

AMENDMENT NO. 1 TO AGREEMENT**AGREEMENT BETWEEN THE CITY OF COLUMBIA, MISSOURI AND HORIZONS ENERGY LLC. FOR INTEGRATED RESOURCE PLAN & MASTER PLAN, PART 3 – COST OF SERVICE PLAN**

THIS AMENDMENT (hereinafter “Amendment”) is made by and between the City of Columbia, Missouri, a municipal corporation (hereinafter “City”), and Horizons Energy LLC (hereinafter “Consultant”), both parties to the Professional Services Agreement dated September 6, 2019 (hereinafter “Original Agreement”), and is entered into on the date of the last signatory below (hereinafter “Effective Date”). City and Consultant are each individually referred to herein as a “Party” and collectively as the “Parties.”

WHEREAS, the Original Agreement was for Consultant to provide services towards creation of the City’s Electric Cost of Service Study;

WHEREAS, City and Consultant agree that certain additional services not contemplated at the time the Original Agreement was entered are necessary for completion of the project; and

WHEREAS, the Parties wish to amend the Original Agreement to incorporate these services and increase the project’s not to exceed amount as necessary for completion and pursuant to the terms and conditions in this Amendment;

NOW, THEREFORE, in consideration of the mutual covenants contained herein and for other good and valuable consideration, the Parties hereto agree as follows:

1. **General.** All terms and provisions of the Original Agreement, a copy of which is attached hereto as **Attachment 2** and made a part of this Amendment, will remain in full force and effect on both Parties, except as amended in this Amendment. If there is conflict between this Amendment and Original Agreement, or any earlier amendment, then the terms of this Amendment will prevail.
2. **Incorporating Additional Services into Consultant’s Proposal.** Consultant’s Proposal, Exhibit B in the Original Agreement, shall be amended to add, incorporate and include Additional Scope of Services, attached hereto as **Attachment 1** and made a part of this Amendment. The additional services provided in this amendment are to be considered as part of the “Project”, as defined in the Original Agreement and required to be performed by Consultant.
3. **Increasing Costs Not to Exceed.** The total project budget will increase due to the additional services by no more than \$16,000. Therefore, the Costs Not to Exceed Amount in Section 6 of the Original Agreement is hereby amended by replacement from \$68,000 to \$84,000.
4. **Confirmation of Original Agreement as Amended.** The Parties hereby adopt, ratify and confirm the Original Agreement as it is amended by this Amendment. This Amendment shall be binding on, and inure to the benefit of, the parties hereto.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, the Parties hereto have executed this Amendment by their duly authorized representatives as of the date of the last signatory hereto.

City: City of Columbia, MO

By: _____
De'Carlton Seewood, City Manager *DKS*

Date: _____

ATTEST:

By: _____
Sheela Amin, City Clerk

APPROVED AS TO FORM:

By: _____
Nancy Thompson, City Counselor / mc

CERTIFICATION: I hereby certify that the above expenditure is within the purpose of the appropriation to which it is charged, Account No. 17410923 - 504993, and that there is an unencumbered balance to the credit of such appropriation sufficient to pay therefor.

By: _____
Matthew Lue, Director of Finance

Consultant: HORIZONS ENERGY LLC.

By: Greg Turk

Name: Greg Turk

Title: President and Managing Partner

Date: 7/29/2022

ATTEST *GT*

By: _____

Name: _____

■ The Prime Group ■

July 27, 2022

Mr. Christian Johanningmeier
Power Production Superintendent
Columbia Water & Light
701 E. Broadway
Columbia, MO 65205

Dear Mr. Johanningmeier:

Per our discussion, The Prime Group will perform the following tasks for the City of Columbia:

