AGREEMENT
For
PROFESSIONAL SERVICES
Between
THE CITY OF COLUMBIA, MISSOURI
And
SIEMENS INDUSTRY, INC
For
ELECTRIC INTEGRATED RESOURCE AND MASTER PLAN

THIS AGREEMENT (hereinafter "Agreement") by and between the City of Columbia, Missouri, a municipal corporation (hereinafter called "CITY"), and **Siemens Industry, Inc.**, a **corporation** with authority to transact business within the State of Missouri, (hereinafter called "CONSULTANT"), is entered into on the date of the last signatory noted below ("Effective Date"). CITY and CONSULTANT are each individually referred to herein as a "Party" and collectively as the "Parties."

WITNESSETH:

WHEREAS, CITY needs certain technical and professional services as described more fully in CITY's request for proposals number **140-2018** (hereinafter referred to as "RFP"); and

WHEREAS, CONSULTANT has submitted its proposal dated **May 22, 2019** (hereinafter referred to as "CONSULTANT's Proposal") and pricing proposal letter (hereinafter referred to as "Pricing Proposal") to CITY in response to CITY's request for proposals; and

WHEREAS, CONSULTANT has made certain representations and statements to CITY with respect to the provision of such services, and CITY desires to accept said CONSULTANT's Proposal on the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants set out in this Agreement and for other good and valuable consideration (the receipt and sufficiency of which is hereby acknowledged), the Parties agree as follows.

1. Services And Performance Standards.

a. Scope of Services. The scope of services involves the professional and technical consulting services for **Electric Integrated Resource and Master Plan** (hereinafter "Project"). The Project is more fully described in CITY's RFP, which is attached as Exhibit A, and in CONSULTANT's Proposal and Pricing Proposal, which is attached as Exhibit B.

b. Prior to beginning any work on Project, CONSULTANT shall resolve with CITY any perceived ambiguity in Project. CITY shall issue a written notice to

proceed. CONSULTANT shall not prepare a written report unless the CITY directs CONSULTANT to do so.

c. CONSULTANT shall exercise reasonable skill, care and diligence in performance of its services and will carry out its responsibilities in accordance with generally accepted standards of good professional practices in effect at the time of performance.

2. Addition Or Deletions To Services. CITY may add to CONSULTANT's services or delete therefrom, provided that the total cost of such work does not exceed the total cost allowance as specified herein. CONSULTANT shall undertake such changed activities only upon the written direction of CITY. All such directives and changes shall be in written form and prepared and approved by the Parties.

3. Exchange Of Data. All information, data, and reports in CITY's possession and necessary for the carrying out of the work, shall be furnished to CONSULTANT without charge, and the Parties shall cooperate with each other in every way possible in carrying out the scope of services.

4. Personnel. CONSULTANT represents that CONSULTANT will secure at CONSULTANT's own expense, all personnel required to perform the services called for under this Agreement by CONSULTANT. Such personnel shall not be employees of or have any contractual relationship with CITY, except as employees of CONSULTANT. All of the services required hereunder will be performed by CONSULTANT or under CONSULTANT's direct supervision. All CONSULTANT's personnel engaged in the work shall be fully qualified and shall be authorized under state and local law to perform such services. None of the work or services covered by this Agreement shall be subcontracted without the prior written approval of CITY.

5. Term. This Agreement shall commence on the date indicated above and shall terminate upon completion of the Project.

6. Costs not to Exceed. Pursuant to Exhibit B, the Parties have established a fixed sum of **Seven Hundred Twenty Two Thousand, Five Hundred Forty Eight Dollars** (**$722,548**) for CONSULTANT's services as outlined in this Agreement. CONSULTANT shall be required to keep track of the amount of hours billable under this Agreement at all times; and any work in excess of the fixed sum shall not be eligible for payment. CONSULTANT shall notify CITY if CONSULTANT anticipates that the contract amount may be exceeded, in order to determine whether or not CITY is prepared to increase the total compensation. CONSULTANT shall establish a billing system showing the amount of money remaining on this Agreement which shall be shown in each monthly billing. It is expressly understood that in no event shall the total compensation and reimbursement to be paid to the CONSULTANT under the terms of this Agreement shall exceed the amount set forth in this paragraph.

7. Payment.

a. CITY agrees to pay CONSULTANT in accordance with the terms outlined herein, which shall constitute complete compensation for all services to be rendered under this Agreement; provided, that where payments are to be made periodically to CONSULTANT for services rendered under this Agreement, CITY expressly reserves the right to disapprove in whole or in part a request for payment where the services rendered during the period for which payment is claimed are not performed in accordance with specifications in CONSULTANT's proposal and the terms of this Agreement.

b. CITY shall have ten (10) days from the date of receipt of the invoice to register CITY's disapproval of the work billed on that invoice.

c. CITY shall pay CONSULTANT within thirty (30) days of receipt of an invoice.

d. The Services will be accepted when delivered or performed in conformance with the CONSULTANT'S proposal specifications.

8. Termination of Agreement.

a. Termination For Default. If either Party fails to perform its duties and obligations provided for herein, then that Party shall be in default. The non-defaulting Party may provide notice of the default in writing with reasoning provided. If the default is not cured within thirty (30) days from receipt of the written notice of default, then the non-defaulting Party may terminate this Agreement in whole or in part for failure to perform by providing written notice of termination. The written notice of termination will be effective immediately upon its receipt. In such event, the defaulting Party shall be liable for all damages (including all costs and attorney fees) arising out of or related to the default in accordance with Article 15 of this Agreement. Upon full payment for Services completed in accordance with CONSULTANT's proposal specification and in the event of termination for default, CITY, at its sole option, may utilize any and all finished or unfinished documents, data, studies, and reports or other materials prepared by CONSULTANT under this Agreement prior to the date of termination.

b. Force Majeure. Neither Party shall be considered in default under this Agreement for any delay or failure in the performance of its obligations if such delay or failure is due to an event of Force Majeure. For purposes of this Agreement, Force Majeure means any event that delays or prevents a Party's performance provided that such event is not attributable to fault or negligence of the Party and is caused by factors beyond that Party's reasonable control. A Party claiming Force Majeure shall provide prompt notice of such event to the other Party, giving an estimate of its expected duration and the probable impact on the performance of its obligations under this Agreement. The claiming Party shall

exercise all reasonable efforts to continue to perform its obligations under this Agreement and expeditiously take action to correct or cure the event or condition excusing performance.

c. Termination for Convenience. CITY shall have the right at any time by fifteen (15) days written notice to CONSULTANT to terminate and cancel this Agreement, without cause, for the convenience of CITY, and CONSULTANT shall immediately stop work. In such event CITY shall not be liable to CONSULTANT except for payment for actual work performed prior to such notice in an amount proportionate to the completed contract price and for the actual costs of preparations made by CONSULTANT for the performance of the cancelled portions of the Agreement, including a reasonable allowance of profit applicable to the actual work performed and such preparations. In the event of termination for convenience, CITY, at its sole option, may purchase, for just and equitable compensation any and all finished or unfinished documents, data, studies, and reports or other materials prepared by CONSULTANT under this Agreement. Any reuse of any satisfactory work completed prior to the termination for convenience shall be at CITY's own risk and without any liability to CONSULTANT. Anticipatory profits and consequential damages shall not be recoverable by CONSULTANT.

9. Conflicts. No salaried officer or employee of CITY and no member of City Council shall have a financial interest, direct or indirect, in this Agreement. A violation of this provision renders this Agreement void. Any federal regulations and applicable provisions in Section 105.450 et seq. RSMo. shall not be violated. CONSULTANT covenants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services to be performed under this Agreement. CONSULTANT further covenants that in the performance of this Agreement no person having such interest shall be employed.

10. Assignment. Parties shall not assign any interest in this Agreement, and shall not transfer any interest in the same (whether by assignment or novation), without prior written consent of the other Party thereto, but either Party may assign its rights and obligations, without recourse or consent, to any parent, wholly owned subsidiary, or affiliate or affiliate's successor organization (whether as a result of reorganization, restructuring or sale of substantially all of a party's assets). Notice of such assignment or transfer shall be furnished in writing promptly to CITY. Any such assignment is expressly subject to all rights and remedies of CITY under this Agreement, including the right to change or delete activities from this Agreement or to terminate the same as provided herein, and no such assignment shall require CITY to give any notice to any such assignee of any actions which CITY may take under this Agreement, though CITY will attempt to so notify any such assignee.

11. Compliance with Laws. CONSULTANT agrees to comply with all applicable federal, state and local laws or rules and regulations applicable to the provision of services hereunder.

12. Employment Of Unauthorized Aliens Prohibited. CONSULTANT agrees to comply with Missouri State Statute section 285.530 in that CONSULTANT shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri. As a condition for the award of this Agreement, CONSULTANT shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. CONSULTANT shall also sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. CONSULTANT shall require each subcontractor to affirmatively state in its contract with CONSULTANT that the subcontractor shall not knowingly employ, hire for employment or continue to employ an unauthorized alien to perform work within the state of Missouri. CONSULTANT shall also require each subcontractor to provide CONSULTANT with a sworn affidavit under the penalty of perjury attesting to the fact that the subcontractor's employees are lawfully present in the United States.

13. General Independent Contractor Clause. This Agreement does not create an employee/employer relationship between the Parties. It is the Parties' intention that the CONSULTANT will be an independent contractor and not CITY's employee for all purposes, including, but not limited to, the application of the Fair Labor Standards Act minimum wage and overtime payments, Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, Missouri revenue and taxation laws, Missouri workers' compensation and unemployment insurance laws. CONSULTANT will retain sole and absolute discretion in the judgment of the manner and means of carrying out CONSULTANT's activities and responsibilities hereunder. CONSULTANT agrees that it is a separate and independent enterprise from the public employer, that it has a full opportunity to find other business, that it has made its own investment in its business, and that it will utilize a high level of skill necessary to perform the work. This Agreement shall not be construed as creating any joint employment relationship between CONSULTANT and CITY, and CITY will not be liable for any obligation incurred by CONSULTANT, including but not limited to unpaid minimum wages and/or overtime premiums.

14. Insurance. CONSULTANT shall maintain, on a primary basis and at its sole expense, at all times during the life of this Agreement the following insurance coverages, limits, including endorsements described herein. The requirements contained herein, as well as the CITY's review or acceptance of insurance maintained by CONSULTANT is not intended to, and shall not in any manner limit or qualify the liabilities or obligations assumed by CONSULTANT under this Agreement. Coverage to be provided as follows by a carrier with A.M. Best minimum rating of A- VIII.

a. Workers' Compensation & Employers Liability. CONSULTANT shall maintain Workers' Compensation in accordance with Missouri State Statutes or provide evidence of monopolistic state coverage. Employers Liability with the following limits: $500,000 for each accident, $500,000 for each disease for each employee, and $500,000 disease policy limit.

b. Commercial General Liability. CONSULTANT shall maintain Commercial General Liability at a limit of $1,000,000 Each Occurrence, $2,000,000 Annual Aggregate. Coverage shall not contain any endorsement(s) excluding nor limiting Product/Completed Operations, Contractual Liability or Cross Liability.

c. Business Auto Liability. CONSULTANT shall maintain Business Automobile Liability at a limit of $1,000,000 Each Occurrence. Coverage shall include liability for Owned, Non-Owned & Hired automobiles. In the event CONSULTANT does not own automobiles, CONSULTANT agrees to maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

d. CONSULTANT may satisfy the liability limits required for Commercial General Liability or Business Auto Liability under an Umbrella or Excess Liability policy. There is no minimum per occurrence limit of liability under the Umbrella or Excess Liability; however, the Annual Aggregate limit shall not be less than the highest "Each Occurrence" limit for either Commercial General Liability or Business Auto Liability. CONSULTANT agrees to endorse CITY as an Additional Insured on the Umbrella or Excess Liability, unless the Certificate of Insurance state the Umbrella or Excess Liability provides coverage on a "Follow-Form" basis.

e. The City of Columbia, its elected officials and employees are to be Additional Insured with respect to the Project to which these insurance requirements pertain. A certificate of insurance evidencing all coverage required is to be provided at least ten (10) days prior to the Effective Date of the Agreement between the CONSULTANT and CITY. CONSULTANT is required to maintain coverages as stated and required to notify CITY of a Carrier Change or cancellation within two (2) business days.

f. The Parties hereto understand and agree that CITY is relying on, and does not waive or intend to waive by any provision of this Agreement, any monetary limitations or any other rights, immunities, and protections provided by the State of Missouri, as from time to time amended, or otherwise available to CITY, or its elected officials or employees.

g. Failure to maintain the required insurance in force may be cause for termination of this Agreement. In the event CONSULTANT fails to maintain and keep in force the required insurance or to obtain coverage from its subcontractors, CITY shall have the right to cancel and terminate this Agreement without notice.

h. The insurance required by the provisions of this article is required in the public interest and CITY does not assume any liability for acts of CONSULTANT and/or CONSULTANT's employees and/or CONSULTANT's subcontractors in the performance of this Agreement.

