenge, but is expected to be mollified as the Maximo implementation and structured use becomes integrated into the formal work processes. For example, safety incidents, emergency repair and replacement work, and other similar activities continue to be transacted in Operations under blanket accounts, precluding the ability to extract detailed transactional data associated with specific project and related work activities at a substation. The Asset Management group continues to suggest opportunities and support improvements to achieve the goal of a complete corporate implementation of Maximo.

The KPIs in Figure 6 and Figure 7 show projected and actual metrics relating to Work Orders within Maximo. Reactive Work Orders are associated with required Corrective Maintenance tasks that were in response to operational malfunction issues or items requiring attention following a planned inspection. Throughout 2015, the projected target has been achieved. The Average Age metric tracks the rolling number of days existing Work Orders have been active. This metric continues to not meet the expected performance level, though this topic continues to be addressed with the Operations teams.

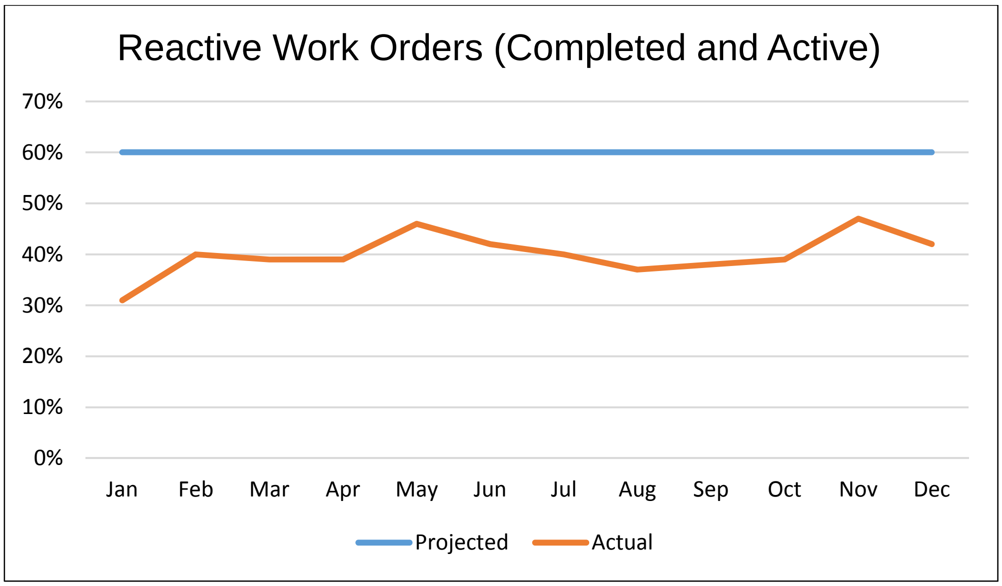


Figure 6: KPI-Reactive Work Orders

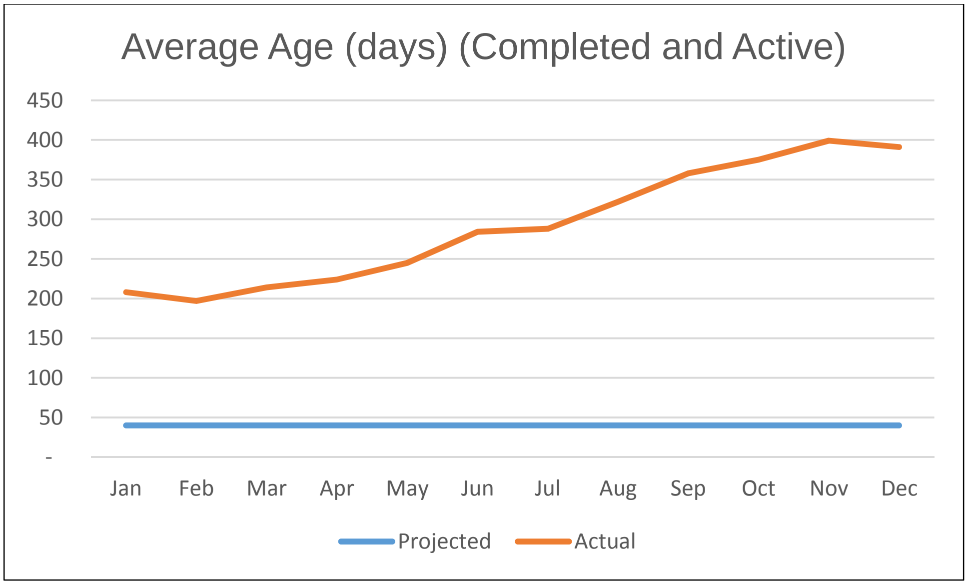


Figure 7: KPI-Work Order Average Age

Metrics associated with customer outages due to substation activity are shown in Figure 8 through Figure 11. In 2015, the projected outage metrics, whether time or quantity, have typically been satisfied, demonstrating the expected reliability of service for the end customer.