- 1) Put together two additional scenarios for the financial model based on actual information as of December 2021. Since the test year was during a period of low inflation and interest rates, the two scenarios would be based on 1) moderate inflation and interest rates, and 2) high inflation and interest rates. The Prime Group will have an initial meeting with Water and Light staff to discuss and get approval for the parameters for each of the two scenarios.
- 2) Put together two additional rate scenarios based on the results of the financial model scenarios described in Item 1
- 3) Develop an Electric Vehicle rate
- 4) Develop a Power Cost Adjustment mechanism
- 5) Update the “evaluation of effect of renewable targets” analysis to reflect more recent energy pricing information
- 6) Provide a written report of all findings
- 7) Provide two more virtual presentations

The Prime Group will perform the work outlined above for a fixed professional fee not to exceed \$16,000.

The estimated timeline to complete the work outlined above will be 6 to 8 weeks from the time The Prime Group receives written approval from The City of Columbia for the tasks described in the additional scope of work.

Please contact me if you have any questions concerning this proposal.

Sincerely,

Larry Feltner
Principal

The Prime Group, LLC
2604 Sunningdale Place East · La Grange, KY · 40031
Phone: (502) 241-4684 · Email: lfeltner@theprimegroupllc.com

AGREEMENT
For
PROFESSIONAL SERVICES
Between
THE CITY OF COLUMBIA, MISSOURI
And
HORIZONS ENERGY LLC
For
ELECTRIC INTEGRATED RESOURCE AND MASTER PLAN, PART 3 - COST OF
SERVICE PLAN

THIS AGREEMENT (hereinafter "Agreement") by and between the City of Columbia, Missouri, a municipal corporation (hereinafter called "CITY"), and **Horizons Energy LLC**, a **limited liability company** organized in the State of **Ohio**, and 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 **1/17/2019** (hereinafter referred to as "CONSULTANT's Proposal") and pricing proposal letter dated **5/15/2019** (hereinafter referred to as "Pricing Proposal") to CITY in response to CITY's request for proposals; and

WHEREAS, CONSULTANT has the 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, Part 3 – Cost of Service 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 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. 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 **Sixty Eight Thousand Dollars (\$68,000)** 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. 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.

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.

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

8. Termination of Agreement.

a. Termination For Breach. 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. 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. CITY shall have the right at any time by 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. CONSULTANT 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 thereto. 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 \$2,000,000 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. CITY reserves the right to request a copy of the policy

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. 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 claims, damages, losses, and expenses (including but not limited to 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.

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. **Professional Oversight Indemnification.** CONSULTANT understands and agrees that CITY has contracted with CONSULTANT based upon CONSULTANT's representations that CONSULTANT is a skilled professional and fully able to provide the services set out in this Agreement. In addition to any other indemnification set out in this Agreement, CONSULTANT agrees to defend, indemnify and hold and save harmless CITY from any and all claims, settlements, and judgments whatsoever arising out of CITY's alleged negligence in hiring or failing to properly supervise CONSULTANT.

18. **Professional Responsibility.** CONSULTANT shall exercise reasonable skill, care, and diligence in the performance of its services and will carry out its responsibilities in accordance with customarily accepted good professional practices. If CONSULTANT fails to meet the foregoing standard, CONSULTANT shall perform at its own cost, and without reimbursement from CITY, the professional services necessary to correct the errors and omissions which are caused by CONSULTANT's failure to comply with above standard, and which are reported to CONSULTANT within one (1) year from the completion of CONSULTANT'S services for the Project.

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:

Horizons Energy LLC
6216 Memorial Drive
Dublin, OH 43017
ATTN: Greg Turk

With a copy to:

Utilities Department
P.O. Box 6015
Columbia, MO 65205-6015
ATTN: Assistant Utilities Director for
Water & Electric

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 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
John Glascock, Interim City manager

Date: September 6, 2019

ATTEST

By: Sheela Amin
Sheela Amin, City Clerk

APPROVED AS TO FORM:

By: Nancy Thompson
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 17410923-504993, and that there is an unencumbered balance to the credit of such appropriation sufficient to pay therefor.