15. Indemnification and Special Liability

a. **HOLD HARMLESS AGREEMENT:** To the fullest extent not prohibited by law, CONSULTANT shall indemnify and hold harmless the City of Columbia, its directors, officers, agents, and employees from and against all third party claims, damages, losses, and expenses (including but not limited to reasonable attorney's fees) arising by reason of any act or failure to act, negligent or otherwise, of CONSULTANT, of any subcontractor (meaning anyone, including but not limited to consultants having a contract with CONSULTANT or a subcontractor for part of the services), of anyone directly or indirectly employed by CONSULTANT or by any subcontractor, or of anyone for whose acts CONSULTANT or its subcontractor may be liable, in connection with providing these services. This provision does not, however, require CONSULTANT to indemnify, hold harmless, or defend the City of Columbia from its own actions, inactions, (willful or otherwise), or its own negligence.

CITY shall provide CONSULTANT with prompt written notice of any third party indemnity claims covered by this Article. CONSULTANT has the right to select and hire counsel with CITY's reasonable approval of such counsel and CONSULTANT has the exclusive right to conduct the legal defense and/or settle such third party claims that are CONSULTANT's responsibility on the CITY's behalf. CITY shall not enter into a settlement of an indemnity claim without the express permission of CONSULTANT.

b. **Waiver of Special and Indirect Damages**. NEITHER PARTY SHALL BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL OR PUNITIVE DAMAGES INCLUDING LOSS OF PROFIT OR LOSS OF USE.

c. **LIMIT ON LIABILITY**. TO THE FULLEST EXTENT PERMITTED BY LAW, EXCEPT FOR DAMAGES DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, CONSULTANT'S LIABILITY FOR DAMAGES TO CITY OF ANY TYPE RELATED TO OR ARISING OUT OF THESE SERVICES SHALL NOT EXCEED SEVEN HUNDRED TWENTY-TWO THOUSAND, FIVE HUNDRED FORTY-EIGHT DOLLARS ($722,548), WHETHER SUCH LIABILITY IS BASED IN CONTRACT, TORT, STRICT LIABILITY OR ANOTHER THEORY OF LIABILITY. BOTH PARTIES AGREE THIS LIMIT ON LIABILITY DOES NOT APPLY, AND IS INDEPENDENT TO, CONSULTANT'S INSURANCE REQUIREMENTS AND HOLD HARMLESS OBLIGATIONS UNDER THIS AGREEMENT.

16. No Waiver Of Sovereign Immunity. In no event shall the language of this Agreement constitute or be construed as a waiver or limitation for either Party's rights or defenses with regard to each Party's applicable sovereign, governmental, or official immunities and protections as provided by federal and state constitution or law.

17. [Intentionally Left Blank]

18. Professional Responsibility. CONSULTANT shall exercise reasonable skill, care and diligence in performance of its services and will carry out its responsibilities in accordance with generally accepted standards of good professional practices in effect at the time of performance ("Warranty"). Notwithstanding acceptance by CITY, if, within three (3) months from date of completion, the Services fail to meet the Warranty

standards, upon prompt written notification from CITY of any such fault or defect prior to the expiration of the three (3) month period following completion of the Services, CONSULTANT shall promptly re-perform the faulty or defective portion of the Services at the sole expense of CONSULTANT or refund CITY the pro rata portion of the fees paid to CONSULTANT under this Agreement allocable to the nonconforming Services. The warranty on re-performed Services shall be the greater of the remainder of the original Warranty period or one (1) month from acceptance of reperformed Services.

THE WARRANTIES IN THIS SECTION 18 ARE CONSULTANT'S SOLE AND EXCLUSIVE WARRANTIES AND ARE SUBJECT TO THE LIMITS OF LIABILITY DESCRIBED IN SECTION 15c. CONSULTANT MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, COURSE OF DEALING AND USAGE OF TRADE.

19. Governing Law And Venue. This Agreement shall be governed, interpreted, and enforced in accordance with the laws of the State of Missouri and/or the laws of the United States, as applicable. The venue for all litigation arising out of, or relating to this Agreement, shall be in Boone County, Missouri, or the United States Western District of Missouri. The Parties hereto irrevocably agree to submit to the exclusive jurisdiction of such courts in the State of Missouri. The Parties agree to waive any defense of forum non conveniens.

20. No Third-Party Beneficiary. No provision of this Agreement is intended to nor shall it in any way inure to the benefit of any customer, property owner or any other third party, so as to constitute any such Person a third-party beneficiary under this Agreement.

21. Notices. Any notice, demand, request, or communication required or authorized by this Agreement shall be delivered either by hand, facsimile, overnight courier or mailed by certified mail, return receipt requested, with postage prepaid, to:

If to CITY:

City Purchasing Agent
Finance Department
701 E. Broadway
P.O. Box 6015
Columbia, MO 65205-6015
Telephone: (573) 874-7375

If to CONSULTANT:

Siemens Industry, Inc.
10900 Wayzata Blvd, Ste #400
Minnetonka, MN 55305
ATTN: Michael Yazvec, Legal Dept
952-484-5505
Michael.Yazvec@siemens.com

With a copy to:

Utilities Department
P.O. Box 6015
Columbia, MO 65205-6015
ATTN: **Director of Utilities**

The designation and titles of the person to be notified or the address of such person may be changed at any time by written notice. Any such notice, demand, request, or communication shall be deemed delivered on receipt if delivered by hand and on deposit by the sending party if delivered by courier or U.S. mail.

22. Public Records Act. CITY is subject to the Missouri Sunshine Law. The Parties agree that this Agreement shall be interpreted in accordance with the provisions of the Missouri Sunshine Law as amended and CONSULTANT agrees to maintain the confidentiality of information which is not subject to public disclosure under the Sunshine Law.

23. Amendment. No amendment, addition to, or modification of any provision hereof shall be binding upon the Parties, and neither Party shall be deemed to have waived any provision or any remedy available to it unless such amendment, addition, modification or waiver is in writing and signed by a duly authorized officer or representative of the applicable Party or Parties.

24. Contract Documents. The Contract Documents include this Agreement and the following attachments and exhibits which are incorporated herein by reference.

Exhibit:

A	CITY's RFP
B	CONSULTANT's Proposal and Pricing Proposal

In the event of a conflict between the terms of any of the Contract Documents and the terms of this Agreement, the terms of this Agreement control. In the event of a conflict between the terms of any Contract Documents, the terms of the documents control in the order listed above.

25. Entire Agreement. This Agreement represents the entire and integrated agreement between the Parties relative to the Project herein. All previous or contemporaneous contracts, representations, promises and conditions relating to CONSULTANT's services on this Project described herein are superseded.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, the Parties hereto have set their hands on the day and year written below.

CITY OF COLUMBIA, MISSOURI

By: _____
John Glascock, City Manager

Date: _____

ATTEST:

By: _____
Sheela Amin, City Clerk

APPROVED AS TO FORM:

By: _____
Nancy Thompson, City Counselor / ak

CERTIFICATION: I, hereby certify that this Agreement is within the purpose of the appropriation to which it is to be charged, Account Number _____, and that there is an unencumbered balance to the credit of such appropriation sufficient to pay therefor.

By: _____
Janet Frazier, Director of Finance

SIEMENS INDUSTRY, INC.

By: _____

Name: Kenneth I. Geisler

Title: Head, Delivery

Date: 8/7/19

By: _____

Name: KRISHANT SIVANESAN

Title: COMMERCIAL CONTROLLER

Date: 08/07/2019

ATTEST:

By: _____

Name: SARAH CARROLL

SARAH ANN CARROLL
Notary Public-Minnesota
My Commission Expires Jan 31, 2023

8/7/19

REQUEST FOR PROPOSAL

140/2018 – ELECTRIC INTEGRATED RESOURCE AND MASTER PLAN

CITY OF COLUMBIA, MISSOURI

FINANCE/PURCHASING DIVISION
CALE TURNER
PURCHASING AGENT
701 E. BROADWAY, 5TH FLOOR
COLUMBIA, MISSOURI 65201
(573) 874-7375
Cale.turner@como.gov

TAD JOHNSON
DIRECTOR OF UTILITIES

ERIC WORTS, P.E.
ENGINEERING SUPERVISOR

Request For Proposal No. 140/2018
Closing Date: 5:00 p.m. CST, Friday, December 21, 2018

1. INTRODUCTION/OVERVIEW

Through this Request for Proposal ("RFP"), the City of Columbia, Missouri ("City") Utilities Department requests proposals from capable firms to conduct an electric integrated resource and master plan. The City will be the contract representative throughout the engagement.

2. GENERAL REQUIREMENTS

SCHEDULE OF RFP ACTIVITIES

Date	Activity
November 21, 2018	Issuance of RFP 140/2018
December 7, 2018	Close of written requests for additional information
December 12, 2018	Written responses/addendum to requests for additional information posted on bidding website
December 21, 2018	Proposal is due by 5:00 p.m. CST

QUESTIONS/CLARIFICATIONS OF THE REQUEST FOR PROPOSAL

All questions concerning the solicitation and specifications shall be submitted in writing via e-mail to the name below.

Cale Turner, Purchasing Agent
Phone: (573) 874-7375
Email: cale.turner@como.gov

Any oral responses to any questions shall be unofficial and not binding on the City of Columbia. An Addendum to this RFP providing the City of Columbia's official response will be issued, if necessary, on the e-bidding website. Questions must be submitted no later than 5:00 p.m. on December 7, 2018.

PROPOSAL SUBMISSION

Proposals may be submitted in a sealed envelope at the purchasing office or uploaded electronically on the City's E-bidding website. No fax or e-mail proposals will be accepted. Sealed proposals must be delivered to the Purchasing Department, 701 E. Broadway, 5th Floor, Columbia, MO 65201 by the closing date and time. Proposals received after the appointed time will be determined non-responsive and will not be opened. Sealed proposals must be submitted in three (3) copies, one of which must be an original and so marked. The proposals must be in sealed envelopes and marked in bold letters "RFP 140/2018 ELECTRIC INTEGRATED RESOURCE AND MASTER PLAN."

TRANSMITTAL LETTER

All offerors must submit a transmittal letter prepared on the offeror's letterhead. An individual who is authorized to bind this firm to all statements, services, and prices contained in the proposal for both the primary and sub firms must sign the letter. In

addition, a letter from any sub-vendor to be used in the service should be included. This letter must be signed by an individual who is authorized to bind the firm and should give a brief description of the work they are to perform.

FORMAT OF PROPOSAL
Proposals are to be kept within thirty (30) pages with a minimum font size of eleven (11).

VALIDITY OF PROPOSALS
Offerors shall agree that proposals will remain firm for a period of ninety (90) calendar days after the date specified for the due date of proposals.

REJECTION OF PROPOSALS
The City of Columbia reserves the right to reject any or all proposals received in response to this RFP, or to cancel the RFP if it is in the best interest of the City of Columbia to do so. Any exceptions to the requirements specified must be identified in the proposal.

WITHDRAWAL OF PROPOSALS
Any Offeror may withdraw his/her proposal at any time prior to the scheduled closing time. However, no proposal shall be withdrawn for a period of ninety (90) days after the scheduled closing time.

ALTERATION OF SOLICITATION
The wording of the City of Columbia's solicitation shall not be changed or altered in any manner. Offerors taking exception to any clause in whole or in part should do so by listing said exceptions on their letterhead and submitting them with their proposal; such exceptions will be evaluated and accepted or rejected by the City of Columbia, whose decision will be final.

RIGHTS IN DATA, DOCUMENTS, AND COMPUTER SOFTWARE (CITY OF COLUMBIA OWNERSHIP)
Any software, research, reports, studies, data, photographs, negatives or other documents, drawings or materials prepared by Contractor in the performance of its obligations under the resulting contract shall be the exclusive property of the City of Columbia and all such materials shall be delivered to the City of Columbia by the Contractor upon completion, termination or cancellation of the resulting contract. Contractor may, at its own expense, keep copies of all its writing for its personal files. Contractor shall not use, willingly allow, or cause to have such materials used for any purpose other than the performance of proposer's obligations under this contract without prior written consent of the City of Columbia; provided, however, that the Contractor shall be allowed to use non-confidential materials for writing samples in pursuit of the work. The ownership rights described herein shall include, but not be limited to, the right to copy, publish, display, transfer, prepare derivative works, or otherwise use written works.

RESPONSE MATERIAL OWNERSHIP

All material submitted in regards to this RFP becomes the property of the City of Columbia. Any person may review proposals after the "Notice of Award" letter has been issued, subject to the terms of this solicitation.

INCURRING COSTS
The City of Columbia shall not be obligated or be liable for any cost incurred by offerors prior to issuance of a Contract. All costs to prepare and submit a response to this solicitation shall be borne by the offeror.

COLLUSION CLAUSE
Any agreement or collusion among offerors and prospective offerors to illegally restrain freedom of competition by agreement to fix prices, or otherwise, shall render the proposals of such offerors void.

CONTRACT DOCUMENTS
The final Contract between the City of Columbia and the Contractor will include:

City Standard Professional Services Contract
Offeror's Proposal
The Specifications contained in this RFP
Any changes, additions, or modifications hereto will be in writing and signed by the Purchasing Agent. No other individual is authorized to modify the Contract in any manner.