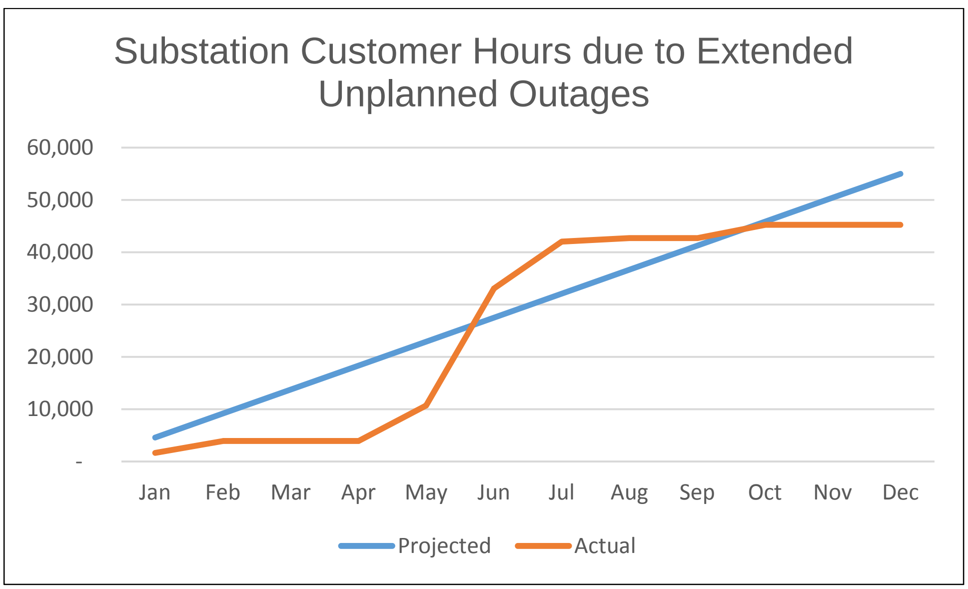


Figure 8: Hours of Unplanned Outages

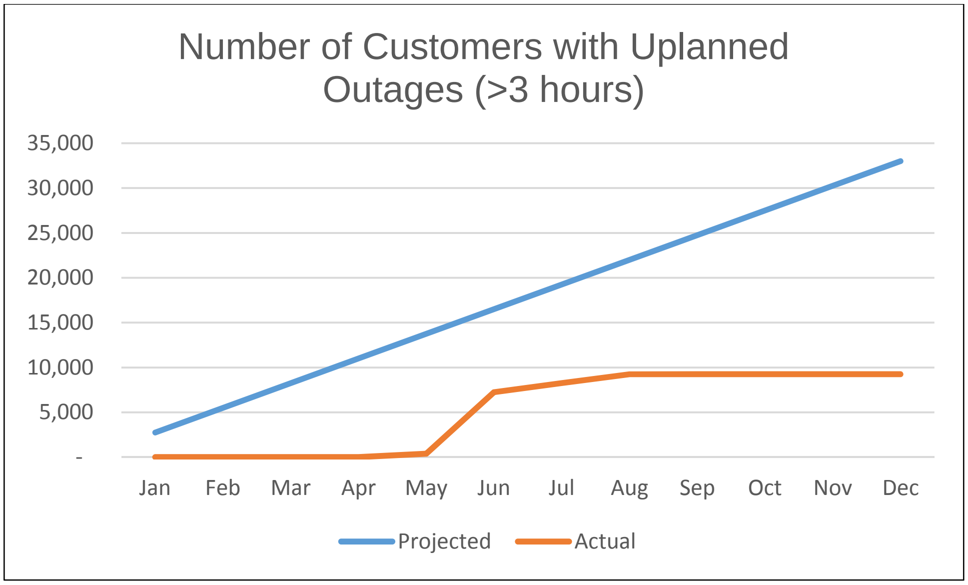


Figure 9: Customers Affected by Unplanned Outages

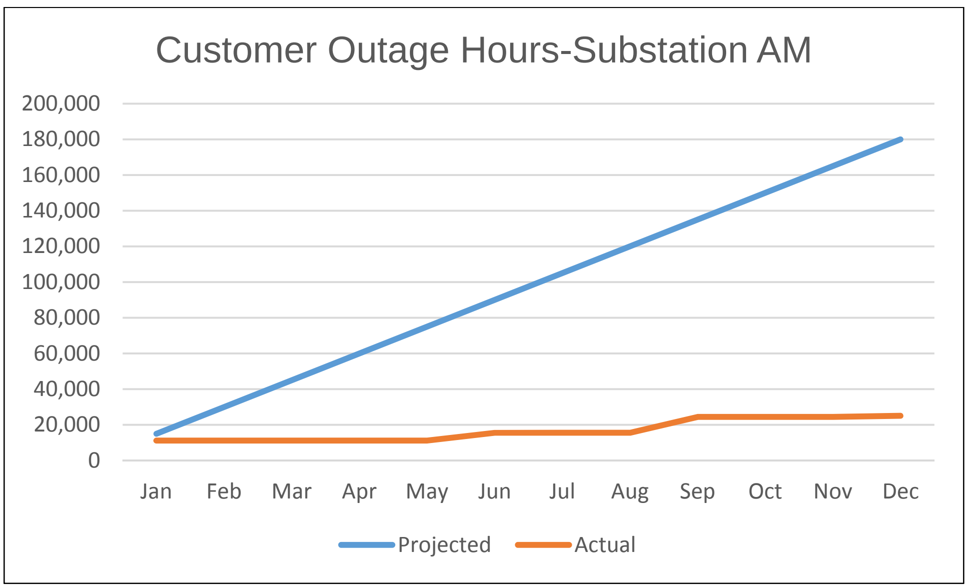


Figure 10: Customer Outage Hours

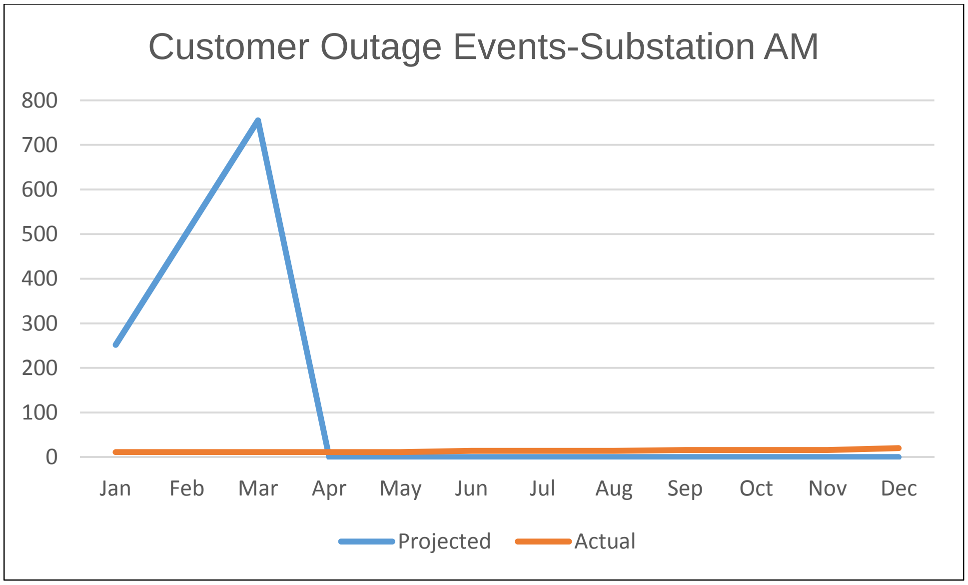


Figure 11: Customer Outage Events

The metrics shown in Figure 12 through Figure 15 relate to specific substation equipment-related programs. Figure 12 identifies the equipment replacement activities associated with the PCB Removal program, including qualifying equipment removed from substations. Equipment identified as a PCB-containing device continues to be prioritized for removal or replacement in conjunction with other related activities. The remaining three graphs represent power transformer, voltage regulator, and air switch assets.