By: Janet Frazier
Janet Frazier, Director of Finance WAF
Janet Frazier

(Seal)

HORIZONS ENERGY LLC

By: Greg Turk
Date: 8/6/19

ATTEST: AK

By: _____

Name: _____

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
Cal.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.

Request for Proposal 140/2018: Electric Integrated Resource and Master Plan

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.

City of Columbia Purchasing (City of Columbia) Supplier Response

Bid Information		Contact Information		Ship to Information
Bid Creator	Cale Turner Purchasing Agent	Address	701 E. Broadway	Address
Email	Cale.Turner@CoMo.gov		Columbia, MO 65205	
Phone	(573) 8747375 x	Contact	Cale Turner	Contact
Fax			Finance/Purchasing	
		Department		Department
Bid Number	140/2018 Addendum 2	Building	City Hall	Building
Title	Electric Integrated Resource and Master Plan		5th Floor	
		Floor/Room		Floor/Room
Bid Type	RFP	Telephone	(573) 874-7375 x	Telephone
Issue Date	11/21/2018 02:59 PM (CT)	Fax		Fax
Close Date	1/18/2019 05:00:00 PM (CT)	Email	cale.turner@como.gov	Email

Supplier Information

Company Horizons Energy (Horizons Energy LLC)
Address 6216 Memorial Dr

 Dublin, OH 43017
Contact Gregory Turk
Department
Building
Floor/Room
Telephone (614) 553-7816
Fax (614) 889-9113
Email greg.turk@horizons-energy.com
Submitted 1/17/2019 02:17:15 PM (CT)
Total \$0.00

By submitting your response, you certify that you are authorized to represent and bind your company.

Signature Gregory Turk

Email greg.turk@horizons-energy.com

Supplier Notes

Bid Notes

Proposals may be submitted in a sealed envelope at the purchasing office or uploaded electronically on the City's E-bidding website. Electronic Proposals are limited to 5 Response Attachments. 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 a sealed envelope and marked in bold letters RFP 140/2018.

Bid Activities

Bid Messages

Bid Attributes

Please review the following and respond where necessary

#	Name	Note	Response
1	Addendum #1	<p>Addendum #1 is issued to revise the following dates:</p> <ul style="list-style-type: none">- Questions can be submitted to the City of Columbia through December 21, 2018 at 5:00 P.M.- Answers to the questions will be provided by December 28, 2018.- RFP closing date has been revised to January 18, 2019 at 5:00 P.M.	Addendum No.
2	Addendum #2	<p>Offerors shall note the changes outlined in Addendum No. 2 to the Request for Proposal and incorporate these changes in their submittal. Offerors shall attach a signed acknowledged copy of this addendum to their proposal, if submitting a hard copy (via paper) or agree to the addendum electronically, by checking the box to the right of this field, if submitting their proposal through this electronic bid system on line.</p>	Addendum No.

Line Items

Response Total:

\$0.00

Transmittal Letter

Attn: Cal Turner, Purchasing Agent
City of Columbia
701 E. Broadway, 5th Floor
Columbia, MO 65201

Dear Mr. Turner:

Thank you for the opportunity for Horizons Energy and The Prime Group to submit the enclosed proposal to provide assistance in preparing an Integrated Resource Plan and Cost of Service Study for the City of Columbia. Our response is in accordance with the requirements in the Request for Proposal (RFP) dated November 21, 2018 - Parts I and III.

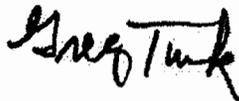
We have thoroughly reviewed the requirements in the RFP and assembled a team of professionals who have substantial experience with similar type studies. There are several key factors that make the combination of Horizons Energy and The Prime Group uniquely suited for this particular role, including:

- Decades of experience in developing Integrated Resource Plans (IRP's) for a host of municipal, federal and investor-owned utilities
- Deep knowledge of the MISO and SPP markets, including the ability to forecast prices and underlying price drivers within the Eastern Interconnect utilizing a state-of-the-art power planning tool
- Cost of service, rate and regulatory support for over 150 utilities around the country

We are prepared to answer any questions you may have about our submittal and will make ourselves available to discuss with you at your convenience. Our organizations are fully committed to support the goals and objectives required to make this a successful project.

