



### AGENDA ITEM EXECUTIVE SUMMARY

Agenda Item:	Consider Resolution Awarding Bid to WESCO for the purchase of a G&W Viper switch and controls.		
Presenter & Title:	Aaron Holton – Superintendent of Electric Services		
Date:	June 19, 2023		
<b>Please Check Appropriate Box:</b>			
<input checked="" type="checkbox"/>	Committee of the Whole Meeting	<input type="checkbox"/>	Special Committee of the Whole Meeting
<input checked="" type="checkbox"/>	City Council Meeting	<input type="checkbox"/>	Special City Council Meeting
<input type="checkbox"/>	Public Hearing	<input type="checkbox"/>	Other -
Associated Strategic Plan Goal/Objective: EMS II			
Estimated Cost: \$ 35,120.00	Budgeted?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other Funding? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<i>If "Other Funding," please explain how the item will be funded:</i>			
<b>Executive Summary:</b>			
Bids were advertised and opened on Monday, May 15, 2023 for a G&W Viper switch with controls. Two companies responded and submitted bids.			
	Bid Price	Shipping	Total
WESCO	\$35,120.00	Included	\$35,120.00
RESCO	\$35,120.00	Included	\$35,120.00
Both bids were conforming to the specification; WESCO will guarantee the price through delivery while RESCO will hold the price until June 8.			
<b>Attachments:</b> <i>(please list)</i>			
<ul style="list-style-type: none"> <li>• Resolution</li> <li>• WESCO Bid</li> <li>• Memo from Superintendent Holton</li> </ul>			
<b>Voting Requirements:</b>			
<i>This motion requires a simple majority of votes for passage.</i>			
<i>The Mayor may vote on three occasions: (a) when the vote of the aldermen or trustees has resulted in a tie; (b) when one half of the aldermen or trustees elected have voted in favor of an ordinance, resolution, or motion even though there is no tie vote; or (c) when a vote greater than a majority of the corporate authorities is required by state statute or local ordinance to adopt an ordinance, resolution, or motion.</i>			
<b>Recommendation / Suggested Action:</b> <i>(how the item should be listed on agenda)</i>			
Recommend resolution awarding bid to WESCO for the delivery of a G&W Viper switch and controls in an amount of \$35,120.00.			



**PUBLIC WORKS DEPARTMENT**  
**MEMORANDUM**

June 5, 2023

**Memo To:** Mayor Burns and Committee of the Whole  
**From:** Aaron Holton, Superintendent of Electrical Services  
**Re:** Recommendation for the Purchase of a G&W Viper switch and controls.

The Geneva Electric Division utilizes automated and remote control devices in various ways during day-to-day and emergency situations. These include moving load between substations, restoring outages and isolated faults on the circuits. While multiple automated devices are in the field, staff has identified areas that are lacking this capability. One such location is the tie between the Western Ave substation and several other substations that tie into Western Ave feeders.

The Viper switch that has been specified will replace a manual switch now in service. Once installed and connected, Division staff will gain the ability to remotely switch loads between Western Ave and South Street substations. This will increase safety for the lineman as switch will now take place remotely, allowing the lineman to stand off a safe distance away. Outage restoration time will also be reduced due to a line crew no longer needed to be dispatched to this switch location.

The Electric Division staff and lineman will install the switch and needed fiber optic infrastructure to communicate with the switch controls.

The bid prices received from RESCO and WESCO were identical. In evaluating which bid to recommend staff considered line items such as lead times and freight. Again, these items were the same between the bids. The deciding factor was price guarantee. RESCO indicated in the bid they will hold prices through June 8, while WESCO stated price will be held through delivery. As such, staff's recommendation is to award the bid to WESCO.

**Staff Recommendations:**

After careful and thorough review of the bids for the material, it is the staff's recommendation to COW, that COW approves and recommends City Council to **award the purchase of a G&W Viper switch and controls to WESCO in an amount of \$35,120.00.**

Cc: Stephanie Dawkins, City Administrator  
Ben McCready, Asst. City Administrator  
Rich Babica, Director of Public Works  
Jennifer Hilkemann, Manager of Distribution Construction and Maintenance  
Jose Ruiz, Manager of Electric Operations

**RESOLUTION NO. 2023-60**

**AWARDING BID TO WESCO FOR THE DELIVERY OF A G&W VIPER SWITCH AND CONTROLS IN AN AMOUNT OF \$35,120.00.**

**BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GENEVA, KANE COUNTY, ILLINOIS**, as follows:

**SECTION 1:** That the City Administrator is hereby authorized to award, on behalf of the City of Geneva, the bid to WESCO for the delivery of a G&W Viper switch and controls in an amount of \$35,120.00, in the form attached hereto.

**SECTION 2:** This Resolution shall become effective from and after its passage as in accordance with law.

**PASSED** by the City Council of the City of Geneva, Kane County, Illinois, this 19<sup>th</sup> day of June, 2023

**AYES: \_\_ NAYS: \_\_ ABSENT: \_\_ ABSTAINING: \_\_ HOLDING OFFICE: \_\_**

Approved by me this 19<sup>th</sup> day of June, 2023.

