



CITY OF JACKSON
MAYOR & BOARD OF ALDERMEN STUDY SESSION
Monday, March 07, 2022 at 6:30 PM
Board Chambers, City Hall, 101 Court St.

AGENDA

DISCUSSION ITEMS

1. MDNR State Revolving Fund application and award process - presentation
- [2.](#) Missouri Fire Fighters Critical Illness Pool
- [3.](#) Stack Testing for the RICE NESHAP Project - engineering services proposal
- [4.](#) Generator Controls Upgrade Project - engineering services proposal
- [5.](#) I-55 Electrical Substation Equipment Project - bid tabulation
- [6.](#) Disposal of Stockpiled Brush Program - bid tabulation
7. Previously tabled items
8. Additional items (unspecified)

Posted on 03/04/2022 at 04:00 PM.

Cancer Award Program Summary

Background

Legislators in Jefferson City asked interested parties—unions, chiefs, and the insurance community—to discuss and put forth parameters that all could agree on with regard to providing cancer benefits to firefighters in Missouri. Implementation occurred on March 1, 2022. Below is a short review of the cancer program process.

Several committees were convened over the last four years to meet the above goal, settling on the long-term solution of building a Trust similar to what was accomplished in Colorado in 2014 with Heart and expanded to Cancer in 2017.

In 2021 Senate Bill 45 was introduced to the Missouri legislature with the support of fire operation's labor and management to implement a solution that would see the majority of public funds expended on a Cancer Award Program going to the benefit of Missouri firefighters through a self-insured Pool. Sixty percent of the funding requested will go toward capitalization; thirty percent to rate subsidy; and ten percent for cancer prevention and testing.

Purpose

The purpose of this proposed Cancer Award Program is to put forth a program that equitably ends discussion at the legislature between labor and management interests over the presumption of cancer for firefighters.

Cancer rates are high for the general public without the added exposure caused from fighting fires. On the surface, it appears reasonable to have a rebuttable presumption where the burden of proof is on the employer to disprove a cancer is job-related. Several states currently do just that as did Colorado.

Unfortunately, in those states' firefighters and management often see two-thirds of their cancer claims denied or stalled in litigation, sometimes for years, while employers gather evidence to disprove the cancer was job-related. This often accompanies a tentative notice of denial and an invasive 3-6 month or longer investigation, which can add further strain on a firefighter's physical and mental health. As it currently stands in states with rebuttal presumptions, the workers' compensation system and subsequent legal battles do not benefit firefighters as they diagnose, treat, and recover from cancer.

For employers in states that see more claims than are actually job-related, due to a non-rebuttable presumption, it is arguably less fiscally feasible especially for firefighters' employers that lack adequate funding.

Cancer claims are already covered under current health plans, disability, and social security. Additionally, it is important to note that under managed care or adjudication through the workers' compensation system, firefighters lack the ability to choose their own specialized doctors for treatment as they do under their own medical plans.

A presumption without rebuttability would be nice but is frequently looked at as an entitlement for firefighters often employed by cash-strapped fire operations.

The Cancer Award Program

This Program has been determined to be a nontaxable accident coverage intended to supplement or pay for out of pocket expenses as well as provide additional compensation for other benefits no longer available once traditional disability coverage is eliminated. The highlights of this Program are as follows:

1. Cash award is paid within 10 days of a completed claim form to include the attending physician's diagnosis.
2. Up to \$4,000 disbursements, depending on limit selected, issued twice a month based on the schedule of benefits.
3. Payments are made before sick leave and vacation time need to be used.
4. Diagnosis, for this Program and with the employer's agreement, will be treated as a Line of Duty occurrence for the purpose of not arguing about it, but it does not entitle a workers' compensation claim.
5. This Program coverage is technically not disability insurance; it is an accident award.
6. This benefit does not exclude the filing of a workers' compensation claim; however, any payments issued under this Program will be offset under any workers' compensation payment.

Timeline

- Implementation March 1, 2022

Trust Structure

- Owned and operated Trust by participants of Missouri fire operations
- Stakeholders from numerous organizations assembled to address all issues and provide guidance
- Original Steering Committee make-up was from five stakeholder representatives; the Pool/Trust was then expanded to seven Board/Trustee Members.

Member Agreement

Pool/Trust Agreements have been finalized as well as a resolution for districts and a municipal ordinance for cities. Both documents must be adopted by each participating fire operation and are available on the Pool/Trust Website at www.MFFCIP.org. Please review the Pool/Trust Agreement checklist to ensure proper completion of these documents.

Proposed Covered Cancers

- Per International Association of Fire Fighters, this chart lists Credible Causal Relationship Findings of **14 specific cancers** analyzed through various epidemiological studies, according to Dr. Virginia Weaver, MD, MPH. We have added Breast Cancer to this list as appropriate studies are pending.
- Other cancers can be added as new studies are published and approved by the Trustees.
- Smoking, vaping, or the use of tobacco products reduces award benefits by 25%.

Cancer Rate in Firefighters Compared to General Population

Cancer	LeMasters	NIOSH	Nordic	Other
Bladder		*		K
Brain	✓			C
Breast				
Colon	✓	✓		K
Esophagus		✓		C
Kidney		✓		C, K
Lung		✓	✓	
Melanoma	✓		✓	A, C
Mesothelioma		✓	*	
Multiple myeloma	✓		*	C
NHL	✓	*		K
Prostate	✓	*	✓	A, C
Rectal	✓			K
Skin	✓		✓	
Stomach		*		

*Significant ✓overall or in *specific age group; A=Australia, C=California, K=Korea;
Cancers listed if significant in being ≥ 2 times the general population rate studies.*

Choice of Limit and Cost Options

Available limits and three year cost per full time, or part time and volunteer firefighter rates:

LIMITS	Year 1 Cost		Year 2 Cost		Year 3 Cost	
	F/T	P/T & Vol	F/T	P/T & Vol	F/T	P/T & Vol
\$300,000	\$118	\$95	\$142	\$114	\$165	\$133
\$200,000	\$78	\$63	\$94	\$75	\$109	\$88
\$100,000	\$39	\$31	\$46	\$38	\$55	\$44

- Rates for years 4 and 5 will be reviewed by the Trustees to determine where further subsidies are available
- Cost of Living Adjustment (COLA) on limits and contributions applicable annually after year five

Eligibility Requirements

- Five (5) years for full time, part time, and volunteer firefighters
- Participant must have had a medical exam that would have reasonably caught cancers at or after employment but prior to diagnosis of a covered cancer
- Coverage extends 15 years after the last year of eligibility, prior to the age of 70

Cash Flow Design

To preserve capital and keep costs reasonable, participant payouts are made bi-weekly until the Award Limit defined is reached as follows:

\$4,000 for the \$300,000 limit level;

\$2,640 for the \$200,000 limit level; and

\$1,320 for the \$100,000 limit level.