FUNDS
Financial obligations of the City of Columbia payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available. In the event funds are not appropriated, any resulting Contract will become null and void, without penalty to the City of Columbia.

APPLICABLE LAW
The proposal and Contract shall be governed in all respects by the ordinances of the City of Columbia and the laws of the State of Missouri, and any litigation with respect thereto shall be brought in the courts in the State of Missouri.

RESPONSIBILITY
The City of Columbia reserves the right to require the apparent successful offeror to file proof of his/her ability to properly finance and execute the Contract, together with his/her record of successful completion of similar Contracts prior. The award of the Contract will be contingent upon providing acceptable proof and record of performance. This information will become a part of the contents of the file and hence public record unless the offeror indicates this material confidential and request this information be returned at the expense of the offeror. This applies only to matters identified in the Missouri Sunshine Law.

NONDISCRIMINATION IN EMPLOYMENT

In connection with the furnishing of supplies or performance of work under the resulting Contract, the Contractor agrees to comply with the Fair Labor Standard Act, Fair Employment Practices, Equal Opportunity Employment Act, and all other applicable Federal and State laws and further agrees to insert the foregoing provisions in all subcontracts awarded hereunder.

EMPLOYMENT OF UNAUTHORIZED ALIENS PROHIBITED:

(a) Contractor agrees to comply with Missouri State Statute section 285.530 in that they shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the State of Missouri.

(b) As a condition for the award of this Contract the contractor shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. The Contractor shall also sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

(c) Contractor shall require each subcontractor to affirmatively state in its contract with contractor that the subcontractor shall not knowingly employ, hire for employment or continue to employ an unauthorized alien to perform work within the state of Missouri. Contractor shall also require each subcontractor to provide contractor with a sworn affidavit under the penalty of perjury attesting to the fact that the subcontractor's employees are lawfully present in the United States.

3. SCOPE OF WORK

RESPONSIBILITIES OF THE CONTRACTOR:

1. Provide weekly progress updates which include updated schedule, tasks worked on and completed in the previous week, and tasks scheduled for the following week. Information required from the City of Columbia, issues that may affect schedule, and risks that may affect successful completion of one or more parts of the project should also be identified.

2. Provide a final report containing results from all tasks identified in the Scope of Work. For engineering work, this report shall be stamped and certified by a Professional Engineer.

3. Attend several in person meetings with the Integrated Resource and Master Plan Task Force. The Task Force meets every fourth Thursday in the evening at 6 P.M. The purpose of these meetings will be to update the Task Force members on the progress of the project, answer questions, and address potential scope changes that may be necessary as information is gathered.

4. Attend City Council meetings as required including presenting final report

5. Appoint a single point of contact for interaction with the City of Columbia.

6. Provide a prioritized, detailed list of documents, data and any other materials that the City must provide to complete the contract once awarded.

7. Provide notification to City of any change of personnel assigned to the project.

RESPONSIBILITIES OF THE CITY OF COLUMBIA:

1. Provide any data, previous reports, assessments, studies, or other material that has been collected.

2. Provide detailed feedback on all work products.

3. Provide a single point of contact for interaction with the contractor.

PART I – INTEGRATED RESOURCE PLAN:

1. Conduct a load forecast of at least 5 years, but preferably 10 years or more to determine the electric energy and capacity requirements of the City of Columbia as a whole. Develop a model for which the City of Columbia may run scenarios based on values of different variables. Include the model as a deliverable. Disclose all assumptions utilized in the creation of the model.

2. Review all current generation and capacity import contracts. Indicate when those contracts that will need to be renewed and/or that may be approaching end of life. Evaluate the status of the contracts and address the options available to the City of Columbia regarding these contracts. Evaluate the marketability of the contracts.

3. Review local generation assets. Predict useful life remaining of current local assets using existing condition assessments or prudent industry standards. Examine the viability of maintaining ongoing operation of existing generation and compare to building new local generation or increasing portfolio of import contracts. Examine the costs and benefits of converting a retired local generation unit from coal fired boiler to biomass fired boiler. Examine the cost and benefits to convert gas turbine units to combined cycle units for improved efficiency and added capacity.

4. Develop a resource utilization plan. Identify the utilization of resources and types of units selected to meet future needs and other factors of interest to permit an understanding of the potential future resource needs. In the plan identify strategies that would meet or exceed the minimum renewable energy and greenhouse gas emission requirements established by the City of Columbia. Existing goal is for 15% renewables at present; 25% renewables by 2023; 30% by 2029; and potentially 100% renewables at some future date within the next 40 years. Take into account results of the City of Columbia's Climate Action and Adaptation Plan currently in progress. Currently adopted community wide greenhouse gas emission reductions levels are: 35% by 2035, 80% by 2050, & 100% by 2060. Currently electric use is credited with 45% of emissions.

5. Conduct sensitivity studies. Recommend sensitivities, to be examined. Include load growth, cost, reliability and resiliency, renewable expectations, climate regulation, and adoption of new technologies such as electric vehicle charging, increased use of heat pumps, and increased customer solar utilization as mandatory sensitivities.

6. Review current demand side reduction programs with regard to participation, participation potential, costs and results of the programs. Determine the appropriateness of existing demand and energy reduction programs and make recommendations regarding the continuation of these programs. Determine the impact to existing programs due to current and future state and federal efficiency standards, rebates, or tax credits. Recommend any new programs or technologies that would increase the effectiveness of demand side and energy reduction programs.

7. Evaluate the potential for expanded use of private and public distributed generation and storage to contribute to the energy and capacity requirements of the City of Columbia. Examine the effectiveness and appropriateness of distributed energy resources such as, but not limited to, neighborhood and rooftop solar arrays, energy storage, and industrial customer generation as a means to curtail energy and capacity requirements.

8. Evaluate CWL's position as a MISO member vs. SPP. Evaluate and compare the availability of renewable energy in SPP and MISO.

9. Conduct a value of solar study. Evaluate how City of Columbia customers benefit from the proliferation of net metered solar including the solar incentive program costs and accounting for all costs, benefits, and opportunities involved.

PART II – MASTER PLAN

1. Determine the load serving ability of the CWL service territory. Conduct a spatial load forecast to determine the localized load serving ability for various locations within the City of Columbia distribution service area. Take into account potential growth, redevelopment, and energy efficiency improvements, private solar generation, other private distributed generation, and proliferation of new technologies such as energy storage and electric vehicle charging stations when conducting the load forecast.

2. Determine the appropriateness of using battery storage, utility provided solar, or other distributed generation as options for serving local load serving ability needs. Include how these options could be used to prolong investments in the distribution system.

3. Review existing CWL standards for system reliability. Make recommendations to modify the City of Columbia electric engineering standards by taking into account economic viability, customer satisfaction, and best practices of the electric utility industry. Determine the risks associated with the standards. Document the standards in such a manner that they can be implemented as an official City of Columbia policy. Recommend a process in which standards are reviewed and updated. Document the

NERC function types for which the City of Columbia is registered. Evaluate the appropriateness of each of these registrations.

4. Make recommendations regarding the expansion of the City of Columbia transmission system. Recommendations must take into account established NERC and other regulatory standards, requirements of the MISO ISO and established or modified CWL standards for system reliability. Evaluate CWL's transmission system as a MISO member bordering SPP and AECI territories and determine how that affects regulatory requirements. Address the needs of the transmission level interconnections with the University of Missouri and City of Fulton when making the recommendations.

5. Make recommendations regarding the expansion of the City of Columbia distribution system. Recommendations must take into account existing or modified standards for system reliability. Take into account the localized growth of the system to determine recommendations regarding how to provide adequate capacity for that growth.

6. Review the capital projects currently forecasted by CWL and determine if they are in keeping with the recommendations established by the master plan. Identify projects that may be unnecessary. Identify projects that might be considered to meet established recommendations. Determine the prioritization of these projects.

7. Review the costs and benefits of adaptation of AMI metering or other "smart-grid" technologies.

PART III – COST OF SERVICE PLAN:

1. Perform a cost-of-service analysis. Review and evaluate the rate classes and structures and recurring fees associated with the electric utility. Make recommendations for changes to the rate structure. Identify and evaluate alternate rate structure strategies, such as time of use and demand charges that the City might consider. Comment on impacts experienced by other utilities in customer use behavior as a result of various alternatives.

2. Review City's current methodology - Review City's current practices for cost of service analysis, debt coverage calculations, cash reserve policy and rate design. Determine the utilities revenue requirements - identify revenue requirements for the test year and over a ten year planning horizon with consideration of historical customer data, usage and load. Calculate debt coverage ratios and rate adjustments to meet or exceed debt coverage ratio. Recommend the minimum cash reserve levels for the utility to sustain. Assure that recommended rate structure meets all financial requirements.

3. Provide Excel based cost of service analysis model looking forward 10 years. Model should be able to be used by City staff to run scenarios to determine results based on several variables. Provide training on use. Methodology used for key model drivers should be explained and easily replicated.

4. Identify costs associated with expansion of and connection to the electric system. Make recommendations on how to identify those costs. Make recommendations such that required capital growth is funded by the forces driving that growth.

5. Evaluate Revenue at Risk. Highlight the risks to revenue in all potential rate structures and make recommendations on how CWL might mitigate the risks to revenue. Potential risks could include lower than anticipated usage and proliferation of customer owned solar and energy storage. Evaluate how the City of Columbia's solar incentives affect this revenue at risk.

6. Provide a cost breakdown that shows the real cost of each utility program or service by rate class and rate structure. Provide revenue generated by each rate class and rate structure. Provide related budget line titles in FY19 budget covered by each rate class and rate structure.

7. Identify the effect of renewable targets on rates. Note that renewable energy sources should not cost more than 3% of all other energy or energy and capacity costs. Develop a method of determining the cost increase or savings of each resource based on current and potential contracts. Make a recommendation on whether a 3% maximum cost of renewables over other sources is achievable given the potential renewable targets of the City of Columbia.

8. Identify and evaluate other potential income sources, such as pole attachment fees and electric vehicle charging stations.

9. Conduct a study of financing programs. Recommend the feasibility of utility financing models such as PAYS, PACE, Utility On-Bill Financing, or others that could lower or eliminate ratepayer burdens caused by reduced energy sales from conservation, energy savings, or renewable energy programs.

   Provide benchmark based on current charges compared to other utilities of similar size and geographic region.

4. EVALUATION AND AWARD

EVALUATION

Proposal Evaluation- It is the purpose of this RFP to obtain data as complete as possible from each offeror that will enable the City of Columbia to determine which prospective firm is best able to serve all the criteria which are to be considered in the award of this contract. Evaluation of the offerors qualifying as finalists will be based on the following criteria:

- Method of Performance: Restate the Scope of Work stated herein and identify the process in which the tasks will be completed.
- Experience of Staff: Identify the key personnel that will be involved in the project and their role. Identify project manager that will be the key point of contact

throughout the RFP process and who will remain the City's primary resource throughout the duration of the contract

- Completion of Tasks: Provide a milestone list and proposed schedule of completion of tasks. Prove capacity to deliver the project requirements on time and on budget
- Proven Experience on Similar Projects: Identify other utilities of similar size for which the contractor has performed a project of similar scope that the City of Columbia may contact to reference the quality of the work performed.

Failure of the offeror to provide in his/her proposal any information requested in this RFP may result in disqualification of the proposal and shall be the responsibility of the proposing individual or firm.

During the evaluation process, discussions may be conducted with offerors who submit proposals determined to be reasonably susceptible of being selected for award. It will be the recommendation of the evaluation committee if discussions for clarification are needed.

The City reserves the right to select from original proposal submission or may conduct interviews from a short list of qualified offerors if deemed necessary.

The objective of the evaluation committee will be to recommend the Offeror whose proposal is most responsive to the City of Columbia's needs while within the available resources. The specifications within this RFP represent the minimum performance necessary for response.

SELECTION AND AWARD

The City of Columbia reserves the right to reject any or all proposals, to negotiate with any offeror considered qualified, or to make an award without further discussion. The City of Columbia reserves the right to award contracts to multiple vendors if deemed in the best interest of the City of Columbia.

Attachment 1 includes the City of Columbia sample agreement that will be utilized once selection of consultant is made.

SIEMENS
Ingenuity for life

May 22, 2019

Ryan Williams
Assistant Director of City Utilities
701 E. Broadway
Columbia, MO 65205 USA
(573) 874-7375 x

Vía email: ryan.williams@como.gov

Re: Request for Proposal No. 140/2018: Electric Integrated Resource and Master Plan

Dear Mr. Williams:

Siemens Industry, Inc. on behalf of its Energy Business Advisory ("Siemens") unit, is pleased to provide the following scope of work and budget for Part I: Integrated Resource Plan and Part 2: Transmission and Distribution Master Plan under RFP 140/2018.

As requested, we have structured our attached proposal to closely follow the task outline of each Part as provided in the RFP. However, the execution of these tasks will be performed in an integrated fashion as we described in our prior submittal and oral presentation. Further, in both the IRP and the Master Plan there are core tasks that build on the work product of other tasks. Hence, we have identified these tasks that must be considered core to the completion of the IRP and the Master plan; as well as identified a few non-core tasks that may be considered as standalone effort. These core and non-core tasks are identified in the pricing section of the proposal.