\_\_\_\_\_  
Mayor

ATTEST:

\_\_\_\_\_  
City Clerk

CITY OF GENEVA ELECTRIC DEPARTMENT  
1800 SOUTH STREET  
GENEVA, IL 60134

SPECIFICATIONS AND CONTRACT DOCUMENTS 23-1  
15KV SOLID DIELECTRIC VACUUM INSULATED ELECTRONIC RECLOSER  
(Material Only)

Bid Opening: 10:00 A.M. MONDAY, May 15, 2023

Bid Deposit: NOT REQUIRED

Performance Bond: NOT REQUIRED

Specifications: Attached

Return Bids To: City Administrator  
City of Geneva  
22 South First Street  
Geneva, IL 60134

Please Mark the Return Envelope and specify the:

1. Bid Opening Date & Time
2. Title of Job

For Additional Information regarding bid, contact:

Jose Ruiz  
Manager of Electric Operations  
City of Geneva Electric Department  
1800 South Street  
Geneva, IL 60134  
630-232-1503

Please submit entire document in duplicate intact.

Friday, April 28, 2023

NOTICE

DUPLICATE sealed BIDS submitted in a sealed envelope with the words "15kV SOLID DIELECTRIC RECLOSER" marked on it, will be received by the City of Geneva, Illinois, until 10:00 A.M., Monday, May 15, 2023, at the Office of the Administrator, City of Geneva, 22 South First Street, Geneva, Illinois, 60134.

This work shall be done in accordance with the specifications of the City of Geneva.

Contractors and Subcontractors shall pay not less than the prevailing Rate of Wages as found by the Department of Labor or as are determined by the Court of Appeal, Kane County, to all laborers, workman, and mechanics performing work under the Contract. A signed certification stating the above as well as the fact that the bidder is not barred from bidding as a result of a violation of either Section 33E-3 or 33E-4 of Chapter 720, Illinois Compiled Revised Statutes, [720 ILCS 5/33E-3 and 5/33E4 (2009)].

The City reserves the right to defer acceptance of any proposal for a period not to exceed ( 60 ) days after the date bids are received.

The City of Geneva reserves the right to reject any or all bids and waive technicalities.

Bid packages can be obtained on the City's website at <https://www.geneva.il.us/bids.aspx> or by contacting Jose Ruiz, Manager of Electric Operations, City of Geneva, 1800 South Street, Geneva, IL 60134, or by calling 630-232-1503.

To be published in the Daily Herald on the following date:  
Friday, April 28, 2023

CITY OF GENEVA

BID PROPOSAL NO. 23-01

OPENING DATE: 05-15-2023

FOR: 15kV SOLID DIELECTRIC VACUUM INSULATED ELECTRONIC RECLOSER

OPENING TIME: 10:00 AM

DEPARTMENT: PUBLIC WORKS

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QUANTITIES

~~SPECIFIC QUANTITIES~~

ESTIMATED QUANTITIES

-----  
BID DEPOSIT REQUIREMENTS

~~NOT REQUIRED~~

CHECK OR BID BOND \$1000.00

-----  
PERFORMANCE BOND

~~NOT REQUIRED~~

TO BE SUBMITTED  
IN AMOUNT OF  
OF CONTRACT TOTAL

-----  
SAMPLES

~~NOT REQUIRED~~

TO BE SUBMITTED  
WITH BID

-----  
DESCRIPTIVE LITERATURE & TECHNICAL DATA

~~NOT REQUIRED~~

TO BE SUBMITTED WITH BID

## INSTRUCTIONS TO BIDDERS

Bids shall be submitted to the City Administrator, City of Geneva, 22 South First Street, Geneva, IL 60134.

Bids shall be in sealed envelopes clearly marked as to what the bid pertains to as well as time and date of bid opening. Return address should be on outside of bid envelope.

Bids shall be submitted in DUPLICATE to the City of Geneva.

Bids shall be received on or before the time specified at which time the bids will be publicly opened and read aloud at the office of the City Administrator. Bids received after the specified time and date will be returned to the bidder unopened.

**BIDS SHALL BE SUBMITTED ON CITY OF GENEVA BID FORMS INCLUDED IN THE CONTRACT DOCUMENT (BID PACKAGE).**

The manufacture or assembly of equipment shall be commenced within ten (10) calendar days after written notice to proceed and shall be completed within the time stated in the successful bidder's proposal.

The City reserves the right to consider such factors as time of completion or delivery, materials, method of construction, experience, and responsibility of the bidder and similar factors in determining which bid it deems to be in the City's best interest.

The City reserves the right to reject any or all of the bids, to waive informalities or technicalities in any bid and to accept the bid which it deems to be in the best interest of the City of Geneva.

A bid deposit will be required if indicated on the "NOTICE TO BIDDERS" form. Each bid MUST be accompanied by a Bid Bond signed by a surety company authorized to do business in Illinois, or by a cashier's check or certified check in the amount of \$1000.00. Any bid not accompanied by a required bid deposit may be rejected.