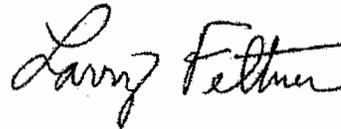
If you have any questions regarding our qualifications, please contact Greg directly at (614) 553-7816 or Larry at (502) 405-3304. We look forward to working closely with you on this important project and thank you for the opportunity to provide our proposal.

Sincerely,



Greg Turk
Managing Partner
Horizons Energy
6216 Memorial Drive
Dublin, OH 43017
greg.turk@horizons-energy.com

Sincerely,



Larry Feltner
Managing Partner
The Prime Group
P.O. Box 837
Crestwood, KY 40014-0837
lfeltner@theprimegrouppllc.com

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City of Columbia RFP 140/2018 Electric Integrated Resource and Master Plan Proposal

Background

On November 21st, 2018, the City of Columbia (City) Water and Light Utilities Department (CWL) in Missouri issued a Request for Proposals (RFP) from capable firms to conduct an electric integrated resource and master plan.

CWL, formed by voter approval in 1904, is a locally owned municipal utility. CWL is now run as a separate entity of the city. The utility contributes to the government in the form of a gross receipts tax, property taxes and contributions to the general fund. Policy recommendations are made to the Council by the Water & Light Advisory Board and ordinance changes impacting CWL are made by the City Council. CWL has approximately 49,000 customers with peak demand of nearly 300 MW. Currently, CWL has ownership or contracted generation capacity totaling 420 MW consisting of coal, natural gas and renewables.

Horizons Energy and The Prime Group are submitting a joint proposal to conduct Part I - Integrated Resource Plan and Part III - Cost of Service Study.

Advantages of the Horizons Energy/Prime Group Team

- Both organizations are comprised of specialists with deep experience in their respective areas: Horizons Energy for IRP and Market Assessment and The Prime Group for Cost of Service and Rates
- This Team provides an integrated solution to your resource planning and cost of service needs where interfaces between customer requirements, utility costs, and emerging customer impacts are managed within one process.
- The Team offers best practices and methods based upon experience in working with a wide range of clients.

About Horizons Energy

The members of the Horizons Energy team have been recognized throughout the industry as the "go to" industry experts for advanced integrated resource planning, power market analytics and economic consulting for the following reasons:

- We have a solid understanding of the U.S. power markets. Horizons Energy's experience and depth of analysis of power market fundamentals in regional power markets is unmatched in the industry. We produce the Horizons Energy North American Outlook which provides a detailed look into the critical issues affecting the price formation process in various markets over a 51-year period (2000-2050).
- The Horizons Energy team has significant competitive power markets experience and has substantial professional experience in integrated resource planning as state utility regulators, utility management and strategic consultants.

Horizons Energy utilizes the state-of-the-art power simulation engine, EnCompass, by Anchor Power Solutions. This tool uses an advanced Mixed Integer Linear Programming (MILP) algorithm which is capable of addressing a wide range of planning problems within a single database, including market price forecasting, generation resource expansion optimization and power operations.

Further details at Qualifications.

City of Columbia RFP 140/2018 Electric Integrated Resource and Master Plan Proposal

Horizons Energy will conduct Part I – Integrated Resource Plan which consists of the following tasks:

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,

City of Columbia RFP 140/2018 Electric Integrated Resource and Master Plan Proposal

- 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.