We are pleased to have been selected to fulfill Parts 1 and 2 and look forward to working with the City on this important project. Please contact bo.poats@siemens.com, or (703) 608-5568, if there are any questions regarding this scope and budget.

Best regards,

J. Scott Hulett
Head, Siemens Power Technologies International

Cc: Cale Turner (via email: cale.turner@como.gov)

Scope of Work

Contents

Part I – Integrated Resource Plan

Overview of Scope and Approach

Siemens proposes to organize and undertake the Part I: Integrated Resource Plan ("IRP") scope of services in a logically sequenced and integrated manner, enveloping the nine Tasks set forth in the Columbia Water & Light ("CWL") RFP, and following the methodology described in our original proposal. Our approach is organized around core elements of the IRP, which are sequenced in a way that allows for the effective integration with the analyses called for under Part 2 Tasks 1-7, Master Plan ("MP").

Siemens understands the rapidly changing market environment that will impact CWL's IRP. Changes in the regulatory and market environment, the pace of technology, and emerging energy portfolio delivery options create a complex set of planning issues for CWL to address. While Missouri does not have a renewable portfolio standard, the City has renewable aspirations with the renewable ordinance requiring CWL to meet 15% renewables at present, 25% renewables by 2025, 30% by 2029 and potentially 100% renewables at some date in the next forty years. The City's Climate Action Plan specifies a 35% reduction in greenhouse gases by 2035, 80% by 2050 an 100% by 2060.

The MISO market has significant wind potential which provides the City attractive options to procure contracted and market renewable energy to meet the requirements under the ordinance. The ordinance also mandates that rates should not increase by more than three percent per year as a result of the investments, so CWL must look for the most attractive economic options available. The Missouri Public Service Commission has recommended that the electric utility planning rules be revised to specifically analyze the needs and costs/benefits of distributed energy resources (DER) throughout the value chain. CWL has appropriately enveloped these and other asset performance and reliability standards in its IRP and MP Task Areas. CWL has focused on the potential for distributed and bulk grid – based renewable and distributed energy resources to cost-effectively enable the achievement of these environmental, cost – effective and diversified energy portfolio goals, while maintaining high levels of grid reliability and customer service value.

Siemens deploys a well-tested and industry best practice integrated methodology, treatment of data, forecasting horizon and a common platform for developing the IRP and the Master Plan. This ensures consistency in the data and allows for appropriate levels of communication between the IRP and MP components necessary in a future more dominated by renewables, decentralized load following assets, and enabling technologies such as storage, which can be a generation, transmission or a distribution asset.

The approach described below consists of the following steps:

- Establishment of objectives and metrics
- Identification of key issues and requirements and how they will be analyzed
- A reference case set of assumptions
- technology assessment
- Definition of scenarios or sensitivities to properly account for uncertainty
- Least cost screening analyses of options and identification of alternative portfolios
- A risk assessment of portfolios against the range of uncertainty
- Selection of the best portfolio (investments) and supporting documentation

This approach entails iteration/communication between the two plan tasks, modeling methods and input assumptions to ensure that the top down approaches utilized in IRPs and the bottom up forecasts used in the Master Plan are consistently structured and applied, including reference cases and ranges of uncertainty properly defined and developed.

Siemens proposes to utilize its state-of-the-art methodology that has been refined for more than15 years to determine the portfolio that best meets all of CWL's objectives over a jointly specified range of potential future conditions. We will work with CWL to define all of its critical objectives (such as least cost, most stable, reliable, resilient, and sustainability targets) and select metrics to be applied to the IRP scenario results at the beginning of the process. This ensures that we properly frame the analysis to allow CWL to assess the trade-offs between meeting each of its objectives in selecting its preferred portfolio.

We will utilize CWL's data on its asset and system performance characteristics. We will ensure a full understanding of local and state (e.g. FEECA) regulations and targets for energy efficiency, demand response, carbon reductions or other local of the City imposed requirements. We will also review economic and financial parameters to be used in the study. If significant gaps exist in available data and parameters of current system, future load and peak outlook, or site-specific parameters effecting perspective renewable outputs, Siemens will work with the City to develop necessary assumptions to ensure a sound set of parameters is obtained for key assumptions.

A task-wise description of the Part I: IRP scope of work follows.

Task-Wise Scope of Work

1. *Conduct a load forecast of 5-10 years to determine the electric energy and capacity requirements of the City. Develop a model for which the City may run scenarios based on values of different variables. Include the model as a deliverable. Disclose all assumptions utilized in the creation of the model.*

Siemens will utilize customer-class specific, econometric time-series models to develop forecasted monthly energy sales for the three largest customer classes: residential, commercial

and industrial. The gross energy consumption forecast will be developed using a Classical Linear Regression Model ("CLRM") in which the dependent variable, energy sales, is expressed as a linear equation combining the independent variables. The econometric model is traditionally developed using variables such as weather (normalized), regional economic indicators, number of customers and other demographic variables for each customer class. The econometric model uses an ordinary least-squares regression technique. This basic approach is widely used to develop long-term load forecasts for independent system operators like PJM , the California Energy Commission and individual utilities. Siemens proposes to use monthly historical data to estimate the regression coefficients and statistical relevance for each variable assessed.

To estimate the peak demand associated with the energy forecast the historical load factors (i.e. the ratio of average demand to the peak demand) for each customer class will be assessed along with the percentage of their peak demand that occurs at the time of the system peak (called Customer Class Coincidence Factor – CCCF – or Contribution to the Peak Factor). This historical class-level load factor is used to develop a forecasted load factor by class. We then separately adjust forecasts for specific DSM, EE or DR programs, DER and EV penetration. Programs like EV and DER penetration can either be assessed as a load adjustment or as a supply option depending on whether the penetration is based on pure economics or other factors (such as regulatory or City goals). We can use either method and will discuss these options in our kick off meeting.

In addition, based upon available historical information and public studies and grid hosting capacity assessment, Siemens will estimate penetration rates for distributed generation and electric vehicles. Siemens has conducted studies for clients based upon national data and regional published studies. For the IRP, we intend to use established models and price elasticities to address penetration rates and resource price levels. As needed and at an extra cost, Siemens can develop strategies for maximizing the potential for these programs. For solar penetration, we will utilize any justified existing programs such as net metering, solar tariffs, financing programs or other mechanisms in place.

2. *Review all current generation and capacity import contracts. Indicate when those contracts that will need to be renewed and/or that may be approaching end of life.*

   Evaluate the status of the contracts and address the options available to the City of Columbia regarding these contracts. Evaluate the marketability of the contracts.

Siemens will evaluate all generation and capacity import contracts, focusing on whether any contracts should be renegotiated or extended depending upon their pricing terms relative to market alternatives and in consideration of any options embedded in the contracts. The analysis will focus on the quantities, relative values relative to market, asset or contractual alternatives, and their volumes relative to the timing of current contract expiration. We will assess the impact of the contracts on the minimum reserve margin threshold, as well as the contracts' exposure to both upside and potential downside movement of market price levels. The latter could impact

the City's ability to meet its maximum acceptable rate adjustment limits. Finally, we will recommend a hedging strategy around current and prospective PPAs to defend contract pricing against out-of-market risk exposure.

3. *Review local generation assets. Predict useful life remaining of current local assets using existing condition assessments or prudent industry standards. Examine the viability of maintaining ongoing operation of existing generation and compare to building new local generation or increasing portfolio of import contracts. Examine the costs and benefits of converting a retired local generation unit from coal fired boiler to biomass fired boiler. Examine the cost and benefits to convert gas turbine units to combined cycle units for improved efficiency and added capacity.*

Siemens will review the condition of and physical useful life of the local assets and the economics of operation up to and beyond its useful life (life extension and potential early retirement) via a robust field assessment backed by experienced generation asset engineers, including those with extensive GE asset experience. We will assess the economics of conversion of existing and retired generation capacity. These options will be screened subsequently in the capacity expansion and dispatch modeling process. If any of these options pass our screening criteria, they will be considered in the least cost evaluations to assess whether they represent economic resource alternatives.

As part of this analysis, we will examine the economics associated with each of the following activities:

A Converting retired coal fired boiler to a biomass fired boiler
B Converting an existing combustion turbine unit to a combined cycle plant
C Maintaining existing capacity or retiring it and replacing with new capacity.

Under activities A and B, above, we will work with CWL to clarify the conversion projects under evaluation, including their locations, current operating and contractual status, the technologies under considerations, and their associated size, configuration, fuel sourcing and other key inputs to a conversion project pro forma and technical performance assessment. We will utilize our knowledge of generation technologies to develop cost estimates for conversion. We will work with CWL to obtain information on the condition of the unit and determine the cost, capacity, and efficiency values post- conversion. We will also review studies that CWL may have previously performed or sponsored in developing cost estimates for conversion. If screening suggests that asset conversion ay be economic, we will include this as a supply option in our Aurora least cost runs to determine the benefit streams available from the conversion. For item C, run an Aurora case with and without existing capacity and its associated maintenance costs with upgrades to determine whether to maintain operations or retire existing units and build new capacity as needed to meet reserve margin or renewable portfolio targets. This will be performed as part of

the long-term capacity expansion plan, which considers the suite of technology options available including some of the retrofit options described above.

4. *Develop a resource utilization plan. Identify the utilization of resources and types of units selected to meet future needs and other factors of interest to permit an understanding of the potential future resource needs. In the plan identify strategies that would meet or exceed the minimum renewable energy and greenhouse gas emission requirements established by the City of Columbia. Existing goal is for 15% renewables at present; 25% renewables by 2023; 30% by 2029; and potentially 100% renewables at some future date within the next 40 years. Take into account results of the City of Columbia's Climate Action and Adaptation Plan currently in progress. Currently adopted community wide greenhouse gas emission reductions levels are: 35% by 2035, 80% by 2050, & 100% by 2060. Currently electric use is credited with 45% of emissions.*

As previously mentioned, we typically use renewable and GHG emission targets as minimum constraints in our modeling efforts to ensure that all targets are achieved under any and all future market scenarios. Hence, we first develop a least cost resource plan that will meet all regulations and goals in a reference scenario. Then we will run the model again to determine a least cost scenario under alternative market futures. This will help us define a set of portfolios that can then be tested under all future scenarios.

A wide range of demand side and supply side alternatives will be screened and considered, including all retrofit decisions and contract alternatives expressed above.

The resource portfolio plan can be a combination of centralized generation resources and distributed energy resources. We can also force over-compliance to determine what the incremental cost achieving greater renewable penetration or greater carbon reductions on the City. These issues are also typically addressed in the Screening Analyses.

Decentralized (often local generation closer to load centers) generation resources are growing in importance due to rapidly declining capital costs, concerns over resilience and customer choice. Jurisdictions around the country are also evaluating distributed resources as an option to meet their energy and capacity needs. As part of this analysis, the Siemens team will review the existing rooftop solar projects and the potential for increased penetration of rooftop resources over time. The value of solar study described below will be utilized to assess the economic potential of rooftop solar in CWL's service territory.

The team will analyze opportunities for energy storage to play a role, either in the deferment of T&D expenses or serving as a resource for the utility to meet wholesale power such as energy, capacity, and ancillary services. Storage is a form of DER when located in front of meter on the distribution or behind the meter on customer premises. In an integrated planning framework, the value of storage must be assessed in a comprehensive manner to allow it to fairly compare with centralized generation resources, or traditional transmission and distribution investments.

For example, distribution connected storage may allow for peak demand reductions on the distribution feeder or the distribution transformer and allow deferral or avoidance of traditional "wire" solutions. This deferral has locational value which must be captured in the DER cost profile prior to assessing DER with centralized resources in an IRP. This is particularly important for storage (but also for other DER resources such as distribute solar) given scale effects and the current capital costs for battery energy storage resources. As such, enabling multiple use cases for storage is the key to the storage analysis. For this analysis, we will assess the value of storage and other forms of DER from utility and customer applications prior to integrating with the wholesale services analysis typically performed in an IRP.

Other forms of decentralized resources such as demand response can also play a role in providing capacity services or supplying ancillary services such as contingency reserves.

5. *Conduct sensitivity studies. Recommend sensitivities, to be examined. Include load growth, cost, reliability and resiliency, renewable expectations, climate regulation, and adoption of new technologies such as electric vehicle charging, increased use of heat pumps, and increased customer solar utilization as mandatory sensitivities.*

When we recommend sensitivities, we tend to focus on factors that are outside of CWL's control. These related to load variability, renewable cost curves, future regulations and technology changes. We generally characterize uncertainties in DER penetration, electric vehicle penetration and heat pump use as uncertainties in load, we characterize new regulations as a separate sensitivity and track reliability and resilience as outputs of how well portfolios perform under each sensitivity.

Our approach is to first define scenarios that will be evaluated and determine a least cost portfolio for each scenario, including the reference scenario. The least cost portfolio for each scenario will be among the portfolios considered for the risk analysis. If there are specific individual sensitivities to a single factor such as EV penetration, or Heat Pumps, they can be performed as well. Once a complete list of portfolio options are selected, we then test how they perform against all futures to see which portfolio performs consistently best against all futures.