All bid deposits (except that of the lowest responsible bidder) will be returned after the lowest responsible bidder is determined by the City Council. The return of the bid deposit to the successful bidder or awardee will be contingent upon that bidder's execution of a written contract with the City.

Any bidder may withdraw his or her bid by letter or telegraphic request or, with proper identification, by personally securing the bid proposal at any time prior to the time fixed for opening of bids and provided that written confirmation of any telegraphic withdrawal over the signature of the Bidder is placed in the mail and postmarked prior to the time set for bid opening. Telephonic request to withdraw a bid will not be considered.

The City of Geneva is exempt from the Illinois Retailers Sales and Occupation Tax. An exemption certification will be furnished upon request.

Delivery of Goods F.O.B. Point- City of Geneva ELECTRIC UTILITY, 1800 South Street, Geneva, IL 60134 may be indicated in City's Purchase Order or Notice to Proceed. Should any goods be damaged during shipment, bidder shall repair or replace and damaged equipment or materials. Bidder shall negotiate on the City's behalf, at no cost to the City, with the carrier or other persons as required, to obtain compensation for such repair or replacement.

The City shall be notified 24 hours prior to any shipment of materials or equipment. Please call Jose Ruiz at (630) 232-1503 during the hours of 7:00 AM to 3:00 P.M.

All deliveries are to be made during City of Geneva Electric Utility business hours of 7:00 AM to 11:30 A.M. and 12:30 P.M. to 3:00 P.M.

Each bidder shall submit a lump sum price for material or equipment covered by the specifications, together with any prices for alternate materials or equipment or other prices or data listed in the Form of Proposal or as specified.

ESCALATION CLAUSES ARE NOT ACCEPTABLE.

The bidder may at his option, base quotes on furnishing substitutions that are equivalent of any item described, named, or specified, provided the selection meets the quality and are direct equals to the item specified. Burden of proof that proposed substitutions are equivalent, rests with the bidder.

Submit separate prices, alternate prices, or adjusted prices for materials or equipment as requested in the Form of Proposal. Bidders may in addition, submit prices for a combination of these separately priced schedules. If submitting combination quotes, bidders must submit separate schedule bids. Each schedule will be independent and subject to acceptance or rejection without alteration or qualification.

The City may award Purchase Order on basis of separate quotes or combination bids.

Prepare bids in duplicate on Form of Proposal included herewith, one copy submitted to the City, one copy to be retained by the bidder.

A legally authorized representative of bidder shall sign the bid.

Submit manufacturer's specifications and descriptive data on proposed materials.

All laborers, workers, mechanics, etc., employed in any public work under this contract shall be paid in accordance with the Prevailing Wage Rates approved by the City of Geneva, Kane County, as attached to the project specifications.

A statement certifying that the bidder is not barred from bidding on the Project Specifications as a result of a violation of either Section 33E-3 or 33E-4 of Chapter 720, Illinois Compiled Statutes [720 ILCS 5/33E-3 and 5/33E-4 (2009)]. The certificate form is attached to the Project Specifications.

Bidders must supply a self addressed, stamped envelope for bid results.

Absolutely no results will be given out over the telephone.

Questions regarding this Legal Notice, Instructions to Bidders, and Specifications should be directed to Jose Ruiz, Manager of Electric Operations, Geneva Electric Utility at (630) 232-1503.

USE FORM OF PROPOSAL INCLUDED HEREIN

## CERTIFICATION OF COMPLIANCE

The undersigned hereby certifies as follows:

1. That he has the authority and consent to make this certification on behalf of the bidder,  
WESCO DIST  
 (Name of Company)
2. That he has knowledge of the City of Geneva Codes pertaining to the disqualification of certain bidders.
3. That he knows that the bidder listed above is not disqualified from bidding under the aforementioned sections.
4. That he has knowledge of the City of Geneva ordinances relating to Fair Employment Practices and knows and understands the contents thereof; he certifies hereby that it is the policy of the bidder to recruit, hire, train, upgrade, promote, and discipline its employees without regard to race, creed, color, religion, age, sex, or physical or mental impairment.
5. That said bidder is not barred from bidding on the aforementioned contract as a result of a violation of Sections 33E-3 or 33E-4 of Chapter 720, Illinois Compiled Statutes, [720 ILCS 5/33E-3 and 33E-4 (2009)].
6. That pursuant to Chapter 65, Section 11-42.1-1 [65ILCS 5/11-42.1-1] of the Illinois Revised Statutes, the bidder is not delinquent in the payment of any taxes administered by the Department of Revenue.
7. That the contractor (either as an individual or company) agrees to provide a drug free workplace as provided for by the "30 ILCS 580/1 et. seq."
8. That all work under this contract shall comply with the Occupational Safety and Health Act (OSHA) of 1975 as amended, and all other Federal, State, or Local statutes, rules, or regulations including all City of Geneva Safety Procedures affecting the work done under the contract.
9. That all work done under this contract shall comply with the Prevailing Wage Rate Act of the State of Illinois [820 ILCS 130/1 et. seq.] County of Kane, Illinois in effect at the time the work is performed.