A full limit payout at each limit level would be spread over more than 36 months, or three years, to the participant or survivors, giving the Trust time to make rate adjustments and extend timely notice to participants for unforeseen events effecting future Pool contributions.

Administration and Startup Cost

Most of the startup costs for the feasibility study and administration, with the exception of actuary and legal, are being deferred to “Management Fees” in future years. An Administration Scope of Services Agreement with McGriff Insurance Services, Inc. has been approved. McGriff Insurance Services currently administers the Colorado Firefighters Heart and Cancer Benefits Trust.



ACTIONS FOR PREVENTING CANCER IN THE FIRE SERVICE

Revised from July 6, 2015 article from *Firefighter Cancer Support Network*

Numerous studies have shown that firefighters are at increased risk of many types of cancer. The Firefighter Cancer Support Network released a [white paper](#) in 2013 on cancer in the fire service and what firefighters can do to prevent it. The paper included [11 immediate actions](#) you can take to protect firefighters against cancer. Find additional resources for taking action against cancer in the fire service from [FCSN](#) and the [NVFC](#).

The Missouri Fire Fighters Critical Illness Pool (MFFCIP) has adopted these low cost actions as a fire operation's minimum requirement for participation in the Cancer Award Program. The _____ **(Name of the Fire Operation)** agrees as a prescient to joining MFFCIP program to immediately implement and maintain through the course of participation in the Cancer Award Program the below nine actions:

1. Use SCBA from initial attack to finish of overhaul. (Not wearing SCBA in both active and post-fire environments is the most dangerous voluntary activity in the fire service today.)
2. Do gross field decontamination of PPE to remove as much soot and particulates as possible.
3. Use Wet-Nap or baby wipes to remove as much soot as possible from head, neck, jaw, throat, underarms and hands immediately and while still on the scene.
4. Change your clothes and wash them immediately after a fire.
5. Shower thoroughly after a fire.
6. Clean your PPE, gloves, hood and helmet immediately after a fire.
7. Do not take contaminated clothes or PPE home or store it in your vehicle.
8. Decontaminate fire apparatus interior after fires.
9. Keep bunker gear out of living and sleeping quarters.

The Below actions are Strongly Recommended actions that include:

1. Use sunscreen or sunblock.
2. Stop using tobacco products. Use of tobacco could result in a 50% reduction in any benefit.
3. Do not rely on multiple gas detectors to determine PPE/SCBA donning and doffing".
4. Gently rinse or brush off fire debris and soot, place in a large, clear contractor's garbage bag before entering apparatus and returning to station.
5. Provide annual medical surveillance, as available to enhance possibility of early detection.
6. When possible wash gear in an extractor to provide enhanced level of decontamination of carcinogens.
7. When possible provide 2nd set of turnout gear to provide for proper washing and drying time of gear.

The importance of annual medical examinations cannot be overstated — early detection and early treatment are essential to increasing survival.

Chief's Signature _____ Date _____

Print Chief's Name _____



MEMO

To: Mayor and Board of Aldermen
From: Don Schuette
Date: Thursday, March 03, 2022
Re: BHMG Stack Testing

Mayor and Board of Aldermen

Attached, please see the proposal from BHMG to perform our EPA required stack emission testing for our diesel generators. We are required to perform the stack test every three years and report the findings to the EPA which will issue our permits to operate these engines. The proposal is for a fixed fee basis, as long as we can complete the testing in the allocated time. Delays by the City or retesting of failed units outside the allocated time may result in additional cost. Rancy Hastings has performed these tests for the past three times. Hastings Engineering was acquired by BHMG Engineering at the end of 2021.

If you have any other questions or concerns, please let me know.

Regards,

Don Schuette

Director of Electric Utilities



Jackson Municipal Utilities Jackson, Missouri

Engineering Services for
Emissions Compliance Test

Submitted by:
BHM Engineers, Inc.

February 10, 2022



February 10, 2022

Mr. Chuck Reed
Jackson Municipal Utilities
420 Florence Street
Jackson, MO 63755

Ref: **NESHAP Stack Testing
Letter of Proposal**

Dear Mr. Reed:

We are pleased to submit our proposal to perform emissions testing on the six electric generating engines located at the Jackson's City Power Plant.

BHMG Proposed Scope of Work:

BHMG will prepare a test protocol to be submitted to the Missouri Department of Natural Resources Air Pollution Control Program (APCP) that will describe the testing procedures. The protocol will detail the procedures to be performed that will meet the testing requirements of the APCP and the United States Environmental Protection Agency (USEPA).

BHMG and its subcontractor, RMC Environmental, will provide the labor, equipment, and technical expertise required to conduct an air emissions test project to determine the destruction efficiency of each of the six engines. The testing will be in accordance with the methods required by the APCP and USEPA to demonstrate compliance with the required 70% reduction in carbon monoxide (CO). The concentrations of CO and oxygen will be measured in the inlet and outlet of the catalytic converters on each of the engines in accordance with USEPA Method 10 per 40 CFR 60 Subpart ZZZZ, "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines"

Each engine will be tested while combusting diesel fuel. The City of Jackson will be responsible for running each engine at the City's desired generating rate during the duration of emission tests for each engine. On a schedule that is mutually agreed upon by the City and BHMG, the engines will be tested, two per day on three consecutive days. One will be tested each morning and one each afternoon, unless the City requests that the schedule be modified.

At the conclusion of the testing, BHMG will prepare a draft test report for review by the City. The report will describe the testing procedures, the plant operating conditions during the test and the test results. Upon receipt of the City's comments on the draft report, BHMG will prepare a final report that will be ready for submission to APCP.