Risk Assessment Sensitivity and Scenario Depiction

Factors such as capital costs, fuel costs, interest rates, and load are inherently uncertain. They combine to produce a broad range of possible outcomes for a utility. Much of the implications of uncertainty are not captured by varying one isolated factor (like oil or gas prices). Rather, cases must be constructed that reflect the widest plausible range of these factors to test to assess whether if the best portfolio performs consistently well across a range of possible outcomes dictated by different views of the future. The arbitrary selection of a low and high (often taking a single variable that includes + or – 5%) case is often misleading and uninformative of the collective uncertainties and risks of the factors that should be driving the choice of portfolios. For this reason, Siemens proposes the following risk assessment approach.

Siemens proposes to construct a limited number of "states of the world" scenarios that will place reasonable bounds on uncertainty in several key variables. The process that we have developed for these Scenarios is described in Appendix B (MarketLink). These scenarios can be technology based, regulatory based or market based future states of the world (or combinations of these factors). Given that the City is more likely to be driven by technology and economic growth, we recommend seven scenarios (or states of the world) in addition to a base case. The seven might be selected from the following list (or others the City selects as important):

- Baseline or Reference case
- Rapid technology advance case (lower cost faster for renewables, DER, EV and Battery)
- High future regulatory/low economy case (e.g. high carbon, fracking, low oil and gas prices etc.)
- Low future regulatory/high economy case (e.g. low or no carbon costs, higher oil and gas prices)
- Forced adoption of high rates of DER and EV
- Forced adoption of high rates of renewables and storage
- An EE/DSM/DR sensitivity reflecting more Heat Pumps or Changes to Requirements

As part of the assumptions' development process, Siemens and the City will collaborate to determine the risk factors that will be evaluated for the IRP for each of the futures plus the base case. Siemens will then develop future values for each of the variables below for each future.

- Regional load
- Delivered coal and natural gas prices
- Power market prices (as an outcome of power dispatch analysis)
- Emission prices
- Capital costs for each technology

Because Siemens performs these sensitivities for a wide range of utilities across the country, the inputs are based on well-structured and tested solutions. For example, a high regulatory scenario might have lower load, more coal retirements, more renewables and lower gas usage that the reference forecast.

6. *Review current demand side reduction programs focused on current participation, participation potential, costs and results of the programs. Determine the appropriateness of existing demand and energy reduction programs and make recommendations regarding the continuation of these programs. Determine the impact to existing programs due to current and future state and federal efficiency standards, rebates, or tax credits. Recommend any new programs or technologies that would increase the effectiveness of demand side and energy reduction programs.*

Siemens will undertake two steps to the evaluation of DSM programs. First, we will evaluate the effectiveness of existing programs and whether adjustments are needed based on economic or expected penetration rates. Second, we will address any changes required in the load

forecasting process described above, and potentially including spatial load forecasting methodologies in order to establish the requisite baseline granularity on which to base DSM benchmark performance results, and on how to measure and evaluate program success on an ongoing measurement and verification ("M&V") basis. We will develop baseline load forecasts and then make adjustments to the baseline load forecasts based on our analysis of expected growth in energy efficiency and demand response programs.

Siemens will determine viable energy efficiency, DSM and DR measures for CWL based on past program experience. In addition, we will identify opportunities to meet future DSM program targets and associated cost-effective program methods to be deployed. If there are no specific targets embedded in CWL's programs, we will evaluate the programs based on select economic criteria (e.g. RIM or other benefit/cost tests). Once the programs are identified, we will develop annual estimates for energy savings and demand reductions resulting from the portfolio of measures over the 20-year horizon of the IRP. Finally, we will estimate the utility costs for administration and alternative incentives to be applied in implementing the alternative DSM measures.

7. *Evaluate the potential for expanded use of private and public distributed generation and storage to contribute to the energy and capacity requirements of the City of Columbia. Examine the effectiveness and appropriateness of distributed energy resources such as, but not limited to, neighborhood and rooftop solar arrays, energy storage, and industrial customer generation to curtail energy and capacity requirements.*

Siemens will identify the expected levels of growth in distributed energy resources including distributed generation resources such as solar and combined heat and power as well as storage. We will assess the penetration of DER, both from the City's perspective and from the customer's perspective, recognizing that penetration levels are based on both costs, from a grid accommodation cost (utility) perspective, and for others it will be based on value (i.e., customer perspective). The benefit stream must be evaluated relative to the Cost of Solar, which can be uncertain, but with the application of accepted methods for calculating costs, can results in informed levels of projected penetration relative to customer value estimations, which are based on avoided (rate) costs and environmental benefits monetized to renewable energy value.

Alternative cost and benefit cases will be evaluated as sensitivities in the Reference Case load forecast which can be considered in scenarios that vary load forecasts. Siemens will identify the expected levels of distributed energy resource penetration and we will develop different growth trajectories as part of the sensitivity analysis performed in Task 5. As discussed above, if DER is assumed to be cost-based, then penetration projections can be evaluated as a supply resource, such analysis is best combined with a customer value assessment with penetration driven by and valued against its load reduction, and avoided tariff cost value stream. We will confirm the proposed methodologies for both cost and value-stream creation in the kickoff meeting, highlighting the methodology set forth in Task 9.

8. Evaluate CWL's position as a MISO member vs. SPP. Evaluate and compare the availability of renewable energy in SPP and MISO.

Siemens will evaluate the availability of renewable energy in SPP and MISO and the comparative costs and transmission path alternatives. This analysis will inform the issue of whether CWL is advised to remain in MISO, and if renewable resources are available in sufficient quantity and at lower delivered costs form SPP. Both regions are seeing significant penetration of wind resources, but the regions differ in the depth of resource availability, new builds and existing capacity available for contracting or ownership, and their associated transmission costs and applicable allocation rules. The wind resource mix can affect the pricing associated with any renewable contracts that CWL might enter to satisfy both cost and environmental objectives. We will focus on the availability and cost of acquiring resources from both regions and utilize this analysis as inputs to the supply options screening analysis. If a more detailed assessment of joining SPP is required, we will assess the full range of costs and benefits associated with SPP membership both absolutely and relative to MISO membership as an optional task.

9. Conduct a value of solar study. Evaluate how City of Columbia customers benefit from the proliferation of net metered solar including the solar incentive program costs and accounting for all costs, benefits, and opportunities involved.

Siemens will conduct a value of solar study that assess the value and costs of solar to the CWL utility customer and to CWL. Our analysis will consider:

For the value to CWL:

1. **Energy savings:** The value of producing a kWh of electricity, the marginal energy costs are based on market prices or fuel savings. (Energy savings are adjusted for potential system losses).
2. **Net energy meter costs:** The value of energy savings could be reduced for any revenue shortfall associated with customer rate for their backflow of net energy metered versus the marginal cost of that energy to CWL. Siemens will conduct a high-level assessment of the marginal cost to CWL versus the marginal rate benefit to customer under CWL's current net metering tariffs.
3. **Generation capacity savings:** The value of the distributed solar capacity, if any, that may be available to CWL based on current market rules in MISO.
4. **Environmental benefits:** Reflect the savings from the reductions in carbon that occurs with solar distributed generation units. Currently this is not a direct cost to the utility and will not be considered in this analysis unless requested.

Other factors that may increase or decrease the value including: Impacts on distribution and sub-transmission facilities, reliability and additional costs related to utility installed batteries.

For CWL customer:

1. **The Energy savings:** The value of producing a kWh of electricity from their distributed solar system versus purchasing the energy from CWL.
2. **Net Energy Metering Benefit:** The value of CWL's tariff to customers. The incremental value of Net Energy Metering to customer will be assessed to compare it to a distributed solar installation that did not benefit from Net Energy Metering. The analysis will assess the value of lost energy for any backflow that might flow from the customer distributed solar system to CWL during periods when the solar production exceeds the customer use. Since customer will tend to install small capacity distributed solar systems when no net metering is available, Siemens will also assess the lost value to the customer of installing a smaller system, with lower overall energy production, to minimize excess energy that would have no value to customers without either net energy metering or onsite storage.

Siemens will develop the value of solar analysis above based primarily on the data from the CWL system modeling and DER analysis in the prior Part I tasks.

Part II – Master Plan

Siemens proposes to utilize the approach and methodologies described below to complete the Tasks identified in the Part II Master Plan section of the CWL RFP. As with the Part I IRP Tasks, Siemens plans to integrate the activities and analysis of the Part I and Part II Tasks where practical.

1. *Determine the load serving ability of the CWL service territory. Conduct a spatial load forecast to determine the localized load serving ability for various locations within the City of Columbia distribution service area. Take into account potential growth, redevelopment, and energy efficiency improvements, private solar generation, other private distributed generation, and proliferation of new technologies such as energy storage and electric vehicle charging stations when conducting the load forecast.*

Siemens will develop a spatially differentiated load forecast of the CWL system that will align with the Part I, Task 1 system load forecast, the customer level DER forecasts, the CWL DSM programs and the distribution network load carry ability.

The spatial load assessment will address both location – based load displacement and electrification – based load enhancement alternatives using a robust GIS-based system planning and simulation software package (e.g., CYME, SINCAL) The spatial load analysis will produce an informed location – based buildup of forecasted load and DER penetration at the feeder level, using either CWL's CYMEDIST network model, with which Siemens has application experience, or utilizing the Siemens SINCAL software as either the primary software, or as a calibration and parallel analysis consistency check on CYME- based analysis.

This Task 1 requires a functioning CWL distribution network model, that accurately depicts the current assets and configuration. Siemens understands that the current CYMEDIST model developed by a third party consultant is now out of date and will need to be updated to reflect changes and additions to the distribution network. Without reviewing the existing GIS system data and the CYMEDIST model and knowing the extent of changes to the system since the CYMEDIST model was completed, Siemens cannot develop a precise estimate of the level of effort that will be needed to update the model. Therefore, Siemens has included in its estimate for this Task and assumption that 20% of the CWL feeders have undergone changes or additions that will require an update to the feeder representation in CYMEDIST model in developing our cost estimates for this task, we have also assumed that data in the GIS system is accurate and reflects the current CWL system. Should Siemens or CWL determine that more that 20% of the feeders will require updates in the CYMEDIST model, or that the data in the GIS system in not current, Siemens will revise its estimate for updating the distribution network model, possibly with field work and review of as built drawings and submit a revised estimate to CWL review and approval. It is assumed the CWL will be able to identify where system additions were made and the models are outdated, rather than having to compare all the 60 feeders with the GIS maps.

The proposed "bottom-up" distribution system – based spatial load analysis will be integrated with the top-down system-wide peak load and energy forecast developed in aggregate and by customer class under Part I, Task 1. The disaggregation of coincident peak loads by locations within the CWL distribution area will be accomplished via a spatial load forecasting method, described below.

The Siemens spatial load forecast used the customer class level load system forecast described in Part I, Task 1, analysis of the distribution system and geospatial information to create a forecast by substation, feeder and line transformer.

The approach to spatial load forecasting will include the following steps:

1. Update the distribution network model to reflect the current assets, configuration and loads.
2. Produce a geographic map with by land-use zone and distribution overlaid on the distribution network model
3. Develop Cell Level Load Forecast for the Geospatial Map
4. Reconcile Cell Loads with System Level Loads
5. Allocate DG forecast
6. Substation assessment to host the forecasted loads and DER and identification of potential solutions.

The Option 1 spatial load forecast will be based on the following assumptions

a. The spatial load forecast will be developed for 5, 10 and 20 year horizons. The forecast will provide greater detail for 5 years 10 years, which are required for the detailed transmission and distribution planning. The 20 year forecast will be provided based largely on extrapolation of the 10 year results.

b. The aggregated system-level load forecast by customer class will be completed with the Part I, Task 1 scope, including the load profile, peak demand and energy as well as its allocation by existing feeders and hence substations.

c. All the required information to revise the distribution network model is available in GIS maps that can be imported into CYMEDIST or PSS®SINCAL. Siemens has assumed the CWL staff will be able to identify where system additions were made and the CYMEDIST models are outdated, rather Siemens having to compare all the 60 feeders with the GIS maps. Further, the estimate for this task assumes that a maximum of 20% of the feeders will require update.

d. The spatial load forecast will be used to create up to 3 demand snapshots for the load flow analysis to be carried out in detail for 5 years out and 10 years out. These demand conditions are expected to include: i) peak load night-time conditions and no contribution of PV, which represent peak inflows to the feeder and minimum voltages, ii) minimum load condition and maximum contribution of PV, which would represent maximum outflow and higher voltages, and iii) a work-day daytime mid load, with

average PV generation that can be used to assess maximum charging to storage. The selected snapshots to study will be mutually selected by CWL and Siemens.

e. We understand that there are currently 8 transmission to distribution substations supplying 60 feeders and the spatial load forecast will be centered on the areas covered by these feeders and the immediate areas where new load can appear.

f. The CYME models need to be updated and all the required information is available in GIS maps that can be imported into CYME or PSS®SINCAL. The budget for this activity is tentative as no information on the level of work required of the update is available, as indicated above.