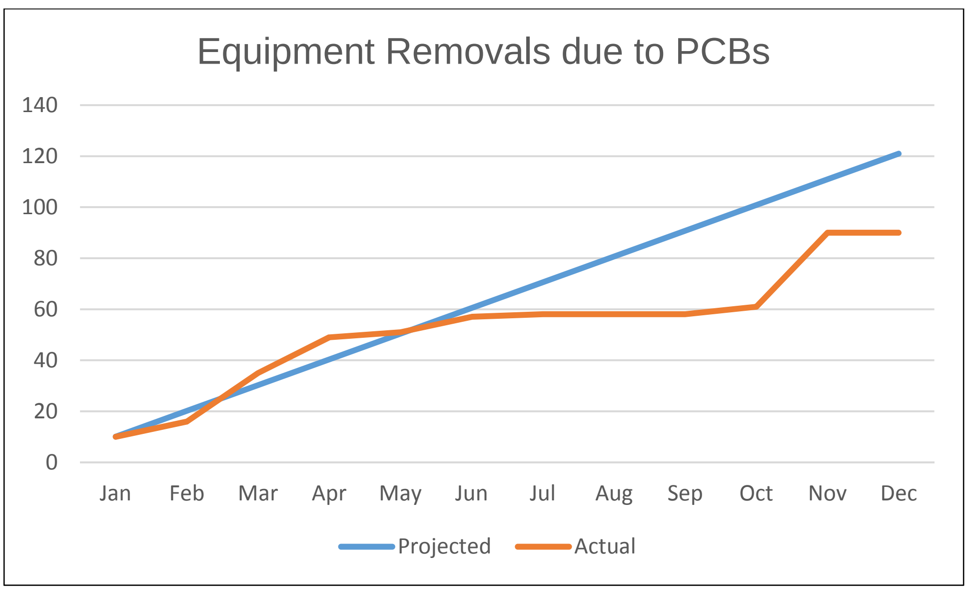


Figure 12: Equipment Removals due to PCB content

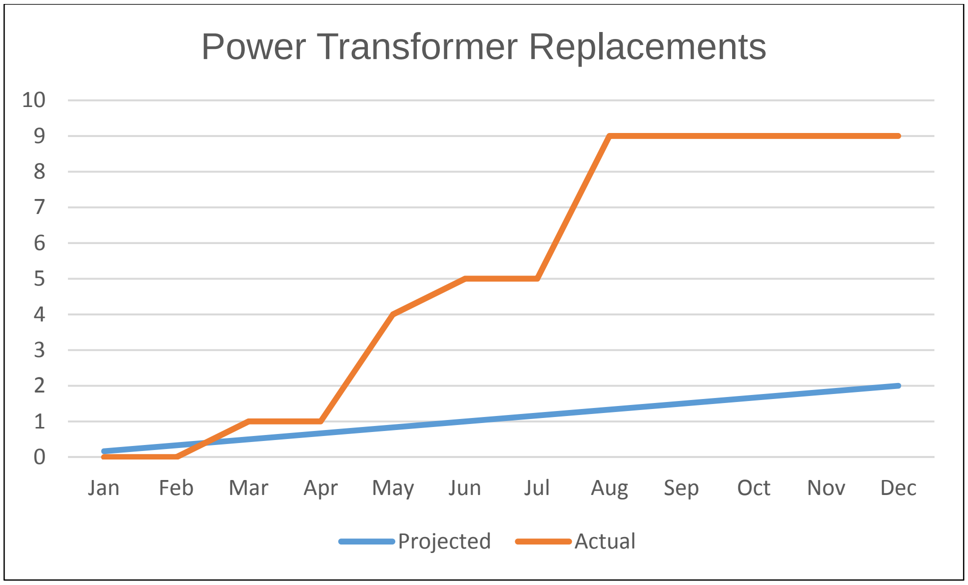


Figure 13: Power Transformer Replacements

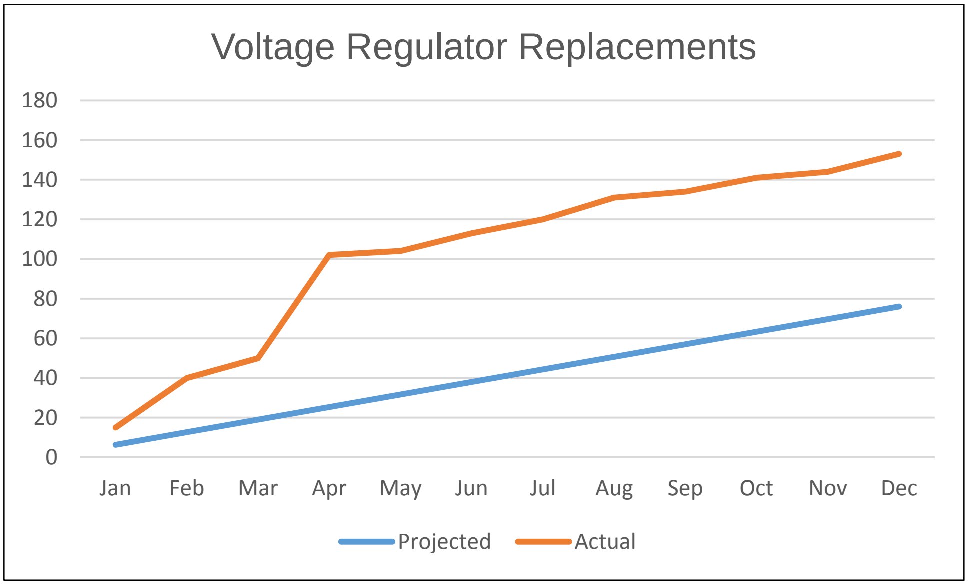


Figure 14: Voltage Regulator Replacements

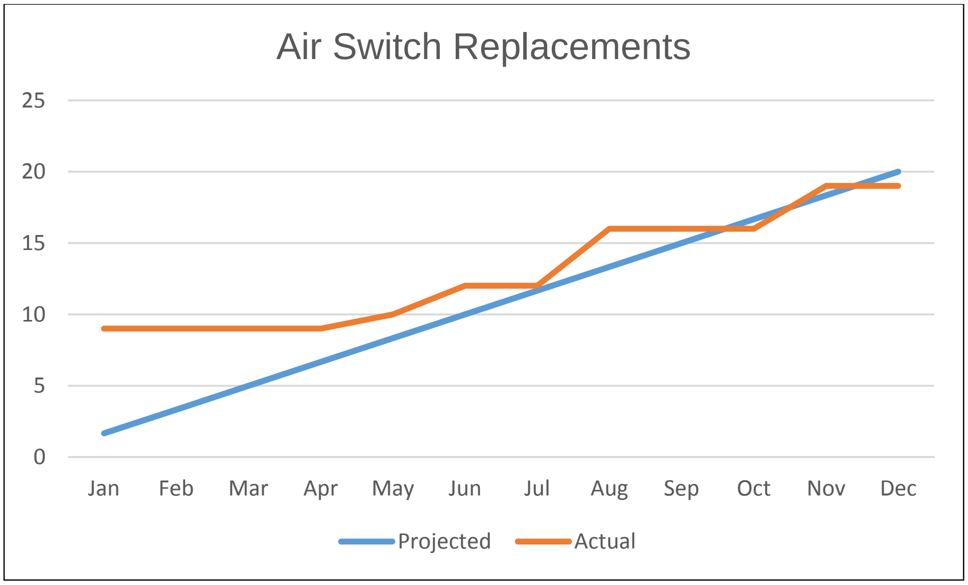


Figure 15: Air Switch Replacements

The Wood Substation Replacement program did not achieve a completed substation replacement during 2015 as noted in the graph shown in Figure 16.