The City of Jackson will be responsible for providing electrical service, two 20 amp electrical circuits, near the engines to be tested. The City of Jackson will also be responsible for providing safe personnel and equipment access to the ports upstream and downstream of the catalytic convertors.

Test Report:

BHMG will provide one (1) bound copy and an electronic copy of the final report for your records. BHMG will submit an electronic copy of the report to MDNR-APCP on behalf of Jackson Municipal Utilities if you desire.

Schedule:

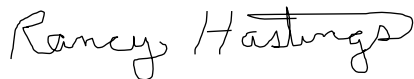
BHMG, upon award of the project will coordinate a test schedule with the City of Jackson. We anticipate arriving at the site during the latter portion of Day 1, at which time the testing trailer will be set up and electrical equipment will be connected to avoid delays on the first testing day. Testing will be performed on each of the following 2-3 days. The test schedule will be dependent upon City of Jackson scheduling production such that the engines will be operated for the required duration of the testing, approximately 3 ½ hours for each test. If the City of Jackson desires, the two engines will be test simultaneously, in which case there will be two days of testing.

BHMG proposes to complete the NESHAP Stack Testing on fixed fee basis at a price of \$21,600.

BHMG appreciates this opportunity to provide this proposal to provide services to the City of Jackson. Should any questions arise, please contact me at your convenience.

Sincerely:

BHMG Engineers, Inc.



Rancy Hastings, P.E.
Project Manager

Enclosures: Terms and Conditions, Memorandum of Agreement

QUALIFICATIONS

1.1 Overview

A. MISSION STATEMENT

BHMG's mission statement of "Powering long standing relationships through successful projects", is not just a statement, but is how we look at every client and every project. Our teams take ownership of every project, and help make the best decisions, not always the easiest decisions for the utility.

B. COMPANY INFORMATION

BHMG Engineers, Inc. was established in 1972 to provide comprehensive engineering services to local, state, federal and private entities. Today BHMG is a leading provider of utility engineering and consulting services for public power, electric cooperatives and investor-owned utilities, with focus on T&D Substation Design, T&D Line Design, Rate Study, Utility Consulting and Environmental Compliance.

C. ORGANIZATION SIZE

BHMG has currently approximately 50 professionals and support personnel. Among them are fourteen registered professional engineers, including electrical, mechanical and civil/structural engineers.

D. FACILITIES / EQUIPMENT

BHMG utilizes the most current project management and design software. We utilize AutoDesk AutoCAD, Bentley Microstation, Microsoft Project, Power Line Systems PLS-CADD, ESRI Arc Map, WinIGS, Visio, Aspen and ETAP Power System Analysis.

E. OFFICES

BHMG has offices in Arnold, Missouri, and Collinsville, Illinois. The corporate home is located in the Arnold office, which is located at 630 Jeffco Blvd, Arnold, MO 63010.

F. PROFESSIONAL LICENSE

BHMG has a Certificate of Authority to provide professional engineering services in the State of Illinois, license number 184004266-0002.

G. COMPANY LEGAL INFORMATION

BHMG is a Missouri corporation headquartered in Arnold. The legal company name is BHMG Engineers, inc. The company ownership is held by six active engineers at the company. The firm has been in business for 49 years.

1.2 Staffing

A. ORGANIZATION STRUCTURE

BHMG has design teams consisting of project engineers, engineers, designers, drafters, and project coordinators. These teams are led by a project manager, the project managers are not restricted to a single team.

B. PROJECT TEAM

This project will be staffed with the following team, which has specific experience on environmental compliance testing projects and RMC Environmental. Below is the list of the team members.

- a. Project Manager – Rancy Hastings
- b. Engineer – Rita Buechter

MEMORANDUM OF AGREEMENT

PROJECT DATA

Date: 02/10/2022

Project Name: NESHAP Stack Testing

Owner's Project Number:

BHMG Project Number:

Description of Service: Provide Environmental Engineering Services to conduct emission testing for compliance with NESHAP as described in the letter of February 10, 2022.

AGREEMENT DATA

Name: Jackson Municipal Utilities – City Power Plant

Address: 420 Florence Street

City: Jackson, Missouri 63755

Phone: 573-243-3536

Status: Estimate, Quotation (checked), Revision to Original

Fee Basis: Cost Multiplier, Lump Sum (checked), Not to Exceed

Dates: Start Upon Authorization, Complete

The effective date of this agreement and all services and obligations shall be the date of this agreement. The terms and conditions under which we are providing these services are set out on the reverse side of this page and incorporated herein by reference.

BILLING DATA

Monthly 30 days net, Other (upon submission of test report - 30 days net) (checked)

The above is intended as a summary of our agreement for the performance of the work described. Please examine it carefully and, if accurate, indicate your approval and acceptance in the space provided below.

BHMG Engineers, Inc.

By: Rancy Hastings, Engineer

ACCEPTED

The undersigned hereby states that they represent the owner(s) of the above-described project and that the terms and conditions stated above are understood by them and herewith agreed to and accepted. You are hereby authorized and directed to proceed with the work outlined above.

Date, Signature:

(Print Name & Title)

To assure an understanding of matters related to our mutual responsibilities, these terms and conditions for services are made a part of this agreement for our services:

AMENDMENTS

This agreement may be amended in writing providing both the Owner and Company agree to such modifications.

COMPENSATION FOR SERVICES

The basis for compensation will be as identified in the agreement.

When "Lump Sum" or "fixed fee" payment is utilized, it shall include all labor and expenses (for the scope of work as defined in the agreement) incurred by the Company and shall not exceed the fixed payment amount without prior authorization of the Owner.

When a "Payroll Costs" payment is utilized it shall be computed by a multiplier factor times payroll cost plus reimbursable expenses.

The "Payroll Costs" means the salaries and wages paid to all personnel engaged directly on the work plus the cost of customary and statutory benefits including social security contributions, unemployment, health, sick leave, vacation, workmans compensation, incentive and holiday pay applicable thereto.

"Reimbursable Expenses" means the actual expenses incurred directly or indirectly in connection with the work including but not limited to the following: Transportation and subsistence, toll telephone calls, telegrams, reproduction or printing, and computer time. The cost for outside consultants will be increased by five percent to facilitate administrative overheads.