1. Update Distribution Network Model

Siemens' approach to spatial load forecasting for CWL will begin with updating the CWL distribution network model developed by a third party consultant a number of years ago. We understand the model had not been kept current and does not include the changes and additions that CWL has made since the analysis was completed. As indicated earlier, our update assumes that the GIS data is correct and can be used to update the model.

To update the model, Siemens will first review the existing model to assess how the 3rd party has constructed the model, its existing detail and its ability to converge on a load flow solution. The ability to converge on a load flow solution provides preliminary indication that it is a functioning model with all the required electrical continuity.

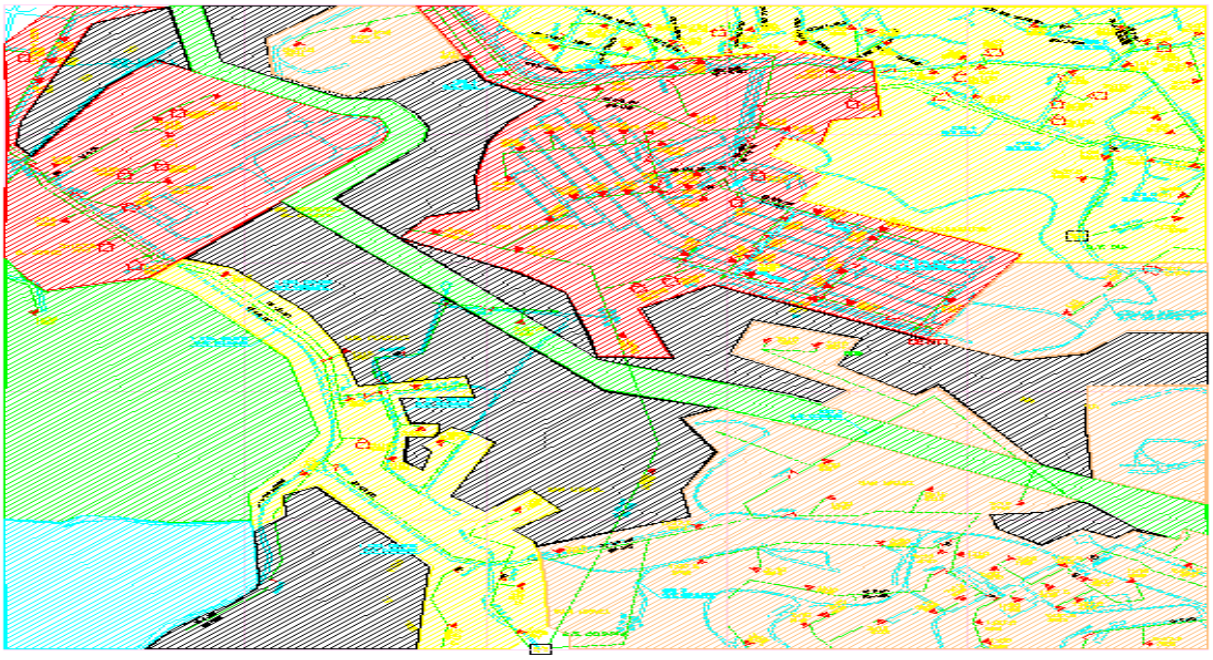
Following the review of the model, Siemens will work with CWL staff to identify the feeders that have undergone changes since the last distribution network model update, and import the updated GIS data into the model, which is expected to reflect as-built conditions. No field review is considered at this time, however a cursory review of the changes implemented (e.g. reconductoring) will be made.

The model will be revalidated using load flows to ensure continuity and reasonableness of results.

2. Produce a Geographic Map

After updating the model, Siemens will define and identify land-use zone types and locations to be used as input to the spatial load forecast. We will work with CWL staff to define the types of land-use zones which describe the CWL customer mix and development potential. The zone data will be summarized on a geospatial map, similar to the Exhibit 1 below, that will enable the data to be overlaid on the distribution network model.

Exhibit 1: Illustrative Geospatial Grid Map



3. Develop Cell Level Load Data for the Geospatial Map

The Geospatial Map is then divided into small areas, or cells, within each zone. Each cell will contain characteristics on the current load, transformer load, feeder capacity and the future load (per our forecast methodology, below). The area dimensions will be logically specified to represent a group of line transformers, and connecting feeder levels, subject to the availability of grid operating and load data granularity. The actual load is calculated as the sum of the load of all transformers inside each small area. These values are used as starting point to establish the local grid saturation factor, i.e., the grid load relative to the load when the cell is fully built out (Saturation or Maximum Load). The geospatial map will also include: street names, parcels (if we have the meter coordinates), zoning from city planners (colored areas), distribution lines with their transformers, switches and normal positions indicated, as well as capacitor, voltage regulators, conductor sizes and type, substations and reclosers and any SCADA equipment (dynamic switches) on the distribution grid indicated.

4. Reconcile Cell Loads with System Level Loads

The bottoms-up substation and feeder level historical load profile provided by CWL are used to populate the distribution system model inputs and geospatial map. These load will be rolled up

from the feeder level to the zonal level and reconciled with the Part I, Task 1 system level load forecast.

Using the cell-level map, we relate the area of each zone to the grid via an Excel file that sums the location-based load measurements and establishes a forecast basis at the cell level, rolled up to the zone level for the entire city.

Each zone in the map has a color represents a zone by type (e.g., residential, commercial, etc.). The Saturation Factor can then be calculated by evaluating the load divided by the area's Saturation Load. We then sum all the cells to see how far the total values are from the total forecasted substation loads, and after applying this procedure several times, forecasted Saturation Factors are developed to derive feeder and location based projected load. The Saturation Factors forecast process first increases the load at cells where there is existing electric infrastructure and then extends to empty cells (i.e. cells where there is not currently any load) and where growth can occur.

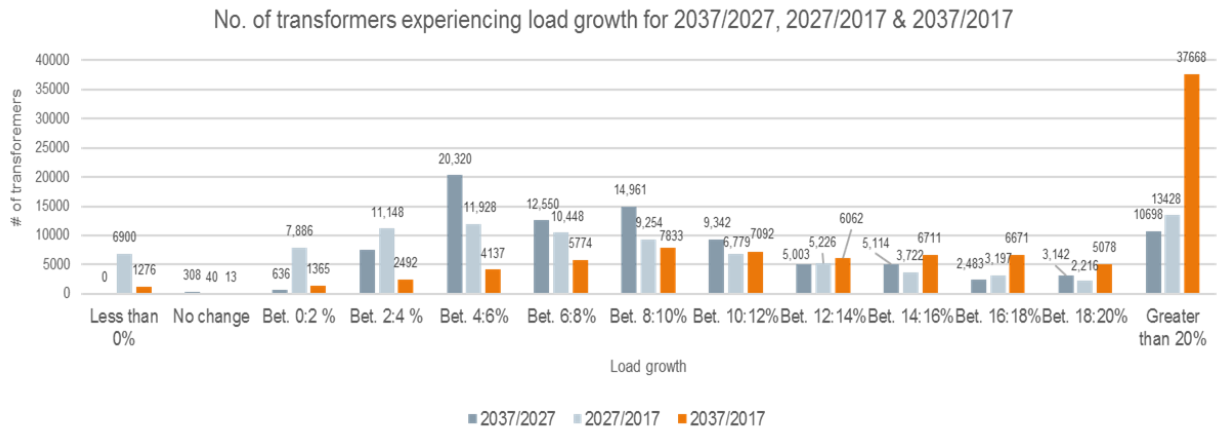
Key aspects considered for the saturation factor forecast include:

1. Areas that city planner expects to be developed
2. Areas with construction permits
3. Areas closer to already used land
4. Areas closer to highways, streets or other transportation facility
5. Areas closer to job locations and growth
6. Areas near commercial centers and shopping malls

When a saturation factor for a future term is entered, the total load of all cells are summed again and compared with the values computed from the top-down model customer class forecast, with the process iterated until a close match is found to the load calculated from the top-down method.

At the end of this process a load forecast for each cell covering the grid is available and it is allocated (on a preliminary basis) to existing distribution transformers inside the grid or to "equivalent" transformers for those cells where there are no existing transformers. Exhibit 2 below shows a typical graph used to report the load growth observed by distribution transformers (over 90,000 transformers in this city).

Exhibit 2: Illustrative Growth Report



The forecast by transformer will represent; a) expected load at the time of the feeder peak, b) expected load at the time of feeder light load conditions, c) expected load at the time of system peak (to identify coincidence factor) and d) intermediate load conditions to be selected.

5. Allocate DG Forecast

The forecasted expected adoption of distributed generation by customer class and as a result of its own initiatives is spatially allocated in this phase considering the customers geographical location and type; e.g. large PV arrays tend to be correlated with commercial customers, whose location is known from the forecast. Other initiatives like demand response or storage are considered to be sponsored by the utility and its location is identified in the analysis below.

6. Assessment of Substation Ability to Host Forecasted Load and DER and Identification of Solutions

After the forecast by distribution transformer of load and DER and hence at the feeder level, the expected load to be served by the existing substations can be determined for the planning horizons 5, 10 and 20 years out and the need for reconfiguration and new substations assessed.

However, before starting to configure the substation areas, we determine the optimal distance from a substation from which a load can be served (optimal coverage area) based on:

- Distribution feeder's nominal voltage
- Load Density
- Feeder conductor size
- Substation standard diagrams, number of feeder per transformer and standard HV/MV transformer size

We will then assess for each substation based on the current coverage area, the expected total peak load for each substation (considering a coincidence factor) and compare it with the installed transformation capacity and the coverage area will be compared with the optimal values determined in the step above.

This analysis will provide a view of the substations that require either transformer capacity expansion or redefinition of their coverage areas and the timeframes. For those cases that redefinition of coverage areas is necessary to avoid over-extension, we will assess transferring load to adjacent substations or to a new substations. For the location of new substations, we will start from the location of the load centers of the future coverage areas and working with CWL to identify a likely location of the substation based on land availability and location of existing transmission lines.

At the end of this analysis the coverage areas of each of the substations in CWL territory, as well as the proposed location of new substations, will be defined. For each of these substations and timeframes, the expected peak load, light load (including DG impacts) and intermediate load conditions will be provided. Note that the recommended coverage areas and transformation capacity may be adjusted as a result of the transmission study, Task 4, and distribution study, Task 5.

The resulting deliverables of this task will include:

1. Data files gathered
2. Combined city map and the network map
3. Zone load index for each zone and cell
4. Excel Spread sheet with cell level data on land use, the cell Saturation Factor
5. Forecasts by substation, feeder and distribution transformer
6. Center of load coordinates, HV/MV transformation capacity and suggested substation load service coverage in map form for new and existing substations
7. Conclusion and recommendations

2. Determine the appropriateness of using battery storage, utility provided solar, or other distributed generation as options for serving local load serving ability needs. Include how these options could be used to prolong investments in the distribution system.

The traditional solution to address distribution reliability problem such as thermal overload, system losses, or a voltage issue is to replace conductors or substation equipment such as transformers. However, non-wire alternatives (NWA) such as battery energy storage, Demand response, distributed generation (behind the meter or distribution connected) can play an important role in addressing the reliability issue.

We propose to center our analysis in the use of storage to address distribution reliability needs as discussed below under distribution system study, Task 5.

3. Review existing CWL standards for system reliability. Make recommendations to modify the City of Columbia electric engineering standards by taking into account economic viability, customer satisfaction, and best practices of the electric utility industry. Determine the risks associated with the standards. Document the standards in such a manner that they can be implemented as an official City of Columbia policy. Recommend a process in which standards are reviewed and updated. Document the NERC function types for which the City of Columbia is registered. Evaluate the appropriateness of each of these registrations.

Siemens views this Task 3 as having three distinct elements:

1. Review and make recommendations as appropriate to CWL planning and reliability standards
2. Review and make recommendations as appropriate to CWL engineering standards and a recommend a process for their continued review and updates
3. Document CWL existing NERC function type registration and the assess the appropriateness each for CWL operations.

Siemens approach to each of the elements is described below:

1. **Review CWL Planning and Reliability Standards.** Siemens will review existing the existing CWL planning and reliability standards in conjunction with its assessment of the T&D system expansion requirements. As part of our work to determine recommended T&D expansion recommendation, we will discuss with CWL staff the historical system performance, outage history and the existing standards. The standards will then be reviewed taking into account best practices, performance history, system design, and peer reliability metrics. The standards will be revised to reflect the level of grid performance targets and expectations given City targets.
2. **Review CWL Engineering Standards.** Siemens will begin this portion of the task with a preliminary review of the existing CWL Engineering Standards. This preliminary review will provide Siemens an understanding of the number of existing standards, their scope and relative completeness and quality. Following this preliminary review, Siemens will discuss the standards with experienced CWL staff from the engineering, construction and operations and maintenance to seek input on how the existing standards are being applied, their appropriateness and effectiveness for the CWL system. We will also solicit from the CWL staff information on any known or emerging changes to the system or state or City requirements that might require new or revised standards (e.g., revised DER interconnection standards that require smart inverters with the capability of remote changes to power factor, or voltage and frequency cutoff settings). Siemens will then revise the existing standards and create new standards where appropriate for CWL review. The revisions and any new standards, recommended by Siemens will take into account economic viability, customer satisfaction, and best practices of the electric utility industry. With the standards, Siemens will also create a recommended process for their periodic review and update, which will also be presented to CWL for review. Once CWL comments are received to the recommended standards and

update process, Siemens will prepare a final version of each for approval and implementation by the City.