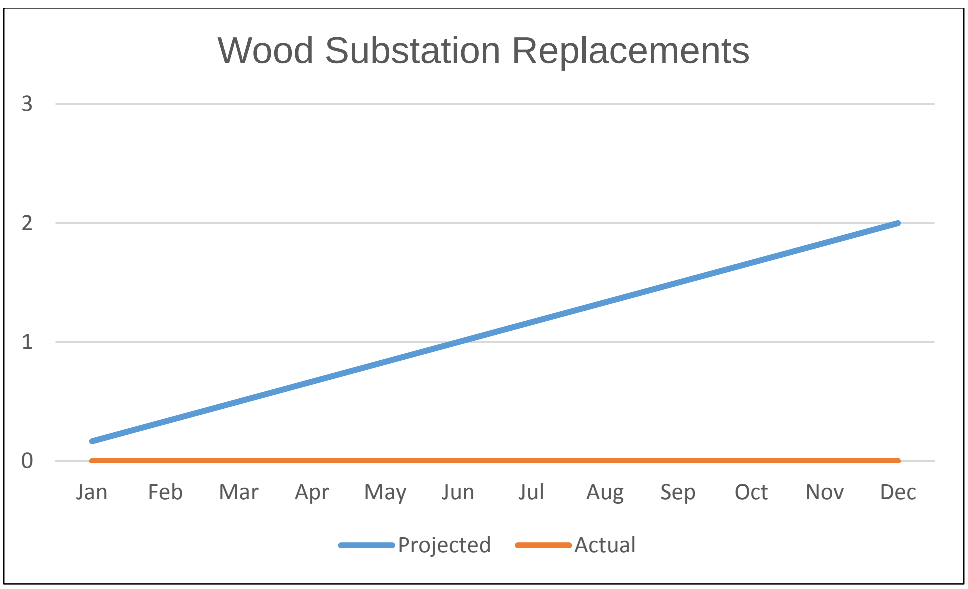


Figure 16: Wood Substation Replacements

These final two KPIs evaluate system awareness criteria regarding level of service. The Risk Action Curve metric in Figure 17 tracks outage event parameters, including frequency and severity, to signal additional action if the accumulated outage activity requires further review and analysis. The OMT High Limit in Figure 18 tracks to an acceptable limits of service statistical metric for outage events.