10. Contractor acknowledges that the Freedom of Information Act, 5 ILCS 140/1 et seq. (the "ACT") places an obligation on the City of Geneva to produce certain records that may be in possession of the Contractor. Contractor shall comply with the record retention and documentation requirements of the Local Records Retention Act, 50 ILCS 205/1 et seq. and the Act and shall maintain all records relating to this Agreement in compliance with the Local Records Retention Act (complying in all respects as if the Contractor was, in fact, the City). Upon notice from the City, Contractor shall review its records promptly and produce to the City within two business days of said notice from the City the required documents which are responsive to a request under the Act. If additional time is necessary to comply with the request, the Contractor may request the City to extend the time to do so, and the City will, if time and a basis for extension under the Act permits, consider such extensions. In the event Contractor fails to produce the requested records or fails to produce the requested records within the time period required above and the City is assessed a fine, fee or penalty for failure to timely comply with Act do to Contractor's actions, Contractor shall reimburse City for all fines, fee or penalties, including reasonable attorney's fees, paid by the City.

By submission of this bid, I certify that the bid has been arrived at independently and has been submitted without collusion between or among any vendor of materials, supplies, equipment, or services.

WESCO

Name of Corporation, Partnership, or Proprietor

2401 INTERNATIONALE PKWY

Address

WOODRIDGE IL 60517

City State Zip

630-327-7017

Telephone

Matt Boggs

Authorized Signature/Title

SUBSCRIBED AND SWORN to before me

this 12<sup>th</sup> day of May, 2023.

Catherine K. Mozdén Notary Public

My commission expires: 10/19/2025



## FORM OF PROPOSAL

Name of Bidder WESCOAddress of Bidder 2401 INTERNATIONAL PKWY - WOODRIDGETelephone No. of Bidder 630 327-2017

To: City Administrator

City of Geneva  
22 South First Street  
Geneva, IL 60134

The undersigned bidder, having examined the specifications of the following proposal, hereby proposes to provide the required labor, services, and materials described in this Form of Proposal, the Instruction to Bidders, and Specifications for the sum or sums stated hereinafter:

15KV SOLID DIELECTRIC VACUUM INSULATED ELECTRONIC RECLOSER

FURNISH AND DELIVER (1) VIPER ST RECLOSERAS SPECIFIED FOR THE SUM OF: 35,120.00 (DOLLARS)TO BE DELIVERED ON: 26 WEEKS AFTER RELEASEPrices contained herein are firm through SHIPMENT

The undersigned bidder states that this proposal is made in conformity with the specifications and agrees that, in the event of any discrepancies between any conditions of this proposal and the specifications prepared by the City of Geneva, the provisions of the latter shall prevail.

The undersigned bidder certifies that this proposal is made in good faith, without collusion or connection with any other person or persons bidding for these services, labor and materials.  
Signed by :

BIDDER: WESCOBY: Matt PozzaTITLE: ACCOUNT REPDATE: 5/11/23

NOTICE : SUBMIT PROPOSALS ON PROPOSAL FORM ONLY

## 15KV SOLID DIELECTRIC VACUUM INSULATED ELECTRONIC RECLOSER SPECIFICATION

### PART 1- GENERAL

#### 1.01.1 SCOPE

- A. This specification covers the design, manufacture, factory production testing and possible field service assistance during installation and commissioning of a 15kV Solid Dielectric Vacuum Insulated Electronic Recloser.

#### 1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.03 SUBMITTALS

- A. Submit shop drawings and product information in the quantities listed according to the Conditions of the Contract. All transmittals shall be identified by purchaser name, purchaser location and purchaser's order number.
- B. Approval documents shall include:
  1. Three-line diagrams
  2. Schematics
  3. Electrical bill of material
- C. Final documents shall include:
  1. Documents listed in 1.3.B above
  2. Wiring diagrams
  3. Recommended spare parts list for start-up support
  4. Instruction manual
- D. Product data: Include features, characteristics and ratings of individual reclosers and other components.
- E. Shop drawings: Detail equipment assemblies and indicate dimensions, weights, method of field assembly, components and location and size of each field connection. Include the following:
  1. Short-time and short-circuit ratings of recloser assembly
  2. Detailed wiring diagrams showing wiring for power, signal and control systems including differentiation between manufacturer-installed and field-installed wiring
  3. Factory acceptance test report if applicable.
  4. Detailed description of functionality describing the application, communication, and settings of the programmed relays.