The "Multiplier" is a factor for general direct overhead, indirect costs, profit and other costs. The Multiplier factor rate shall be identified in the agreement.

When an "Hourly" charge is utilized it shall mean the standard flat hourly employee rate as published at least annually by the Company.

TIME OF PAYMENT

The Company may submit monthly statements for services and expenses based upon the proportion of the actual work completed at the time of billing. Unless provided for otherwise, payments for engineering services will be due and payable thirty (30) calendar days from the issuance of the Company's statement.

LATE PAYMENT

If the Owner fails to make any payment due the Company for services and expenses within the time period specified, a service charge of 1-1/2% per month will be added to the Owners account. This is an annual rate of 18%.

LIMITATION OF LIABILITY

The Owner agrees to limit the Company's liability to the Owner and to all construction contractors, subcontractors and others where applicable, on this work, for damages to them due to the Company's negligent acts, errors or omissions, such that the total aggregate liability of the Company to all those named shall not exceed \$50,000 or the Company's total fee for services rendered on this work, whichever is greater.

TERMINATION

This agreement may be terminated by either party upon written notice. Any termination shall only be for good cause such as for legal, unavailability of adequate financing or major changes in the work. In the event of any termination the Company will be paid for all services and expenses rendered to the date of termination.

REUSE OF DOCUMENTS

All documents including drawings and specifications furnished by Company pursuant to this Agreement are instruments of his services in respect of the work. They are not intended or represented to be suitable for reuse by Owner or others on extensions of this work, or on any other work. Any reuse without specific written verification or adaptation by Company will be at Owner's sole risk, and without liability of Company, and Owner shall indemnify and hold harmless Company from all claims, damages, losses and expenses including attorneys fees arising out of or resulting therefrom. Any such verification or adaptation will entitle Company to further compensation at rates to be agreed upon by Owner and Company.



MEMO

To: Mayor and Board of Aldermen
From: Don Schuette
Date: Thursday, March 03, 2022
Re: Engineering Proposal for Cat Generator Control Upgrade

Mayor and Board of Alderman,

Please see the attached Engineering Proposal from Blakely and Associates for upgrading the existing Caterpillar diesel generators, units 10, 11 and 12. The existing engines and generators protection and control systems are obsolete and unrepairable. We currently have very limited spare parts, and the ones we have on hand are no longer available or repairable by the manufacture (s). The design work, engineering and installation of the updated digital control and protection system is critically needed to insure the reliability of these engines and generators. During the installation, it is expected to take about a week and a half per engine during which time the engine and generator will not be available for service but the other two engines and generators will be available. MPUA will also be notified of the project and engines and generators availability to meet our obligations.

This engineering task is a budgeted item and could begin in the second quarter if parts are available. We are currently searching for the main control and protective parts as they are extremely limited thus difficult to obtain at this time.

If you have any other questions or concerns, please let me know.

Regards,

DFS



14311 Highway CC
Chillicothe, MO 64601

Chillicothe Office

Phone: 660-646-0277

Fax: 660-646-0280

Lee's Summit Office

Phone: 816-347-8608

Item 4.

March 1st, 2022

Don Schuette
573-579-5886

RE: Caterpillar Generator Controls Upgrade Project

Dear Mr. Schuette,

Please accept this submittal quote for the following:

Blakely & Associates responsibilities and deliveries:

- Provide Engineering Design and Updated Drawings for Caterpillar Generators 10, 11 & 12 Controls Upgrade.
- Remove Existing Generator Control Components and Replace with New Generator Controls
- Remove Existing Generator Protective Relays and Replace with New Protective Relays
- Wire New Generator Controls, Including Additional Breakers, Relays and Terminal Blocks
- Develop Relay Settings Files and Program New Relays and Generator Control Components
- Update PLC Programming and Scada Controls
- Upgrade CAT controls to EMCP 4.3 Control Panel (Fabick)
- Install Communication Gateway (Fabick)
- Upgrade CDVR Regulator (Fabick)
- All Required Parts and Labor are Included to Complete this Work

Blakely & Associates agrees to complete the above responsibilities and deliveries for a total cost of: \$212,413

Please see the attachments for existing system details and life expectancy of existing control components. The following pages detail the benefits of upgrading the current system, with summary sheets for the quoted components.

Sincerely,

Blakely & Associates Consulting Engineers, Inc.

A handwritten signature in blue ink that reads 'Jason Eckles'.

Jason Eckles, P.E.
Project Engineer

Details of Existing Generator Control Cabinet Components

Item 4.

The current controls system for the (3) Caterpillar Generators has been installed since 2006 and was obtained from an AT&T.com failed facility that was originally installed in 2000. This means that the current controls system has components over 22 years old, with no warranty coverage remaining. Most of the critical components are obsolete, which means they are no longer supported, cannot be repaired, or replaced if a failure occurs. In the event of a component failure, the generator will be offline, and a replacement device will have to be found on the used market, or the controls would need to be updated at that time. The diagram below shows the existing components in the control cabinets and their obsolete date:

MASTER CONTROL CABINET



SPM-A



SCM

AGLC



APTL

GENERATOR CABINET (TYP)



SPM-A

LSM

VPFC

KCR

SYMBOL	MANUFACTURER	DESCRIPTION	OBSOLETE DATE
AGLC	WOODWARD	AUTOMATIC GENERATOR LOADING CONTROL	2021
APTL	WOODWARD	AUTOMATIC POWER TRANSFER AND LOAD CONTROL	2015
KCR	KATO	VOLTAGE REGULATOR	2008
LSM	WOODWARD	LOAD SHARING MODULE	2023
SCM	SPECTER	SYSTEM COMMUNICATION MODULE	2012
SPM-A	WOODWARD	SYNCHRONIZER	2023
VPFC	BASLER	VAR POWER FACTOR CONTROLLER	2010

The proposed upgrade hardware for the generator is a DSLC-2 device, which is a digital synchronizer and load control designed for use on three-phase AC generators. The DSLC-2 combines synchronizer, load sensor, load control, dead bus closing system, VAR, power factor