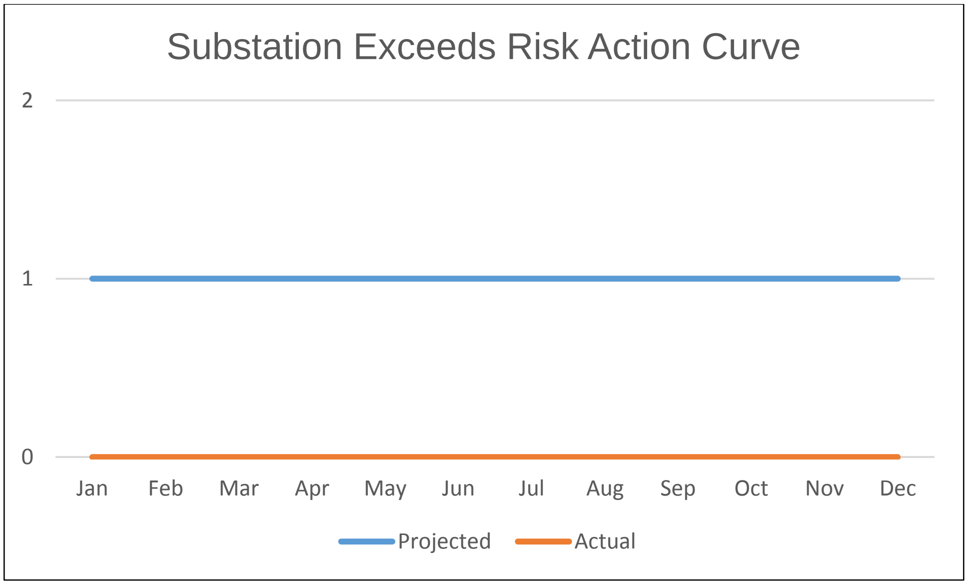


Figure 17: Substation Risk Action Curve

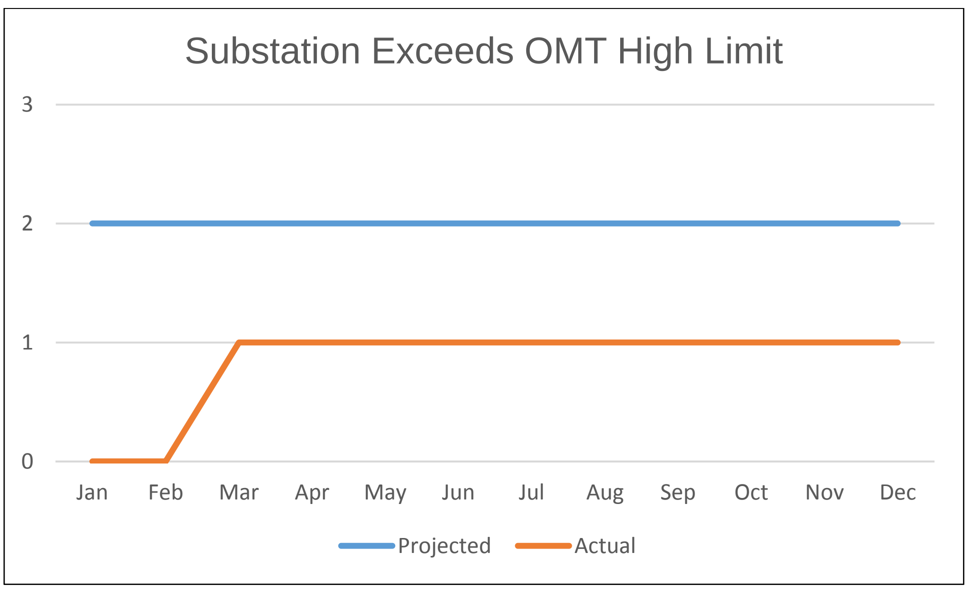
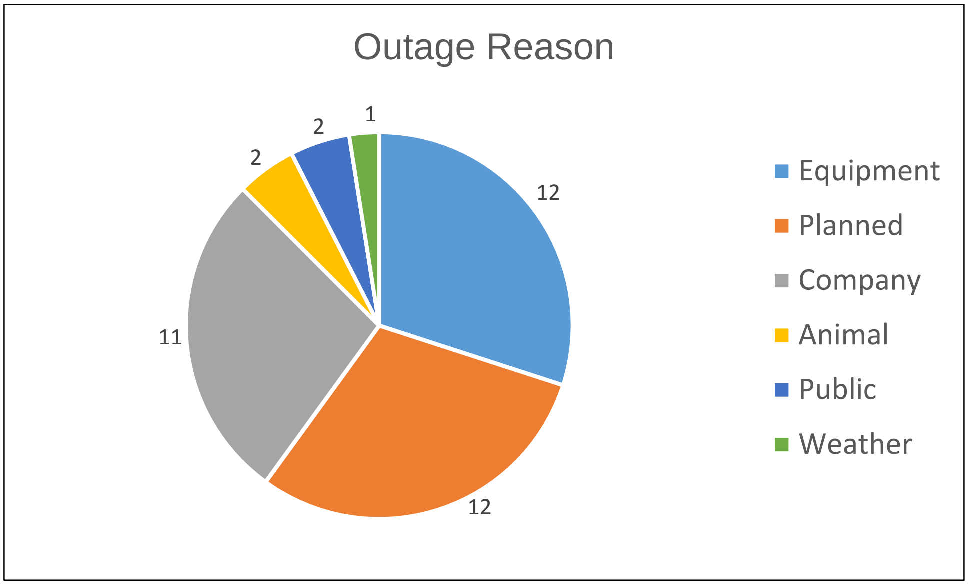


Figure 18: Substation OMT Limit

Outages

During 2015, 40 outage events occurred attributable to either planned or unplanned substation activity. For these outage events, the average duration was 2 hours 51 minutes and affected approximately 990 customers. Durations ranged from 5 minutes to 8 hours 48 minutes and impacted customers ranged from 1 to just over 4000. The data is derived from the annual reliability reports provided by Operations Management.



Programs

Substation PCB Removal

In 2010, an assessment was completed of equipment containing Polychlorinated Biphenyls (PCBs) within the Avista substation. PCBs are typically a minor constituent of oil within substation equipment including

- Power transformers
- Oil circuit breakers
- Voltage regulators
- Potential transformers
- Current transformers
- Station service transformers
- Capacitors
- Electromechanical relays.

Under the current process, the substation power transformers have been tested for PCBs and units with PCB concentrations of greater than 50 ppm are slated for removal. Voltage regulators, as brought in for repair, are tested and replaced if PCB concentrations of 50 ppm or greater are identified. Other substation equipment that is found to contain oil with the 50 ppm concentration of PCBs is evaluated on a case by case basis. The equipment may be decommissioned or reconditioned with clean oil and returned to service.

Additional regulation at both Federal and State levels continue to be monitored for refinement of this program.

Power Transformer Replacement

Avista's aging population of power transformers continues to be evaluated and included as key factors in substation upgrade projects or rebuilds. Transformer upgrades can provide significant energy savings based on the operational efficiency of the units, as well as additional configuration flexibility.

During 2014 and 2015, power transformer replacement projects have been completed at:

- Moscow 230 Spare (2013)
- Blue Creek #1 (2014)
- North Lewiston #1 (2014)

Voltage Regulator Replacement

Voltage regulators have been identified as significant contributors to substation reliability, and ongoing evaluation and modeling is in progress. The age profile is shown below Figure 19. In the conjunction with substation upgrades, older vintage voltage regulators are being replaced. The success of this ongoing program is shown by the shift in the age profile. Presently, the average age of installed base of voltage regulators is 15.5 years, though approximately 20% of the units have been installed for more than 30 years.