#### 1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: The chosen manufacturer shall have at least 5 years experience in manufacturing solid dielectric type reclosers. The manufacturer of the switches shall be completely and solely responsible for the performance of the automated system.
- B. The manufacturer shall furnish certification of ratings of the reclosers upon request.
- C. The switch shall comply with requirements of the latest revisions of applicable industry standards, including:
  1. IEEE C37.60-2012 AND IEC 62271-111

April 27, 2023

15KV SOLID DIELECTRIC VACUUM INSULATED ELECTRONIC RECLOSER

City of Geneva, Il

- D. The switch manufacturer shall be ISO 9001:2000 and ISO 14001:2004 certified.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Reclosers and controls shall be shipped preassembled at the factory. No field assembly shall be required.
- B. The contractor, if applicable, shall handle, transfer and move the switches in accordance with manufacturer's recommendations.

### PART 2- PRODUCTS AND FUNCTION

#### 2.01 MANUFACTURERS

- A. The SOLID DIELECTRIC VACUUM INSULATED ELECTRONIC RECLOSER manufactured by G&W Electric or pre-approved equal. Approved manufacturers are as follows:
  1. G&W Electric
  2. -----

#### 2.02 RECLOSER CONSTRUCTION

- A. Recloser assembly and components shall conform to IEEE C37.60-2012 and IEC 62271-111. The device shall be suitable for outdoor installations and provide adequate protection against environmental elements.
- B. Vacuum Interrupter Modules: The recloser shall have three (3) Z-shaped vacuum interrupter modules that are epoxy insulated and rated for a maximum design voltage of 15.5kV. The vacuum interrupters shall have an impulse level (BIL) of 110kV and shall be capable of interrupting a maximum of 12.5kA RMS. The interrupter shall be capable of withstanding a maximum of 20kA asymmetrical making current and shall be rated for continuous and load break current of 800A.
- C. Magnetic Actuator Operator: Each phase of the recloser shall be equipped with one (1) magnetic actuator operator capable of providing single or three-phase operation. Magnetic actuator shall be rated for a minimum of 10,000 operations.
- D. Manual Trip and Lockout Handle: The recloser shall have one (1) manual trip and lockout handle with mechanical block per phase. The handle shall be capable of physically blocking electronic and manual operation. The handle shall also have a contact position indicator to indicate the position of the handle through the relay.
- E. Current Transformers: The recloser shall have three (3) current transformers encapsulated within the solid dielectric insulation capable of protection grade accuracy.
- F. Capacitively Coupled Voltage Sensors: The recloser shall have six (6) capacitively coupled voltage sensors encapsulated within the solid dielectric insulation. These voltage sensors shall be exclusively used with the recloser control.
- G. Deadbreak Apparatus Bushings: The recloser shall have six (6) 800A deadbreak apparatus bushings per IEEE 386 interface 13. The bushings shall be suitable for use with 15kV screw-on silicone insulators.
- H. Aerial Lugs: The recloser shall have aerial lugs included, which shall be clamp type for #2-500 MCM overhead conductor.
- I. Control Cable: The recloser shall have 32 pin control cable connectorized on both ends which can be specified at various lengths depending on the installation.

April 27, 2023

City of Geneva, IL

15KV SOLID DIELECTRIC VACUUM INSULATED ELECTRONIC RECLOSER

- J. Lifting Provisions: The recloser shall have lifting provisions for easy installation and maintenance.
- K. Galvanized Steel Crossarm Frame: The recloser shall have a galvanized steel 8-foot crossarm frame with provisions for lightning arrester mounting. Cross arm frame, recloser modules, and associated accessories shall come pre-assembled from the manufacturer.
- L. Oil Potential Transformers: The recloser shall have two (2) oil potential transformers suitable for phase-to-phase connection on a 7200V / 12470V phase to phase system included and factory installed for control power. The recloser shall not have primary potential transformer fusing included.
- M. PT Cables: The recloser shall have two (2) 3 pin PT cables connectorized on one end.
- N. Control: The recloser shall have SEL 0651R22AXGAXAE2123B7XX control.
- O. Ratings: The recloser shall comply with the following ratings:

Maximum design voltage	15.5kV
Impulse level (BIL)	110kV
Continuous and load break current	800A
8 Hr. Overload at 20°C	960A
60Hz Withstand, kV rms Dry, 1 min	50kV
60Hz Withstand, kV rms Wet, 10 sec	45kV
Interrupting Rating RMS (kA)	12.5kA
Making Current, RMS, asym, KA	20kA
Peak, asym (kA)	32kA
Short Circuit Current, kA sym, 3 second	12.5kA
Mechanical Operations	10K

2.04 CABLE BUSHINGS

Cable bushings shall be 600 amp Apparatus bushing with elastomeric sheds installed over the bushing as indicated on the drawing.

2.05 OPERATION

Monitoring of the circuit shall be accomplished using internal, multi-ratio current transformers. The unit shall be powered by a customer supplied external 120 VAC source. An optional dead-line operation feature shall permit limited time operation using the control batteries if AC power is lost. An optional remote status feature shall provide the capability to remotely monitor the status of the power supply. Recloser sequencing, tripping and overcurrent sensing shall be an automatic function of the electronic control. If a fault current is sensed on any phase, the recloser will trip all three phases. Manual open and lockout shall be provided by an external, hook stick operable handle. Operation of the manual open handle shall disable any local or remote closing operation until the handle is reset. An operations counter viewable through an opening at the bottom of the mechanism enclosure shall be provided.