About The Prime Group

The Prime Group, LLC is a utility consulting firm that was formed by Dr. Martin Blake and Steve Seelye in 1996. When they started The Prime Group, they recognized that there was a strong market for professional rate and regulatory services for investor-owned, cooperative and municipal utilities. Since forming the company, The Prime Group has provided cost of service, rate and regulatory support for over 150 utilities around the country.

The Prime Group takes great pride in being easy to work with while providing consulting support that is unsurpassed in the industry. We tailor our models to meet your needs rather than force your needs to meet the requirements of a standard, off-the-shelf model. We don't try to be everything to everybody. We stick closely to what we are good at – performing cost of service studies, developing wholesale and retail rates, preparing economic evaluations, performing depreciation studies and addressing complex regulatory issues.

We have helped utilities all over the United States achieve their financial and regulatory objectives. Our experts have testified before the Federal Energy Regulatory Commission and numerous state regulatory Commissions. We have submitted expert testimony regarding rate design, cost of service studies, revenue requirements, return on equity, depreciation studies, prudence investigations, territory disputes, affiliate transactions, market power studies and open access transmission tariffs.

We offer personalized service. The Prime Group expert working on your project will have years of experience and will be a recognized expert in the industry. We will not turn your project over to a junior associate. Additionally, it is our policy to provide our clients with the software that we use to perform the studies. Providing the software to clients allows them to get maximum benefit out of the work product and gives them the ability to perform their own scenario analysis.

The Prime Group will conduct Part III – Cost of Service Study consists of the following tasks:

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

City of Columbia RFP 140/2018 Electric Integrated Resource and Master Plan Proposal

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

Part I Approach – Integrated Resource Plan

Consistent with established Integrated Resource Planning practices, the evaluation will quantify the relative costs of alternative resource options as measured against a range of possible futures or scenarios. Options are resource expansion plant types, which include the type and timing of new resource additions. It incorporates the investment and operating costs as well as operating characteristics of existing and expansion options capable of meeting the future energy and capacity requirements.

Scenarios aid in addressing how future uncertainties impact the value of expansion options. Examples of scenarios would include future -high, base and low - variations of demand and the cost of natural gas. All scenarios are measured relative to a reference case, intended to reflect 'business as usual'. Figure 1 embodies the IRP process. The goal of defining and developing scenarios is the creation of alternate futures that result in different resource mixes.

Horizons Energy believes the underlying goal of this effort should be the successful creation and adoption of a Resource Strategy. This Strategy reflects the uncertain nature of resource planning, will strike a balance between low cost and low risk and anticipate and can respond to changing market conditions.

To develop the Resource Strategy, Horizons Energy proposes to deploy consulting with the following critical skills sets to support this effort:

Subject Matter Expertise:

- In the IRP process, including integrated resource optimization and stochastics analysis
- For electricity and related markets, including forward views of the MISO market in general and the Missouri LRZ5 in particular, natural gas, coal, emissions and emerging technologies
- Modeling expertise, including the underlying algorithms used in the tools, capabilities of the tools, their limitations both in terms of time and accuracy of results

Planning Analysis:

- Creation of the resource strategy, including database development, simulation and management of a range of results
- Ability to meet deadlines
- Ability to respond to a range of internal and external requests and questions

Primary Resource:

- Project manager: the development, execution and control of the project plan, including the goals, objectives, milestones, roles
- Communicator: directly communicates with a variety of stakeholders, provides strategic messaging at various stages in the process
- Advocate: includes defending the process and later defending the resource strategy

Horizons Energy will utilize the state-of-the-art power simulation engine, EnCompass, by Anchor Power Solutions. This tool uses an advanced Mixed Integer Linear Programming (MILP) algorithm which is capable of addressing a wide range of planning problems within a single