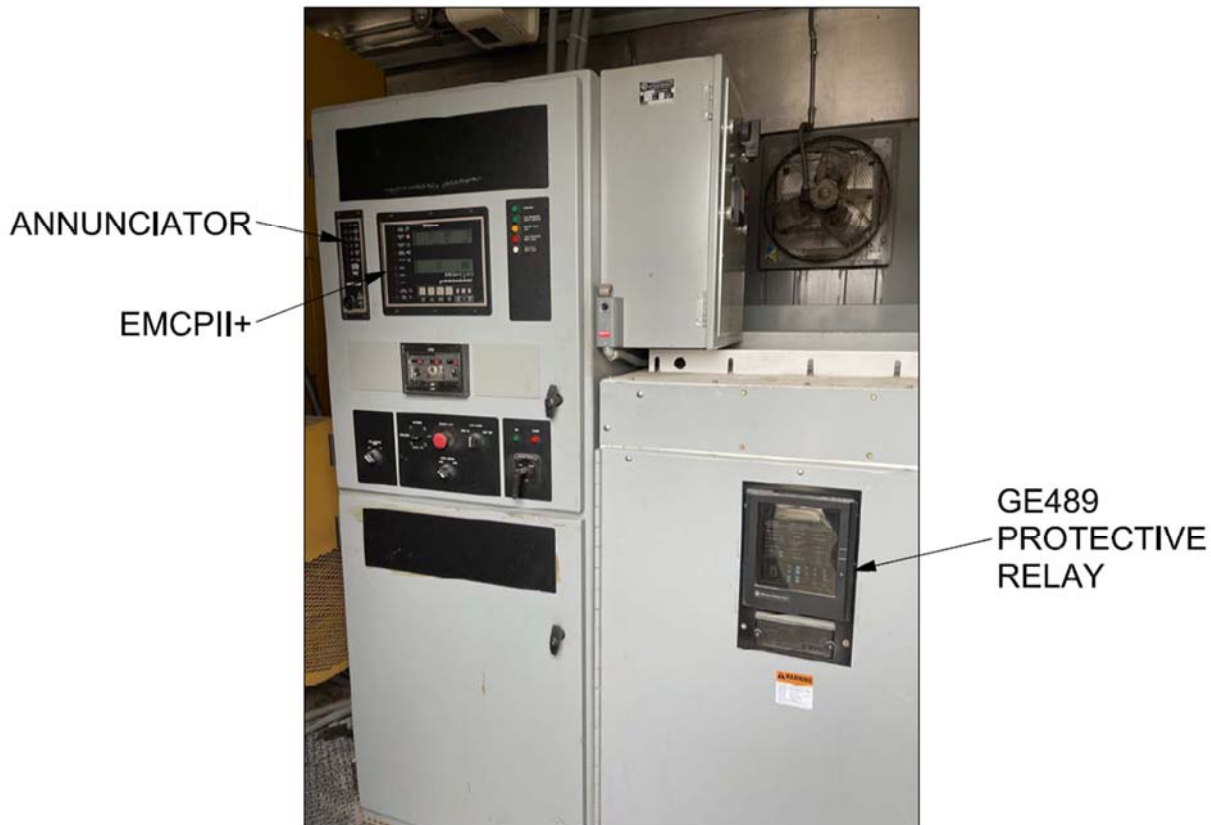
and process control, all in one powerful package. The current control system for a generator uses a SPM-A for synchronizing, AGLC for load control, LSM for load sharing and VPFC for var and power factor control. With the upgrade to a DSLC-2, all these components will be replaced with a single device. The DSLC-2 is also equipped with Modbus communications via ethernet, and all control functions can be programmed and accessed with the Scada system. There are no control dials or pot adjustments on the DSLC-2, which results in a stable engine controller. The DSLC-2 devices also communicate with one another through the ethernet network, making for a completely balanced load sharing system.

The proposed upgrade hardware for the 34.5kV main breaker is a MSLC-2 device, which functions with the DSLC-2 control to provide synchronization and load control across a utility breaker. The MSLC-2/DSLC-2 combination operates over an Ethernet communication network to control the generators and allow for paralleling across the 34.5kV main breaker without taking a utility outage. The MSLC-2 device will replace the existing APTL and SPM-A that is in the main cabinet and allow a more stable control system.

The installation of the MSLC-2 for the 34.5kV main breaker, and the DSLC-2 for each generator will replace the obsolete components in the existing control system, resulting in a complete control system upgrade. The new components will come with a one-year warranty and can be quickly replaced utilizing the removable terminal blocks. The controls will streamline the interface with the existing Scada system, and the operator will be able to easily control the generator and adjust with ease.

Each of the generator synchronizing breakers has a GE489 protective relay that has been out of warranty for over 10 years. General Electric recommends replacing the relay after the 10-year warranty expires. The proposed replacement relay is a Schweitzer SEL-700G relay, which will have many upgraded features, and comes standard with a 10-year warranty. This relay manufacturer will match most of the relays in the electrical system. These relays will be equipped with ethernet communications, which will allow for much faster response time and monitoring capabilities. The Square D Switchgear that contains the 52UA and 52UB breakers also contains GE750 protective relays, which have also been out of warranty for over 10 years. The proposed replacement relay is a Schweitzer SEL-751A relay, which will have ethernet communications and is a substantial upgrade to the GE750 relay. All these relays are integral in the control scheme to run these generators and are all overdue to be replaced. The proposed Schweitzer models will offer more functionality, flexibility, and communication options, improving the integrity of the control system.

CATERPILLAR CONTROLS AND GENERATOR BREAKER



EMCPII+

Controls the start/stop function of the genset, monitors and displays engine and generator protection fault codes coded numerically. Displays AC Voltage, Current, Power, Frequency, Power Factor. Displays engine hours plus basic engine conditions such as Oil Pressure, Coolant/Exhaust/Oil temperature, Battery Voltage, engine RPM. Provides three spare custom inputs for warning or shutdown and are displayed as SP1 through SP3 faults. Also includes three form-A dry outputs with limited programming for each.

8 Led Local Annunciator

Displays four amber warnings and four red shutdowns. Displays pre-programmed warnings/shutdowns. There are an additional five separate indicators for coolant level, cooldown, rupture basin leak and fuel heater mounted away from the annunciator.

CIM-Customer Interface Module

Comprised of an 8-circuit Relay Board and a Relay Driver Module, unit is located in the switchgear. Provides eight dry contacts for pre-programmed warning/shutdowns.