2.06 MOUNTING

Lifting provisions shall be provided. Mounting provisions shall be supplied as a galvanized, mild steel pole mounting bracket permitting arrester mounting on both the load and line side bushings; a galvanized, mild steel substation frame as indicated.

## 2.07 ELECTRONIC CONTROLS

The recloser shall be controlled using the Schweitzer® model SEL-651R2 control. Control cable and connections shall permit easy field retrofit from other style reclosers to the Viper. The controls shall be user programmable.

- A. The microprocessor-based recloser control shall provide a combination of functions including protection, monitoring, control, fault locating, and automation. Recloser control self-checking functions shall be included. Specific operational and functional requirements are as follows.
1. Autoreclosing Control - The recloser control shall incorporate a four-shot control. It shall include four independently set open time intervals, an independently set reset time from reclose cycle, and an independently set reset time from lockout.
  2. Coordination With Downstream Reclosers - The recloser control shall include 38 standard recloser time-overcurrent curves and sequence coordination logic for secure and dependable operation.
  3. Phase Fault Overcurrent Protection - The recloser control shall incorporate phase and negative-sequence overcurrent elements for detection of phase faults. For added security, the recloser control shall provide directional elements, load- encroachment logic, and torque-control capability (internal and external).
  4. Ground Fault Overcurrent Protection - The recloser control shall incorporate residual ground and neutral ground overcurrent elements for detection of ground faults. For added security, the recloser control shall provide directional elements and torque-control capability (internal and external).
  5. Phase Under- and Overvoltage Elements - The recloser control shall incorporate under voltage and overvoltage elements for creating protection and control schemes, including but not limited to the following: voltage checks (e.g., hot bus/dead line) for reclosing; blown transformer high-side fuse- detection logic; control schemes for capacitor banks.
  6. Sequence Voltage Elements - The recloser control shall incorporate positive-, negative-, and zero-sequence voltage elements that can be logically configured for either under- or overvoltage applications.
  7. Under- and Over frequency Protection - The recloser control shall incorporate four levels of under-/over frequency elements for detection of power system frequency disturbances. Each setting level shall use an independently set timer for load- shedding or generator-tripping schemes.
  8. Synchronism Check - The recloser control shall include two synchronism-check elements with separate maximum angle settings (e.g., one for autoreclosing and one for manual closing). The synchronism-check function shall compensate for close time and constant phase-angle differences between the two voltage sources used for synchronism check (phase-angle differences settable in 30-degree increments).
  9. IED Communications - The recloser control shall include the capability for communication of internal logic values to a remote relay or recloser control via serial communications. These values shall be available for use in control logic.
  10. Secure Communications - The recloser shall include an optional accessory for converting an EIA-232 serial port to encrypted and authenticated IEEE 802.11b wireless communication. Software shall be provided with this accessory for access to the wireless port using a personal computer (PC) or personal data assistant (PDA).
  11. Operator Controls - The recloser control shall include 10 operator controls on the recloser control front panel; these functions shall also be accessible in the recloser control logic. The operator control panel shall include pushbuttons and LEDs with programmable functions and indications.
  12. Event Reporting and Sequential Events Recorder (SER) - The recloser control shall be capable of automatically recording disturbance events of 15 or 30 cycles with settable pre-

- fault duration and user-defined triggering. Events shall be stored in nonvolatile memory. The recloser control shall include an SER that stores the latest 512 entries.
13. Status and Trip Target LEDs - The recloser control shall include 16 status and trip target LEDs.
  14. Overload and Unbalance Alarms - The recloser control shall include user-settable demand current thresholds for phase, negative-sequence, neutral, and residual demand measurements.
  15. Recloser Wear Monitor - The recloser control shall include a recloser wear monitor with user-definable wear curves, operation counter, and accumulated interrupted currents by phase.
  16. Battery Monitor - The recloser control shall measure and report the battery level. Two user-selectable threshold parameters shall be provided for alarm and control purposes.
  17. Fault Locator - The recloser control shall include a fault-locating algorithm to provide an accurate estimate of fault location without communications channels, special instrument transformers, or pre-fault information.
  18. Automation - The recloser control shall include 16 local control elements, 16 remote control logic points, 16 latching logic points, and 16 display messages in conjunction with a local display panel included in the recloser control. The recloser control shall have the capability to display custom messages.
  19. Recloser Control Logic - The recloser control shall include programmable-logic functions for a wide range of user-configurable protection, monitoring, and control schemes.
  20. Communication - The recloser control shall include two independent EIA-232 serial ports, one 100Base-FX fiber optic port, one optional 100Base-TX Ethernet port and one EIA-485 serial port for external communications. There shall be an option for DNP3 Level 2 protocol with bit-mapping.
  21. IRIG-B - The recloser control shall include an interface port for a demodulated IRIG-B time synchronization input signal.
  22. PC Software - The recloser control shall include compatibility with a PC software program for use in programming control settings and logic functions, and retrieving event data. The PC software shall be included, but not required, to use the recloser control.
  23. The relay must allow the recloser be opened within 24 hours on loss of AC power from the recloser control or SCADA command.