Note that because Siemens was unable to review the existing standards or discuss the CWL needs with the CWL staff, our budget for this work is necessarily a preliminary estimate and represents our estimate of a minimum budget for this effort. After we have completed our review of the existing standards and discussed the standards with the CWL staff, we will either confirm that the preliminary budget is sufficient to complete the work or submit a revised adjustment to the budget for CWL review and approval.

3. **Evaluate NERC Registration.** Siemens will review the existing CWL NERC function type registrations. We will review the appropriateness of each registration and recommend changes as needed.

4. *Make recommendations regarding the expansion of the City of Columbia transmission system. Recommendations must take into account established NERC and other regulatory standards, requirements of the MISO ISO and established or modified CWL standards for system reliability. Evaluate CWL's transmission system as a MISO member bordering SPP and AECI territories and determine how that affects regulatory requirements. Address the needs of the transmission level interconnections with the University of Missouri and City of Fulton when making the recommendations.*

The goal of Task 4 is to make recommendations regarding the expansion of the City of Columbia transmission system considering, historical performance, forecasted loads and supply, NERC and other regulatory standards, MISO requirements, and CWL standards for system reliability.

Siemens PTI will evaluate the adequacy and limitations of the CWL transmission system to supply the existing and new substation projected load growth, fully reflecting spatial load growth, battery applications and distributed generation. Staring from the substations and load identified in the prior tasks, the main objectives of this task is:

1. Identify need for new or upgraded interconnecting lines to maintain reliability over the near-term transmission planning horizon (years 1 to 5) and long-term transmission planning horizon (years 6 to 10), fully informed by the IRP's generation, load and contract source – sink assessment to meet projected transmission capacity requirements.
2. For an analysis beyond 10 years the availability of adequate MISO level transmission models may be limited, however we propose extrapolating the analysis above, to 20 years out, by increasing the CWL loads and evaluating impacts on the system and recommended reinforcements.
3. Identify the extent that additional storage (to that identified by the analysis of the distribution system) can help mitigate the need for transmission expansions.

Major steps in this analysis are described below.

1. **System Model Update.** Update the transmission system models used by CWL for NERC TPL compliance using the load forecast from Master Plan, Part II, Task 1. The transmission models includes 161 kV and 69 kV lines and substations with loads represented at the 161 kV and 69 kV substations. Transmission system will be assessed out using the MTEP transmission models and for one critical dispatch (e.g. summer peak) and up to two alternative generating resource portfolios, resulting from Part I tasks, including utility scale and DER. The analysis will be centered on Area 333 (CWLD) 161 kV and 69 kV system with a total of 4 cases.
2. **Long-term Performance Evaluation.** Evaluate CWL transmission system performance in year 10 of the planning horizon to identify any overloads or voltage issues. Identify reinforcements needed to resolve any reliability issues and address the needs of the transmission level interconnections with the University of Missouri and the City of Fulton. Perform a final contingency analysis to verify compliance with reliability criteria. This will create a vision on how the system should look in year 10 of the planning horizon.
3. **Staging of Investments.** In this task we will evaluate transmission system performance in years 1 through 5 to identify any overloads or voltage issues and select the in service dates of the year 10 reinforcements that will address them. The candidate long-term investment(s) to solve the issues found are implemented in the model to verify their effectiveness. This procedure is repeated until no problems are found in years 1 through 5 and establishes the required in-service date for the investment(s). This analysis may identify some local overloads that do not merit advancement of any of the long-term investments. In this eventuality temporary solutions will be proposed.
4. **Design Long-term Transmission System.** If a need for new substations or new transmission lines are identified in the prior tasks, this task will identify the final recommended location for the substations, and for new transmission lines, the proposed route, length and conductor.

5. *Make recommendations regarding the expansion of the City of Columbia distribution system. Recommendations must take into account existing or modified standards for system reliability. Take into account the localized growth of the system to determine recommendations regarding how to provide adequate capacity for that growth.*

The Task 1 spatial load forecast and initial assessment of existing and new substation coverage areas will provide an informed framework to evaluating distribution system expansion requirements.

In performing the distribution grid expansion assessment, the Siemens team will first review the any distribution system studies conducted by CWL or its advisors. This will serve as a baseline of

information for historical reliability issues on the system. We will review the assumptions made in CWL's prior analysis, as well as the tools and methodologies deployed.

Siemens will perform a detailed distribution analysis utilizing CYME as applied by CWL and, with CWL's approval, Siemens' proprietary distribution planning tool PSS®SINCAL. This integrated T&D modeling system will utilize the feeder level load and DG forecast to determine when and where voltage and thermal violations are likely to appear.

The analysis will start by mapping the expected load growth and DG forecast to the existing distribution transformers in the model and to equivalent transformers in "empty" cells that will be initially connected to the closest feeder. Next, the information on new substations and existing substations coverage areas will be used to define the connection of the feeders to supply (substations) points.

A load flow study will be carried out for up to 3 conditions at both 5 years and 10 years out. The three conditions are expected to include: i) peak load conditions / no contribution of PV, ii) minimum load condition / maximum contribution of PV, and iii) a selected intermediate condition that may include work-day daytime load, with average PV and maximum charging to storage.

The load flow will be carried out for normal and emergency switching conditions and voltage and thermal overloads identified; for example, high voltage violations are expected during light load high PV production, while thermal issues are expected for peak load with no PV production.

Solutions for the issues identified will be proposed, including traditional wired solutions or non-wires alternatives including battery energy storage that can be owned or sponsored by CWL.

As indicate above, the feeder analysis will be carried out for 5 years out and 10 years out, to identify short and medium term investments. The 10 year forecast complements the substation analysis (see above tasks) and is focused on new feeders and any need to increase capacity of existing feeders (e.g. reconductoring of mainlines, voltage regulation and storage), the 5 year out adds to the analysis details on the balance of the system; e.g. laterals and informs investment priorities for the first 5 years.

The results of the assessment can then be utilized to develop a short to medium term distribution investment plan. For the long term (20 years out), a top down extrapolation of future investments can be produced based for example on expected capital expenditure per new customer.

6. *Review the capital projects currently forecasted by CWL and determine if they are in keeping with the recommendations established by the master plan. Identify projects that may be unnecessary. Identify projects that might be considered to meet established recommendations. Determine the prioritization of these projects.*

Following the completion of the prior Part I and Part II Tasks 1 through 5, and informed by their results, Siemens will review the CWL generation, transmission and distribution capital plans and any supporting analysis or justification produced by CWL or third party. Based on this review Siemens will provide recommendations for appropriate revisions or additions. Our analysis will address any identified opportunities to defer or displace, or defer generation, transmission or distribution investments with cost effective DER solutions.

7. *Review the costs and benefits of adaptation of AMI metering or other "smart-grid" technologies.*

Siemens team will begin this task with a review of any prior cost/benefit analysis the City has already conducted. If such studies are not available, the Siemens team can perform an independent cost-benefit analysis. Siemens is one of the leaders in hardware and software products design and deployment for AMI and has performed several AMI cost and benefit analyses leveraging our deep technical and methodological knowledge. This evaluation is expected to support a business case for eventual filing to City Council for approvals and rate recovery of the value and specific benefit to cost justification to the City.

The Siemens team proposes the following approach for the AMI Analysis.

The key assumptions and our recommended analytical approach supporting this cost/benefit analysis include the following:

1. **Business Case Approach:** We will review and discuss the strategic imperatives of the City in the formulation of the business case.
2. **Implementation Schedule:** We will take into account the timing around the roll out of the AMI infrastructure.
3. **Vendor Pricing:** Siemens has deep expertise in costing out individual components of the AMI infrastructure. As part of the pricing detail, we will leverage our internal know-how and vendor data to arrive at an expected level of pricing associated with the objectives of the AMI roll-out.
4. **Cost Estimate Approach:** As part of the development of the cost estimates, we will review any existing quotes the City may have received.
5. **Benefit Estimates Approach:** There are several benefits associated with AMI but the major ones fall in the operational and customer categories. The operational benefits include meter reading automation, operational efficiencies in field and meter services, reduction in non-

technical losses, improvement in outage management and remote service connects and disconnects and enablement of new tariff structures. The customer benefits include billing accuracy improvement, informed decision on energy usage, and reliability improvement through quicker identification of outages. Other benefit categories may include ability to integrate and dispatch distributed energy resources.

6. **Cost-Benefit Analysis Framework:** There are several cost-benefit analysis frameworks, which typically include the payback period method, the NPV method, and the total Resource Cost (TRC) test. Another important consideration is the choice of discount rate for the NPV analysis. We will work with the CWL to determine the best discount rate for this analysis.

Quantifying the benefits includes making assumptions about changes in behavior – reductions in consumption and peak usage as well as time shifting of usage. These changes are the result of technologies that enable the programs (e.g. dynamic pricing) and delivery of information (e.g. in home displays, websites). Thus, the potential benefits include both the direct benefits of reduced consumption and demand, as well as the indirect benefits enabled as a result of deploying these technologies. The key technologies that enable the provision of detailed cost and usage information are smart meters, in home energy displays (which connect wirelessly to smart meters), and online solutions.

Smart meters allow retailers and distributors to develop new tariff structures and information products. They also potentially allow them to change their customer service options, which can affect consumers positively by enabling energy efficiency and demand response. In addition, smart meters can deliver business cost efficiencies, which can be passed through as cost savings to customers. These utility operating benefits are an important component element of the overall economic analysis, including a direct tie to the IRP evaluation criteria.

The following are key cost elements in deploying a consumer empowerment infrastructure will be included in the cost analysis: a) Hardware: smart meters, communication networks, optionally in-home displays including websites and smart phones); b) Software: networking software, back office systems to manage detailed energy information data; c) Labor: installation, integration, project management; and d) Marketing and education: materials and programs to inform consumers about the workings and the benefits of the consumer empowerment, thereby facilitating the delivery of programs to consumers in order to incentivize or enable consumer behavior change..

Cost and Schedule

Siemens proposes to perform the proposed scope of work on a fixed fee of $695,248 for labor plus expenses which are estimated to add $27,300 for total a $722,548. Our proposed cost to complete the proposed work for CWL is shown in the tables below. The fixed cost for labor and estimated expense for Part I, Part II and each task is shown in the tables below.

Part 1 – IRP	Task Budget	Core Task
Task 1: Development of Ten Year Load Forecast	$36,175	●
Task 2: Evaluation of Current Capacity and Energy Contracts	$29,095	●
Task 3: Analysis of Local Generation Assets	$30,119	
Task 4: Development of Resource Portfolio Capacity and Utilization Plan	$53,183	●
Task 5: Analysis of Uncertainty through Scenario Analysis	$28,588	●
Task 6: Assessment of Demand Side Management Options	$68,075	●
Task 7: Assessment of DER Options	$11,854	●
Task 8: SPP vs. MISO Integration	$38,500	●
Task 9: Value of Solar Study	$41,938	
Total Task 1 Labor and Expenes	$337,526	

Part 2 – Master Plan	Task Budget	Core Task
Task 1: Development of Spatial Load Forecast	$82,797	●
Task 2: DER as an Option to Serve Local Reliability Need	$0	●
Task 3: Review of Reliability, Engineering Standards and NERC registration	$95,234	
Task 4: City of Columbia Transmission System Expansion Recommendations	$37,893	●
Task 5: City of Columbia Distribution System Expansion Recommendations	$80,127	●
Task 6: Review of Capital Projects	$12,026	●
Task 7: Perform Costs and Benefits Analysis of AMI and Other "Smart-Grid" Technologies	$76,945	
Total Part II	$385,022	

Total Part I and Part II	$722,548

While we have priced the Tasks individually, as requested by CWL, our planned methodology necessitates a coordination and integration between many Tasks and between the elements of Part I and Part II. For example the Part I, Task 1 System Load forecast is required to complete many of the other Tasks in Part I. In addition, Part I, Task 1 System Load is needed to complete the Part II, Task 1 Spatial Load Forecast, which in turn is required for other Tasks in Part II. There exists an interrelation among many, but not all of the tasks. We have identified the interrelated tasks as a "Core Task" and marked them with a bullet in the above tables. We recommend that all the bulleted items in the IRP be considered a single coordinated project, unless we restructure our proposal. The items that are not identified as Core Tasks, can be performed substantially independently of the Tasks.

We will invoice CWL for the labor in approximately equal monthly amounts defined by the estimated duration of the Task. The out of pocket expenses for travel, meals and lodging will be billed as incurred at Siemens cost.

Siemens hourly labor rates for any additional scope of work desired by CWL are provided in the table below. Any additional out of pocket expenses incurred for additional scope of work will be billed to CWL as quoted, either on a time and material or fixed scope basis.