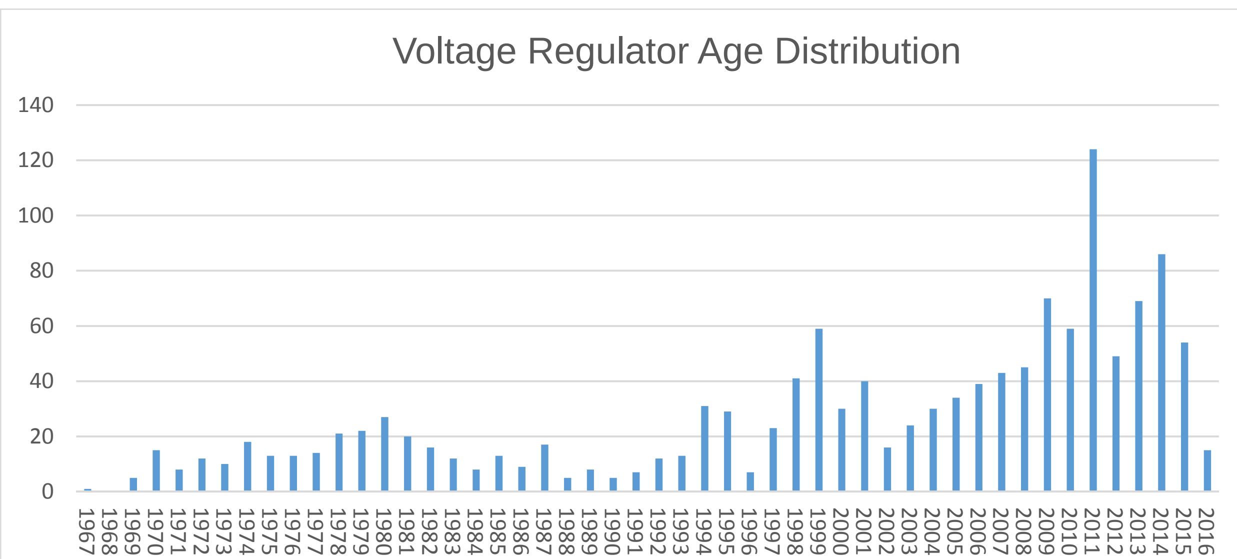


Figure 19: Voltage Regulator Age Distribution

Substation Air Switch Replacement

The Substation Air Switch Replacement program deals with both planned and unplanned replacements.

In the case where air switches do not operate properly, flashover and possible tripping of bus protection devices may occur. This can be the result of a component failure at the whips or vacrupter switch or other adjustment issues with the air switch itself. While most air switch missed operations could be prevented with regular inspection and maintenance, the limited scope of current maintenance procedures doesn't extend to the level of blade adjustments or the replacement of live parts, such as contacts and whips, or the repair of ground mats.

Many air switches are operated remotely. In these instances, Avista personnel may not be present to observe the opening of the switch, limiting the identification of potential issues. Minor functional issues could indicate the increasing probability of a major or catastrophic failure. Small quantities of emergency repair materials are maintained for the legacy population, but many of the air switches are out of production and replacement parts are difficult to procure.

Completed Substation Design and Construction Projects

The Substation Engineering group performs the scope, design, and project management functions for all facets of substation construction, including designated equipment replacement, rebuilds, and new site construction. The following tables describe the current status of projects within the engineering group's queue.

Substation Rebuilds completed in 2014 and 2015
Blue Creek – 115kV/13kV new construction
Clearwater 115kV/34kV substation upgrade
Lewiston Mill Road new construction
Moscow 230kV/115kV/24kV new construction
North Lewiston 115kV/13kV removal of equipment
Noxon Construction 230kV/13kV substation rebuild
Noxon Rapids 230kV west bus rebuild
Odessa 115kV/13kV substation upgrade
Irvin 115kV/13kV substation
Bruce Road 115kV/13kV substation

Table 4: Substation Rebuilds completed in 2014 and 2015

Completed Projects	BI Reference
Sunset - Replace MOAS A-184 (Four Lakes Tap)	AMS85
Grangeville - Replace A-337 Relay and Battery Cabinet	AMS09
Ross Park - 115kV Relay Upgrade	SS802
Third & Hatch - 115kV Relay Upgrade	SS802
Beacon - Upgrade A-605 Line Relays	SS802
Ninth & Central – Minor Upgrades	SS802
Noxon - Add Line Position for Noxon Reactor Station	AS202
Opportunity--Install 115kV Breakers	SS204

Table 5: Completed Projects

Projects in Design or Construction

The Substation Engineering group performs the scope, design, and project management functions for all facets of substation construction, including designated equipment replacement, rebuilds, and new site construction. The following three tables describe the current status of projects within the engineering group's queue.

Construction and Field Work in Progress	BI Reference
Bronx - HVP Upgrade	42P09
Oden - HVP Upgrade	42P09
Bunker Hill - HVP Upgrade	42P09
Nine Mile Substation - Install GSU 1	GG811
Noxon 230kV Reactor Station--New Construction	AS202
Greenacres--New 115kV/13kV Substation	SS644
Pine Creek - Replace Auto Transformer #1	AMS28

Table 6: Work in Progress

Engineering active and pending construction	BI Reference
Benton-Othello Transfer A-131 MOAS	AMS85
Beacon - Grid Modernization - Feeder 12F1	SS406
Beacon - Replace 13kV Breaker - 12F6	AMS83
Harrington - Rebuild to 115kV/13kV Substation	BS303
Mobile Battery - Add SCADA	XS951
Noxon - Hot Springs #1 and #2 Line Relay Upgrades	AMS07
Beacon--Replace Fence	AMS82
Beacon--115kV Line Relay Upgrade A-610, A-613	SS802
Noxon - Refurbish Existing East Bus	AS202
College & Walnut – Yard Expansion	AMS82
Sprague - Minor Rebuild	FS402
Deer Park--Metering/SCADA/Panel house	SS405
Othello - Replace Feeder 501 and 502 Breakers	AMS83
Othello - Replace Air Switch A-41	AMS83
Lolo - Communications DC Plant Refresh	
St. John - Replace 24kV Switches	AMS85
Shawnee - Communications DC Plant Refresh	
St. Maries - Upgrade AC/DC Station Service	AMS10