## 2.8 LABELING

### A. Hazard Alerting Signs

1. The exterior of the pad mounted enclosure (if furnished) shall be provided with "Warning--Keep Out--Hazardous Voltage Inside--Can Shock, Burn, or Cause Death" signs.
2. Each unit of switchgear shall be provided with a "Danger--Hazardous Voltage--Failure to Follow These Instructions Will Likely Cause Shock, Burns, or Death" sign. The text shall further indicate that operating personnel must know and obey the employer's work rules, know the hazards involved, and use proper protective equipment and tools to work on this equipment.
3. Each unit of switchgear shall be provided with a "Danger--Keep Away--Hazardous Voltage--Will Shock, Burn, or Cause Death" sign.

### B. Nameplates, Ratings Labels, and Connection Diagrams

1. Each unit of switchgear shall be provided with a nameplate indicating the manufacturer's name, catalog number, model number, date of manufacture, and serial number.
2. Each unit of switchgear shall be provided with a ratings label indicating the following: voltage rating; main bus continuous rating; short-circuit rating; fault interrupter ratings including interrupting and duty-cycle fault-closing; and load break switch ratings including duty-cycle fault-closing and short-time.

## 2.9 COMMUNICATION AND TRANSFER

### A. Communication

- The method of communication between the new recloser controls and a SEL 3530 RTAC shall be IEC 61850 MMS GOOSE and DNP3/IP communication protocol. The medium for communication shall be fiber optic cable.
  1. The communications between the SEL 3530 RTAC and the SEL 651R2 controls shall be high speed, relay-to-relay communications technology that sends internal logic status, encoded in a digital message, from one device to another.
  2. The received bits of one relay shall follow the status of the respective transmit bits sent from the other relay. Each of the relays in the scheme shall repeatedly send and receive the digital logic message while continually monitoring and checking the received message integrity. An internal monitoring point shall assert when a good signal is received and de-asserts immediately upon detection of a bad message.
  3. The communication channel shall record a performance log of data which includes the following: Total failures, last error, relay disabled yes/no, data error, longest failure, re-sync required, under run, unavailability, overrun, parity errors, framing error, loop-back, and if a bad re-sync occurred. In addition to the communications log, a separate communications sequence of events shall be available. This report shall contain time tags for the assertion and de-assertion of any of the reported communications failures.

### B. Automatic Transfer and Communications

1. No Automatic Transfer is required
2. Device programming software shall be SEL AcSELeRator Quickset® relay programming tool with the following features:
  - a. Create, edit, store, and transfer SEL device settings.
  - b. Develop programmable logic equations offline with easy-to-use configuration tools.
  - c. Test and commission installations with display of live device measurements and status information.
  - d. Use the configurable Human Machine Interface to obtain pertinent device data locally or from a remote location.
  - e. Use the built-in waveform viewer to quickly analyze fault records and device element response.
  - f. Obtain full integration with ACSELeRATOR QuickSet Designer® templates for creating custom views of settings to simplify commissioning of multiple SEL devices.
  - g. Retrieve updates delivered to your computer on a schedule that you choose through use of SEL Compass software.
  - h. AcSELeRator Quickset® design templates and settings shall be supplied with products.

**PART 3- EXECUTION****3.1 INSTALLATION**

- A. General: electrical contractor shall install reclosers in accordance with manufacturer's written instructions and the following specifications.

**3.2 ADJUSTMENTS AND CLEANING**

- A. Protective-relay settings: Set relays in accordance with the purchaser's coordination study (not part of this Contract).

**3.3 TESTING – RECLOSERS (Generic)**

- A. Each individual recloser shall undergo a series of mechanical operations verifying contact closing/opening velocity, travel profile, timing and phase synchronicity.
- B. The recloser shall be AC hi-pot tested one minute phase-to-phase, phase-to-ground and across the open contacts.
- C. Circuit resistance shall be checked on all ways.
- D. Timing tests shall be conducted to verify TCC performance.
- E. Each recloser and relay / controller shall be tested as a system.

**3.4 FACTORY ACCEPTANCE TESTING**

- A. Standard pre-delivery QA is acceptable.

**3.5 WARRANTY**

- A. Equipment manufacturer shall warrant that all goods supplied are free of non-conformities in workmanship and materials for three years from date of purchase.