Project Team Member	Hourly Labor Rate
Vice President	$313
EBA Managing Director	$302
EBA Principal	$302
EBA Director	$255
EBA Manager	$230
EBA Senior Consultant	$202
EBA Consultant	$183
EBA Analyst	$142
PSC Senior Manager	$337
PSC Manager	$254
PSC Senior Consultant	$209

Siemens estimates that the work described in this proposal can be completed in approximately 48 months after receiving the notice to proceed.

Siemens proposed revision to the CWL terms and agreement are proved in the Attachment A.

This proposal is valid for 90 days from the date of its submittal.

ATTACHMENT A – Proposed Revisions to Terms and Conditions

Deviations List to the RFP 140-2018 proposal
between
City of Columbia, MO
and
SIEMENS INDUSTRY, INC.
RFP Due Date: 12/21/2018

The following deviations and exceptions pertain to the above reference RFP (deletions are shown in ~~strikethrough~~, and additions are underlined):

1. Services And Performance Standards. (Strike and insert following language)

a. CONSULTANT shall provide services in a professional and workmanlike manner in accordance with the generally accepted standards for similar services. ~~shall exercise reasonable skill, care and diligence in performance of its services and will carry out its responsibilities in accordance with the generally accepted standards of good professional practices in effect at time of performance. If CONSULTANT fails to meet the foregoing standards, CONSULTANT shall perform at its own cost, and without reimbursement from CITY, the professional services necessary to correct errors and omissions which are caused by CONSULTANT's failure to comply with the above standard.~~

2. Addition Or Deletions to Services. (Strike and insert following language)

2. Addition Or Deletions To Services. CITY may add to CONSULTANT's services or delete therefrom, provided that ~~the total~~if any such changes cause an increase or decrease in the cost, or the time required for the performance, an equitable adjustment shall be made and the Purchase Order shall be modified in writing accordingly. ~~of such work does not exceed the total cost allowance as specified herein.~~ CONSULTANT shall undertake such changed activities only upon the written direction of CITY. All such directives and changes shall be in written form and prepared and approved by the Parties.

7. Payment. (Strike and insert following language)

7. Payment

a. ~~Conditioned upon acceptable performance. Provided CONSULTANT performs the services in the manner set forth in paragraph 1 hereof,~~ CITY agrees to pay CONSULTANT in accordance with the terms outlined herein, which shall constitute complete compensation for all services to be rendered under this Agreement; provided, that where payments are to be made periodically to CONSULTANT for services rendered under this Agreement, CITY expressly reserves the right to disapprove in whole or in part a request for payment where the services rendered during the period for which payment is claimed are not performed in ~~a timely and satisfactory manner~~ accordance with CONSULTANT's proposal specifications which is incorporated herein by reference.

b. ~~CITY shall have ten (10) days from the date of receipt of the invoice to register CITY's disapproval of the work billed on that invoice. Following CONSULTANT's receipt of said disapproval, CONSULTANT shall have ten (10) days to cure the issues presented. If cure cannot be obtained within ten (10) days, CONSULTANT shall notify CITY of the proposed amount of time for cure, and reach an agreement as to an acceptable alternative deadline~~ The Products or Services will be accepted when delivered or performed in conformance with the CONSULTANT'S proposal specifications. If due to

reasons beyond CONSULTANT'S control, acceptance does not take place within 15 days from the date CONSULTANT notifies the CITY that the Product and/or Services is ready for acceptance, acceptance shall be deemed to take place upon expiry of said period of time. In no event shall acceptance be deemed to occur later than upon commercial operation of the Product or equipment upon which the Services were provided.

8. Termination for Default (Strike and insert following language)

8. Termination of Agreement.

a. Termination For Breach. CITY may terminate the Agreement for cause in the event of (i) an act of insolvency or bankruptcy by CONSULTANT; or (ii) a material breach of the Agreement by CONSULTANT, which CONSULTANT fails to commence to cure within thirty (30) days after notice thereof from CITY and fails to diligently pursue thereafter. In such event, as CITY's sole remedy for such default, CONSULTANT will reimburse CITY for its reasonable and verifiable costs to complete the Services or obtain replacement Equipment. ~~Failure of CONSULTANT to fulfill CONSULTANT's obligations under this Agreement in a timely and satisfactory manner in accordance with the schedule and description of services for the Project agreed to by both Parties shall constitute a breach of this Agreement, and CITY shall thereupon have the right to immediately terminate this Agreement.~~ CITY shall give seven (7) days written notice of termination to CONSULTANT by one of three different means: Facsimile Transmission ("FAX") if CONSULTANT has a FAX number; U.S. Postal Service Mails; or by hand delivering a copy of the same to CONSULTANT; or may give notice by any combination of the above methods. The date of termination shall be the date upon which notice of termination is hand delivered to CONSULTANT or given by FAX, or the third day following mailing of the notice of termination, whichever first occurs. Upon full payment for Services completed in accordance with the applicable Specifications, ~~I~~in the event of termination for breach, CITY, at its sole option, may utilize any and all finished or unfinished documents, data, studies, and reports or other materials prepared by CONSULTANT under this Agreement prior to the date of termination. ~~CONSULTANT shall not be relieved of liability to CITY for damages sustained by CITY by virtue of any such breach of this Agreement by CONSULTANT.~~

b. Termination for Convenience.

Termination for Convenience. CITY shall have the right at any time by fifteen (15) days written notice to CONSULTANT to terminate and cancel this Agreement, without cause, for the convenience of CITY, and CONSULTANT shall immediately stop work. ….

10. Assignment (Strike and insert following language)

10. Assignment. ~~CONSULTANT~~ Parties shall not assign any interest in this Agreement, and shall not transfer any interest in the same (whether by assignment or novation), without prior written consent of ~~CITY~~ the other Party thereto, but either Party may assign its rights and obligations, without recourse or consent, to any parent, wholly owned subsidiary, or affiliate or affiliate's successor organization (whether as a result of reorganization, restructuring or sale of substantially all of a party's assets). Notice of such assignment or transfer shall be furnished in writing promptly to CITY. Any such assignment is expressly subject to all rights and remedies of CITY under this Agreement, including the right to change or delete activities from this Agreement or to terminate the same as provided herein, and no such assignment shall require CITY to give any notice to any such assignee of any actions which CITY may take under this Agreement, though CITY will attempt to so notify any such assignee.

14. Insurance **(Strike and insert following language)**

b. Commercial General Liability. CONSULTANT shall maintain Commercial General Liability at a limit of $~~2~~1,000,000 Each Occurrence, $~~3~~2,000,000 Annual Aggregate. Coverage shall not contain any endorsement(s) excluding nor limiting Product/Completed Operations, Contractual Liability or Cross Liability.

c. Business Auto Liability. CONSULTANT shall maintain Business Automobile Liability at a limit of $~~2~~1,000,000 Each Occurrence. Coverage shall include liability for Owned, Non-Owned & Hired automobiles. In the event CONSULTANT does not own automobiles, CONSULTANT agrees to maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

e. The City of Columbia, its elected officials and employees are to be Additional Insured with respect to the Project to which these insurance requirements pertain. A certificate of insurance evidencing all coverage required is to be provided at least ten (10) days prior to the Effective Date of the Agreement between the CONSULTANT and CITY. CONSULTANT is required to maintain coverages as stated and required to notify CITY of a Carrier Change or cancellation within two (2) business days. ~~CITY reserves the right to request a copy of the policy.~~

15. Hold Harmless Agreement **(Strike in <u>entirety</u> and insert following language)**

15. HOLD HARMLESS AGREEMENT.

a. <u>To the fullest extent not prohibited by law, CONSULTANT shall indemnify and hold harmless the City of Columbia, its directors, officers, agents, and employees from and against all third party claims, damages, losses, and expenses (including but not limited to reasonable attorney's fees) alleging bodily injury, death or damage to tangible third party property, but only to extent arising by reason of CONSULTANT's negligent act or omission or of anyone directly or indirectly employed by CONSULTANT or by any subcontractor, or of anyone for whose acts CONSULTANT or its subcontractor may be liable, in connection with providing these services. This provision does not, however, require CONSULTANT to indemnify, hold harmless, or defend the City of Columbia from its own actions, inactions, (willful or otherwise), or its own negligence.</u>

b. <u>NOTWITHSTANDING ANYTHING IN THIS AGREEMENT TO THE CONTRARY, CONSULTANT IS NOT LIABLE, WHETHER BASED IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, INDEMNITY OR ANY OTHER LEGAL OR EQUITABLE THEORY, FOR: LOSS OF USE, REVENUE, SAVINGS, PROFIT, INTEREST, GOODWILL OR OPPORTUNITY, COSTS OF CAPITAL, COSTS OF REPLACEMENT OR SUBSTITUTE USE OR PERFORMANCE, LOSS OF INFORMATION AND DATA, LOSS OF POWER, VOLTAGE IRREGULARITIES OR FREQUENCY FLUCTUATION, CLAIMS ARISING FROM CITY'S THIRD PARTY CONTRACTS, OR FOR ANY TYPE OF INDIRECT, SPECIAL, LIQUIDATED, PUNITIVE, EXEMPLARY, COLLATERAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR ANY OTHER LOSS OR COST OF A SIMILAR TYPE.</u>

c. <u>CONSULTANT'S MAXIMUM LIABILITY UNDER THIS AGREEMENT IS THE ACTUAL PURCHASE PRICE RECEIVED BY CONSULTANT FOR THE PRODUCT THAT GAVE RISE TO THE CLAIM.</u>

d. CITY AGREES THAT THE EXCLUSIONS AND LIMITATIONS IN THIS ARTICLE 15 WILL PREVAIL OVER ANY CONFLICTING TERMS AND CONDITIONS IN THIS AGREEMENT AND MUST BE GIVEN FULL FORCE AND EFFECT, WHETHER OR NOT ANY OR ALL SUCH REMEDIES ARE DETERMINED TO HAVE FAILED OF THEIR ESSENTIAL PURPOSE. THESE LIMITATIONS OF LIABILITY ARE EFFECTIVE EVEN IF CONSULTANT HAS BEEN ADVISED BY CITY OF THE POSSIBILITY OF SUCH DAMAGES. THE WAIVERS AND DISCLAIMERS OF LIABILITY, RELEASES FROM LIABILITY AND LIMITATIONS ON LIABILITY EXPRESSED IN THIS ARTICLE 15 EXTEND TO CONSULTANT'S AFFILIATES, PARTNERS, PRINCIPALS, SHAREHOLDERS, DIRECTORS, OFFICERS, EMPLOYEES, SUPPLIERS, AGENTS, AND SUCCESSORS AND ASSIGNS.

17. Professional Oversight Indemnification (Strike in entirety and insert following language)

17. Confidentiality.

a. Both during and after the term of this Agreement, the Parties will treat as confidential all information obtained from the disclosing Party and all information compiled or generated by the disclosing Party under this Agreement for the receiving Party, including but not limited to business information, manufacturing information, technical data, drawings, flow charts, program listings, software code, and other software, plans and projections. Neither Party may disclose or refer to the work to be performed under this Agreement in any manner that identifies the other Party without advance written permission. However, CONSULTANT has the right to share confidential information with its affiliates and subcontractors, provided those recipients are subject to the same confidentiality obligations set forth herein.

b. Nothing in this Agreement requires a Party to treat as confidential any information which: (i) is or becomes generally known to the public, without the fault of the receiving Party; (ii) is disclosed to the receiving Party, without obligation of confidentiality, by a third party having the right to make such disclosure; (iii) was previously known to the receiving Party, without obligation of confidentiality, which fact can be demonstrated by means of documents which are in the possession of the receiving Party upon the date of this Agreement; (iv) was independently developed by receiving Party or its representatives, as evidenced by written records, without the use of disclosing Party's confidential information; or (v) is required to be disclosed by law, except to the extent eligible for special treatment under an appropriate protective order, provided that the Party required to disclose by law will promptly advise the originating Party of any requirement to make such disclosure to allow the originating party the opportunity to obtain a protective order and assist the originating Party in so doing.

18. Professional Responsibility (Strike in entirety and insert following language)

18. Professional Responsibility. CONSULTANT shall provide services in a professional and workmanlike manner in accordance with the generally accepted standards for similar services ("Warranty"). Notwithstanding acceptance by CITY, if, within three (3) months from the date of completion, the Services fail to meet the Warranty standards, upon prompt written notification from CITY of any such fault or defect prior to the expiration of the three (3) month period following the completion of the Services, Consultant shall promptly re-performed the faulty or defective portion of the Services at the sole expense of Consultant or refund CITY the pro rata portion of the fees paid to CONSULTNAT under this Agreement allocable to the nonconforming Services. The warranty on re-performed Services is limited to the remainder of the original Warranty period.

21. Notices **(Strike and insert following language)**

Siemens Industry, Inc.
10900 Wayzata Blvd, Ste #400
Minnetonka, MN 55305
Attn: Michael Yazvec, Legal Dept.
952-484-5505
Michael.Yazvec@siemens.com

The designation and titles of the person to be notified or the address of such person may be changed at any time by written notice. Any such notice, demand, request, or communication shall be deemed delivered on receipt if delivered by hand or ~~facsimile~~ electronic mail and on deposit by the sending party if delivered by courier or U.S. mail.