Table 7: Active and Pending Construction

Waiting prioritization or delayed	BI Reference
Replace SMP - Dry Creek	XS951
Replace SMPs - Post Street	XS951
Ramsey--Line Relay Upgrade A-669	CS802
Cabinet - Remove Relays and Change CT Ratios	AG103

Table 8: Delayed Projects

Future Projects	BI Reference
North Lewiston 230kV--Install Reactors	LS306
Kamiah - Rebuild	LS208
Gifford - Add 115/13kV Station to Substations	WS201
Westside - Increase Capacity; New Autotransformer	SS201
Priest River – Temporary Breaker Install	AMS83
Ford - Replace Transformer	AMS28
Ford - Install New 12F2 Feeder Position	BS202
Waikiki - Grid Modernization - Feeder 12F2	SS542
Priest River - Minor Rebuild - Distribution	AMS83
Irvin--New 115kV Switching Station	SS904
Hallett & White - Add Capacity	SS523
Rathdrum - Grid Modernization - Feeder 231	CS502
Rathdrum - Grid Modernization - Feeder 233	CS502
Juliaetta - Replace MOAS units A-120 and A-173	AMS85
Jaype - Remove and Salvage	
Colville - Replace Battery	AMS10
Chester - Replace Battery	AMS10
Rockford - Replace Battery	AMS10
Fort Wright - Replace Battery	AMS10
Beacon--Install Serveron DGA on both autotransformers	XS903
Ritzville - Replace A-94 MOAS Control Box	AMS85
Northwest - Add Fiber Redundancy/Upgrade	XS951
Millwood - Add Radios in Yard - 2 Poles	
Othello Switching Station - HVP Upgrade	42P09
Clearwater - Upgrade Metering	XS801
Clearwater - Replace Battery	AMS09
Oden - Replace 115kV Switches	AMS85
Bronx - Replace small conductor	AMS32
Garfield - Replace HV Fuses	AMS80
Clearwater--Microwave Refresh	

Future Projects	BI Reference
Beacon - Add Thermal Relays - A-603/A-607	XS002
St. Maries--Install SCADA	XS951
Ninth & Central - Rebuild Distribution Sub	SS514
S. Lewiston 115--Rebuild station, replace transformers	LS207
Ninth & Central - Move lateral line into substation	SS514
Moscow City—Upgrade SCADA/Integrate System	XS951
Indian Trail - Add Fiber; Upgrade Communications	XS951
Northwest - Rebuild	SS206
College & Walnut - Replace Breakers A-431 and A-432	AMS32
Davenport - Minor Rebuild	BS400
Colville - HVP Upgrade	42P09
Kooskia 115kV--Replace Transformer	AMS28
Milan - Replace A-599 MOAS	AMS85
N. Moscow - Install A-369 MOAS	AMS85
Warden - Replace Breakers	AMS32
Warden - Install SSVT for Station Service	XS905
Otis Orchards – Install SSVT for Station Service	XS905
Beacon--Upgrade SCADA/Integration System	XS951
Clearwater--Upgrade Relaying	AMS07
St. Maries - Install 115kV Arresters	AMS81
O'Gara - Install 115kV Arresters	AMS81
Lee & Reynolds--Add Transformer #2	AMS28
Upriver--Replace/Upgrade Metering	XS801
Dry Gulch--Replace/Upgrade Metering	XS801
Cabinet - Install substation fuses/Lighting circuits	AMS80
Clearwater - Replace/Upgrade SCADA	XS951
Little Falls – Rebuild	BS304
Tenth & Stewart--Station Upgrades/Rebuild	LS202
Valley - Rebuild Substation	WS402
Sunset - Rebuild Substation	SS890

Future Projects	BI Reference
Metro - Rebuild Substation	SS208
Big Creek - Rebuild Substation	KS201
Coeur Shaft - Minor Rebuild	TBD
Pound Lane - Rebuild Substation	TBD
Chester - Rebuild Substation	SS207
Othello - Rebuild Substation	TBD
Silver Lake - Rebuild Substation	TBD
Dalton - Rebuild Substation	TBD
Huetter - Rebuild 115kV Yard	CS503
Bronx - Rebuild Substation	AS203
Noxon Rapids - New Substation	AS202
Saddle Mt. - New Substation	TBD
Tamarack - New Substation	PS203
McFarlane - New Substation	SS516
Bovill - New Substation	TBD
Ross Park--Install Security Wall	06P98
Post Street Transformer Cooling Discharge	TBD
ORO - Grid Modernization - Feeder 1280	TBD

Table 9: Future Projects

System Planning Projects

There is considerable opportunity for more collaboration between Asset Management and System Planning on capital asset risk assessments, analyses and development of long-term asset management plans, where overlaps and synergistic opportunities present themselves. Risk is equivalent to the product of the probability and the consequence of a given event.

Currently, there are no substation System Planning projects that are covered by Asset Management.

Reference and Data Sources

Various information and data sources were used to compile the information for this report. As referenced in the Purpose introduction, the emphasis was placed on Avista's Maximo implementation for all inventory and date-specific asset details. This process will provide a tracking database for repeatable historical references, trending, and accurate data snapshots as the system continues to be deployed and data capture processes refined.

Other sources include Availability Workbench simulations, the legacy Major Equipment Tracking System (METS), Outage Management Tool (OMT) data, substation engineering files, substation engineering SharePoint site, and the substation Projects and Capital Budget spreadsheets.