**END OF SECTION**

Customer:	City of Geneva
Date:	5/8/2023
Validity:	30 Days
Quotation Number:	SQ-75186:A
Customer Reference:	

## Item 2: G&W Electric Viper-ST Solid Dielectric Recloser, Catalog No. VIP378ER-12-1-ST

### Standard Features:

- Three (3) epoxy insulated vacuum interrupter modules
- One (1) magnetic actuator operator per phase, providing single or three phase operation
- One (1) manual trip and lockout handle with mechanical block per phase, capable of physically blocking electronic and manual operation
- Contact position indicator
- Three (3) 1000/500:1 (factory set to 1000:1) current transformers, encapsulated within the solid dielectric insulation, exclusively for use with the recloser control
- Deadline Operation
- Lifting provisions

### Additional Features:

- Z-shaped vacuum interrupter modules
- Six (6) 800A deadbreak Apparatus Bushing per IEEE 386 interface 13
- Six (6) 15kV screw-on silicone insulators
- Aerial lugs included: clamp type for #2-500 MCM overhead conductor
- Six (6) capacitively coupled voltage sensor(s), encapsulated within the solid dielectric insulation, exclusively for use with the recloser control.
- 30-foot 32 pin control cable connectorized on both ends
- Galvanized Steel 8-foot crossarm frame, with provisions for lightning arrester mounting
- Two (2) Oil potential transformers, suitable for phase to phase connection on a 7200V / 12470V phase to phase system included and factory installed (for control power)
  - No primary potential transformer fusing included
- Two (2) 30-foot, 3 pin PT cables
- **SEL 0651R22CXGAXAE2123B7XX** control with the following features:

Category	Selection
Firmware	Standard
Control Cable Interface	32 pin
Enclosure	Single Door (Rear Mount), Painted Steel With 3-Point Latches
Conformal Coat	None
Secondary Input Voltage	(6) 8 Vac Max LEA Inputs
Secondary Input Current	1A phase .2A Neutral
Extra Inputs/Outputs	None
Communications Port	3 EIA-232 USB
Communications Interface	(2) 10/100BASE-T, EIA-485
Communications Protocol	Standard plus IEC 61850
Power Supply	120 Vac (Includes GFCI Outlet)

<b>Battery Option</b>	12 V 40 Ahr
<b>User Interface</b>	Configurable labels and tri color LEDS
<b>Installed Accessories</b>	Accessory Shelf Voltage Input Fuse Block (Secondary Voltages) Universal Fuse Block (Incoming Power) AC Transfer Switch 100 W Heater and (2) 3-Position Pin Contact Receptacles for Input Power (MS26482 Size 12)
<b>Bundled Accessories</b>	None

Note: The SEL-651R2 requires 120 Vac (Includes GFCI Outlet) for control power, to be provided via connection to the included potential transformer

**Included SEL-651R2 Relay Functionality:**

- 50 (P, N, G, Q) – Overcurrent (*Phase, Neutral, Ground, Negative Sequence*)
- 51 (P,N,G,Q) – Time Overcurrent (*Phase, Neutral, Ground, Negative Sequence*)
- 79 – Autoreclosing
- 25 – Synchronization Check
- 27 – Undervoltage
- 32 – Directional Power
- 59 (P,G,Q) – Overvoltage (*Phase, Ground, Negative Sequence*)
- 67 (P,G,Q) – Directional Overcurrent (*Phase, Ground, Negative Sequence*)
- 81 (O,U,R) – Frequency (Over, Under, Rate of Change)

**Ratings:**

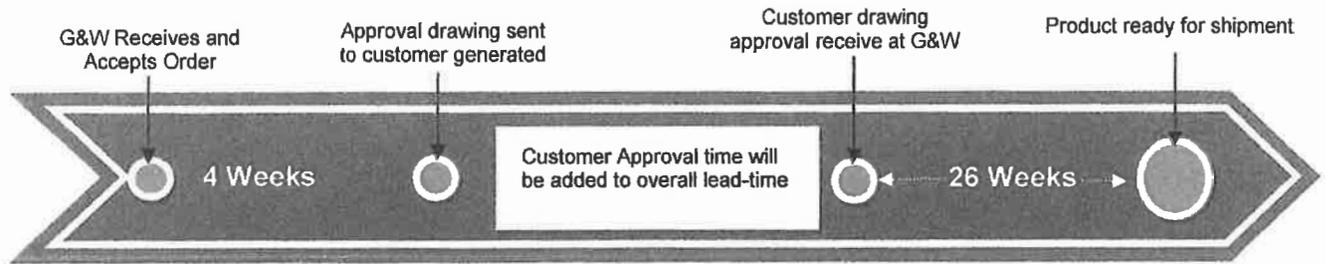
Maximum design voltage	15.5kV
Impulse level (BIL)	110kV
Continuous and load break current	800A
8 Hr. Overload at 20°C	960A
60Hz Withstand, kV rms Dry, 1 min	50kV
60Hz Withstand, kV rms Wet, 10 sec	45kV
Interrupting Rating RMS (kA)	12.5kA
Making Current, RMS, asym, KA	20kA
Peak, asym (kA)	32kA
Short Circuit Current, kA sym, 3 second	12.5kA
Mechanical Operations	10K

**Operating Temperature Range:** Temperature range, -40°C to +65°C (-40°F to 150°F)

**Standards:** Ratings per IEEE C37.60-2012 and IEC 62271-111

**Drawing Type Lead Time Tracker**

**Approval Drawings Required:**



**Record Drawings:**