CCM-Customer Communications Module

Located in the switchgear, provides remote PC communication over RS232 in conjunction with Specter SCM Module.

Warranty Status

The EMCPII+ is has not been available on production genset packages since the 2000s. The previous EMCPII is no longer available, and it is expected the EMCPII+ will be obsolete in the near future. All the other devices are still available as replacement parts, but these are not compatible with the EMCP4 (EMCP4.2/4.2B/4.3/4.4) family of controllers or the previous EMCP3 (EMCP3.1/3.2/3.3) controller family so they will become obsolete as well.

Details of Proposed Caterpillar Generator Control Components

EMCP4.3

Controls the start/stop of the genset, monitors, and displays engine and generator fault codes with full text description of each event. Provides hundreds of different available codes. Displays AC Voltage, current, power, frequency, reverse power, reactive power, power factor with breakdowns of all for each phase, and more. Displays engine hours plus basic engine information plus advanced engine information such as air/oil/fuel filter restriction, fuel pressure, fuel consumption, total fuel burned, and more. Provides twelve fully programmable digital inputs, sixteen fully programmable C-form dry output contacts. Custom text can be applied to display non-common custom faults to be viewed on the EMCP4.3. Provides over current, over/under voltage-frequency, reverse KW/KVAR, over KW protection, and more. Provides remote communication over ModBus+ and ModBus TCP/IP (Ethernet).

RS485 Local Annunciator

Provides eight pairs of fully programmable LEDs (8 amber warning and eight red shutdown) for instant fault recognition of notable events. Planning to re-use the five individual indicators mentioned above.

Discrete Input/Output Module (D-I/O)

Provides an additional twelve selectable digital inputs and eight selectable form-C outputs. Custom I/O selections are available, but custom text changes to be viewed on the EMCP4.3 are not available.

CDVR-Voltage Regulator

Programmable via an onboard serial port or through the CAN network described below. Provides its own set of control and protective parameters.

All devices (including the engine ECM) can communicate on one proprietary network (CAN) and are all programmable from one of two service ports (CAN1 and CAN2) that will be located at the generator control cabinet. All new devices will be located within the generator control cabinet. Event/fault information for all devices (including the engine ECM) will be viewable on the EMCP4.3 display.

The upgrade will result in removal of previously listed current components (except the five indicators) as well as a portion of the ancillary components inside the cabinet. External E-Stops, manual breaker control, multifunction relay, and manual louver controls will be retained. Additional upgrade schematics will be provided to work in conjunction with the existing CAT schematics.

All the proposed components are currently used in new machine production and readily available. The EMCP4 series is 10 years old and has been a standard on all production gensets, regardless of size, since its introduction. The CDVR has been out since early 2000s, and the Digital I/O Module came out in the late 2000s with the EMCP3 series. The likelihood of any of the components becoming obsolete is not a factor to consider currently.

Attached Documents

Detail Fabick Quote No: 180133-1 (Included in Bid Price)

DSL-2 Digital Synchronizer and Load Control - Specification

MSLC-2 Master Synchronizer and Load Control – Specification

SEL-700G Generator Protection Relay - Specification

SEL-751A Feeder Protection Relay - Specification



MEMO

To: Mayor and Board of Aldermen
From: Don Schuette
Date: Thursday, March 03, 2022
Re: I-55 Electric Substation Equipment

Mayor and Board of Aldermen,

Attached, please see the bid tabulations and the recommendations from Allen & Hoshall for the purchase of the required, listed electrical apparatus and equipment. Bids for this equipment were received on February 16, 2022 and then evaluated. The combined total cost of all recommended bids is \$1,253,955.

I am in agreement with Allen & Hoshall that the recommended bids are the best and lowest bids received for each bid item. I recommend that the City of Jackson should accept these bids and secure this equipment as proposed.

If you have any further questions, comments or concern please let me know.

Regards,

Don Schuette

Director of Electric Utilities



February 24, 2022

Mr. Donald F. Schuette Jr.
City of Jackson, Missouri
101 Court Street
Jackson, MO 63755

**RE: 13 kV Power Circuit Breakers
I-55 Electrical Substation**

Dear Mr. Schuette:

We have evaluated the bids on the above referenced project. A copy of the Bid Tabulation is enclosed. We recommend the ABB, Inc. bid be accepted due to the breaker type matching the 34.5 kV breaker recommendation and the stated lifetime O&M savings of \$10,557 per breaker. After careful consideration and evaluation, we recommend you accept the following bid:

ITEM 1	\$32,700.00	One (1) 13 kV Power Circuit Breaker manufactured by ABB, Inc. per Proposal # QT-22-02013186.A, dated 11 February 2022
ITEM 2	\$118,000.00	Four (4) 13 kV Power Circuit Breakers manufactured by ABB, Inc. per Proposal # QT-22-02013186.A, dated 11 February 2022
TOTAL	\$150,700.00	

The Purchase Order should state: "ITEMS 1&2: I-55 Electrical Substation, 13 kV Power Circuit Breakers per Proposal # QT-22-02013186.A, dated 11 February 2022 with delivery of August 2022."

Purchase Order should be sent to:

ABB, Inc.
33 Empire Drive
Belleville, IL, 62220

c/o: Rauckman High Voltage Sales, LLC
Chris Boyle
chris@rauckman.com

If there are any questions or you need additional information, please contact me at 901.261.4639.

Sincerely,

Allen & Hoshall

Russell Scott Burleson, P.E.
Sr. Vice President

Cc: Ed Bousson, AH
Bobby Davidson, AH

BID TABULATION

**13 kV POWER CIRCUIT BREAKERS
FOR
I-55 ELECTRICAL SUBSTATION
CITY OF JACKSON, MISSOURI**

Bids Due: February 16, 2022

<u>Bidder</u>	<u>Quantity</u>	<u>Price Each</u>	<u>Price Total</u>	<u>Delivery & Terms</u>
<i>ABB¹</i>				
ITEM 1	1	<u>\$32,700</u>	<u>\$32,700</u>	
ITEM 2	4	<u>\$29,500</u>	<u>\$118,000</u>	
Total 5			<u>\$150,700</u>	<u>August 2022</u>
<i>Myers Controlled Power²</i>				
ITEM 1	1	<u>\$28,816</u>	<u>\$28,816</u>	
ITEM 2	4	<u>\$26,534</u>	<u>\$106,136</u>	
Total 5			<u>\$134,952</u>	<u>28 weeks</u>
<i>Mitsubishi²</i>				
ITEM 1	1	<u>No Bid</u>		
ITEM 2	4			
Total 5				
<i>Siemens²</i>				
ITEM 1	1	<u>\$33,164</u>	<u>\$33,164</u>	
ITEM 2	4	<u>\$29,671</u>	<u>\$118,684</u>	
Total 5			<u>\$151,848</u>	<u>32 weeks</u>

Notes:

1. Magnetically Actuated
2. Motor Charged Spring

Engineer's recommended acceptance in **BOLD**



Allen & Hoshall

1661 International Drive, Suite Item 5.
Memphis, Tennessee 38120
Office 901.820.0820
Fax 901.683.1001
www.allenhoshall.com

February 24, 2022

Mr. Donald F. Schuette Jr.
City of Jackson, Missouri
101 Court Street
Jackson, MO 63755

**RE: 34.5 kV Power Circuit Breaker
I-55 Electrical Substation**

Dear Mr. Schuette:

We have evaluated the bids on the above referenced project. A copy of the Bid Tabulation is enclosed. After careful consideration and evaluation, we recommend you accept the following bid:

ITEM 1	\$35,700.00	34.5 kV Power Circuit Breaker manufactured by ABB, Inc. per Proposal # QT-22-02013404.A, dated 11 February 2022
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The Purchase Order should state: "ITEM 1: I-55 Electrical Substation, 34.5 kV Power Circuit Breaker per Proposal # QT-22-02013404.A, dated 11 February 2022 with delivery of August 2022."

Purchase Order should be sent to:

ABB, Inc.
33 Empire Drive
Belleville, IL, 62220

c/o: Rauckman High Voltage Sales, LLC
Chris Boyle
chris@rauckman.com

If there are any questions or you need additional information, please contact me at 901.261.4639.

Sincerely,

Allen & Hoshall

Russell Scott Burlison, P.E.
Sr. Vice President

Cc: Ed Bousson, AH
Bobby Davidson, AH

BID TABULATION

**34.5 kV POWER CIRCUIT BREAKER
FOR
I-55 ELECTRICAL SUBSTATION
CITY OF JACKSON, MISSOURI**

Bids Due: February 16, 2022

<u>Bidder</u>	<u>Quantity</u>	<u>Price Each</u>	<u>Price Total</u>	<u>Delivery & Terms</u>
ABB¹				
ITEM 1	1	<u>\$35,700</u>	<u>\$35,700</u>	<u>August 2022</u>
<i>Myers Controlled Power²</i>				
ITEM 1	1	<u>\$37,170</u>	<u>\$37,170</u>	<u>28 weeks</u>
<i>Mitsubish²</i>				
ITEM 1	1	<u>\$48,887</u>	<u>\$48,887</u>	<u>22-24 weeks</u>
<i>Siemens²</i>				
ITEM 1	1	<u>\$39,686</u>	<u>\$39,686</u>	<u>30-32 weeks</u>
<i>GE/Alstom</i>				
ITEM 1	1	<u>no bid</u>	<u></u>	<u></u>

Notes:

1. Magnetically Actuated
2. Motor Charged Spring

Engineer's recommended acceptance in **BOLD**



February 24, 2022

Mr. Donald F. Schuette Jr.
City of Jackson, Missouri
101 Court Street
Jackson, MO 63755

**RE: Power Transformer
I-55 Electrical Substation**

Dear Mr. Schuette:

We have evaluated the bids on the above referenced project. A copy of the Bid Evaluation and Bid Tabulation is enclosed. After careful consideration and evaluation, we recommend you accept the following bid:

ITEM 1 \$878,998.00 34.5:12.47 kV Power Transformer manufactured by Virginia Transformer Corp. per Proposal # M220301A, dated 14 February 2022. Total price includes off-loading, installation and 5-year warranty extension.

The Purchase Order should state: "ITEM 1: I-55 Electrical Substation, 34.5:12.47 kV Power Transformer per Proposal # M220301A, dated 14 February 2022 with delivery 36 to 38 weeks ARO."

Purchase Order should be sent to:

Virginia Transformer Corp.
Attn: Brian McCarrick
220 Glade View Drive
Roanoke, Virginia 24012

Brian_mccarrick@vatransformer.com
540-345-9892

If there are any questions or you need additional information, please contact me at 901.261.4639.

Sincerely,

Allen & Hoshall

Russell Scott Burlison, P.E.
Sr. Vice President

Cc: Ed Bousson, AH
Bobby Davidson, AH



BID EVALUATION
(1) 20/26.7/33.3 MVA, 34.5:13 kV Power Transformer

I-55 Electrical Substation

City of Jackson
Jackson, Missouri

February 16, 2022

BIDDER	MANUFACTURER	Number Units	Unit Size / %Z		BID PRICE per Unit \$	BID PRICE TOTAL (\$) (includes adders) (and deducts)	GUARANTEED LOSSES / UNIT ONAN RATING (kW)			COST OF LOSSES (per Unit)	Additional Costs (per Unit)	5-YEAR WARRANTY ADDER (per Unit)	EVALUATED PRICE TOTAL (\$)	DELIVERY
							NO-LOAD	LOAD	TOTAL					
OTC	OTC	1	20.0	MVA 7.60%	\$1,127,986	\$1,197,748	10.90	72.00	82.90	\$353,370	\$69,762	0	\$1,551,118	60-64 wks
		1	20.0	MVA										
WEG	WEG	1	20.0	MVA 7.60%	\$1,250,000	\$1,302,000	12.95	68.10	81.05	\$358,785		0	\$1,660,785	90-95 wks
		1	20.0	MVA										
Hitachi	Hitachi	1	20.0	MVA 7.60%	\$1,303,085	\$1,380,185	14.10	62.00	76.10	\$348,130	\$77,100	0	\$1,728,315	56-60 wks ARO
		1	20.0	MVA										
Virginia	Virginia	1	20.0	MVA 7.60%	\$878,998	\$878,998	14.00	64.00	78.00	\$354,200		0	\$1,233,198	36-38 wks ARO
		1	20.0	MVA										
DELTA STAR	DELTA STAR	1	20.0	MVA 7.60%	NO BID							0		
		1	20.0	MVA										
GRAYBAR	GE	1	20.0	MVA 7.60%	NO BID							0		
		1	20.0	MVA										
SPX	SPX	1	20.0	MVA 7.60%	NO BID							0		
		1	20.0	MVA										
PASI	PASI	1	20.0	MVA 7.60%	NO BID							0		
		1	20.0	MVA										
SGB	SGB	1	20.0	MVA 7.60%	NO BID							0		
		1	20.0	MVA										

- NOTES:**
- Hitachi Payment Schedule: 95% - at shipment net 30 days from invoice date (delivery), 5% after installation - not to exceed 30 days past delivery
In no event shall Hitachi, its suppliers or subcontractors be liable for special, indirect, incidental or consequential damages, whether in contract, warranty, tort, negligence, strict liability or otherwise, including, but not limited to, loss of profits or revenue, loss of use of the equipment or any associated equipment, cost of capital, cost of substitute equipment, facilities or services, downtime costs, delays, and claims of customers of the Purchaser or other third parties for any damages.
 - WEG Payment Schedule: 95% - net 30 days from invoice date (delivery), 5% after final acceptance, not not to exceed 60 days after delivery
Liquidated Damages shall be \$500 per day with a cap at 5% of the transformer value.
 - OTC Payment Schedule: 25% with Purchase Order, 25% with material order, 50% after completion of factory testing. Net 30 days. Not to exceed 60 days after delivery.
Contracts which include Penalty or Liquidated damage clauses for failure to meet shipping promises are not acceptable or binding on Seller unless such clauses are specifically accepted in writing by an authorized representative of the Seller
 - Virginia Payment Schedule: 20% with Purchase Order, 30% upon approval drawing submittal - net 30 days, 50% invoiced at Time of Shipment - Net 30 days.
Liquidated Damages shall be \$500 per day with a cap at 5% of the transformer value.

*** ENGINEERS' RECOMMENDED ACCEPTANCE IN BOLD**



February 24, 2022

Mr. Donald F. Schuette Jr.
City of Jackson, Missouri
101 Court Street
Jackson, MO 63755

**RE: Control House and Associated Relay Equipment
I-55 Electrical Substation**

Dear Mr. Schuette:

We have evaluated the bids on the above referenced project. A copy of the Bid Tabulation is enclosed. After careful consideration and evaluation, we recommend you accept the following bid:

ITEM 1 \$218,557.00 Control House and Associated Relay Equipment
manufactured by KVA, Inc. per Proposal #11611, dated 16
February 2022.

The Purchase Order should state: "ITEM 1: I-55 Electrical Substation, Control House and
Associated Relay Equipment per Proposal #11611, dated 16
February 2022 with delivery 20-22 weeks ARO."

Purchase Order should be sent to:

KVA, Inc.
Attn: Kim McGinnis
3307 Brushy Creek Rd.
Greer, SC 29650

kmcginnis@kva-emc.com
864-801-4430

If there are any questions or you need additional information, please contact me at 901.261.4639.

Sincerely,

Allen & Hoshall

Russell Scott Burleson, P.E.
Sr. Vice President

Cc: Ed Bousson, AH
Bobby Davidson, AH

BID TABULATION

RELAY CONTROL HOUSE

FOR

**I-55 ELECTRICAL SUBSTATION
CITY OF JACKSON, MISSOURI**

BID OPENING: February 16, 2022

<u>Bidder</u>	<u>Total Bid Price</u>	<u>Delivery</u>
Birmingham Control Systems	<u>\$224,995^{1,3}</u>	<u>22-24 Wks</u>
Keystone Electric Manuf. Co.	<u>NO BID</u>	<u></u>
KVA, Inc.	<u>\$218,557^{2,3}</u>	<u>20-22 Wks</u>
VFP, Inc./SEL	<u>\$249,629^{1,3}</u>	<u>26-28 Wks</u>
CESI	<u>\$244,592⁴</u>	<u>28-32 Wks</u>

Notes:

1. Exception to Liquidated Damages
2. Liquidated Damages of \$100/day up to 5% of purchase order
3. Payment terms: Net 30 days
4. Payment terms: 95% 30 days after delivery, 5% after energization

Engineer's recommended acceptance in **bold**.



MEMO

To: Mayor Dwain Hahs and Members of the Board of Aldermen

From: Rodney Bollinger, Director of Administrative Services

Date: Thursday, March 03, 2022

Re: Disposal of Stockpiled Brush Program

Bids for the Disposal of Stockpiled Brush Program were received by the City Clerk and opened at City Hall at 10:00 AM on Tuesday, March 1, 2022. Four contractors submitted bids and the results of the bid opening are shown on the next page.

Steve's Hauling & Excavating, LLC, of Oak Ridge, Missouri, submitted the lowest bid amount at \$24,800.00. When notified about being the lowest bidder, the Contractor confirmed that they were comfortable with their bid.

Previously, the City's stockpiled brush on the tract located behind Mondri on N. High St. (Highway 61), was burned to reduce the quantity. Due to stricter Missouri Department of Natural Resources regulations and citizen complaints, burning operations at this site ceased and this program to remove the stockpiled brush was created two years ago.

With the Contractor's good history of working with the City of Jackson on a previous project and their low bid, I recommend to the Board of Aldermen that this bid be accepted and a contractual agreement be made with Steve's Hauling & Excavating, LLC for the Disposal of Stockpiled Brush Program.

CITY OF JACKSON, MISSOURI
DISPOSAL OF STOCKPILED BRUSH PROGRAM
BID OPENING: TUESDAY, MARCH 1, 2022, 10:00 A.M.

BID TABULATION SHEET

<u>Contractor</u>	<u>Bid Amount:</u>
Herzog Excavating & Demolition, LLC Pebryville	\$ 54,835.00
Steve's Hauling & Excavating, LLC Oak Ridge	\$ 24,800.00
Strack Excavating, LLC - Cape	\$ 35,000.00
Tree Line - Altheburgmo	\$ 44,000.00
_____	\$ _____
_____	\$ _____

Opened by: 

Witnessed by: 