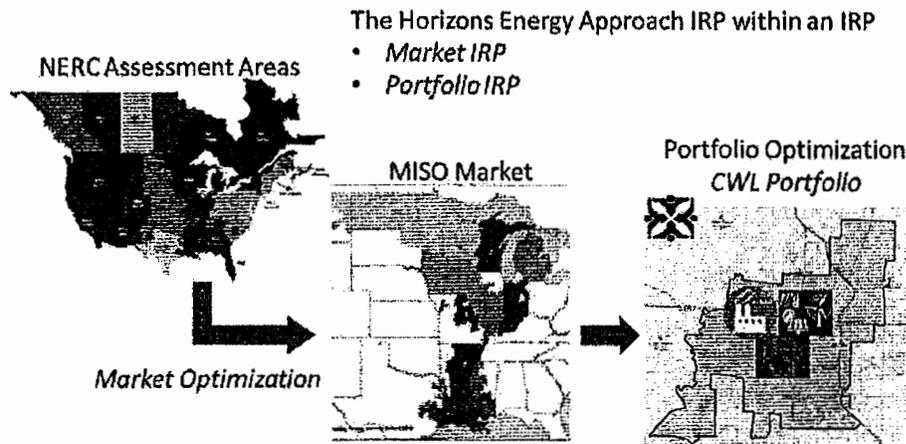
City of Columbia RFP 140/2018 Electric Integrated Resource and Master Plan Proposal

database, including market price forecasting, generation resource expansion optimization and power operations.

Horizons Energy first performs a NERC-Wide optimization using the EnCompass planning model for each scenario to capture the wholesale market prices for energy, ancillary services, capacity, emission allowances and renewable energy; followed by a more detailed optimization of the CWL Portfolio using the NERC-Wide market results, again using EnCompass.

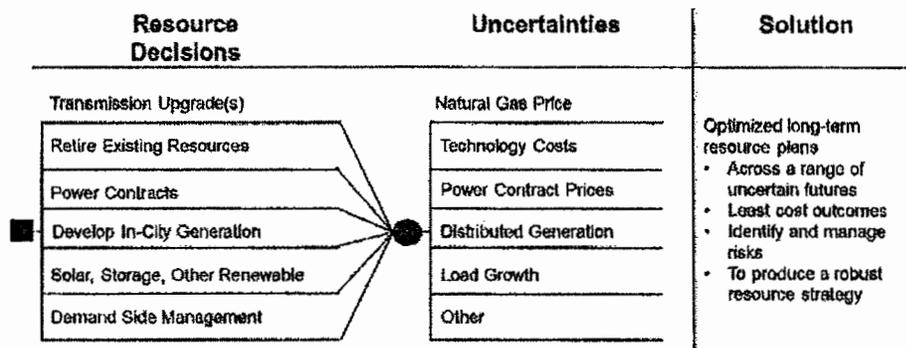
Using EnCompass for both simulations provides consistency between the market and CWL portfolio as the same model performs both optimizations.

*Figure 1
Horizons Energy IRP Process*



Next step is to derive a solution where the decision of which resources will meet CWL’s needs stressed tested against future uncertainties driving to the least cost strategy that is beneficial to meet customer needs.

*Figure 2
Horizons Energy Solution*



Part I – Integrated Resource Plan Scope of Work (SOW)

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.
 - a. Horizons Energy will develop and deliver a demand forecasting model in an EXCEL format which will forecast both the peak and energy requirements at least 10 years into the future. Class models will utilize historical sales from CWL, weather and forecasts of population growth and economic outlook. Energy efficiency and behind-the-meter generation will be explicitly identified. The underlying estimation technique will incorporate both regression analysis and end-use forecast to allow explicit structural changes to determinants of demand. Horizons Energy will derive class load shapes to provide consistent estimations over time and between energy and peak forecasts.
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.
 - a. Horizons Energy will evaluate the current generation and capacity import contracts. Current owned and contracted renewable cost range from \$20-\$67/MWh and contracted-coal represented nearly 73% of the supplied generation in 2017. Utilizing the generation resource optimization of the EnCompass planning model Horizons Energy will evaluate the marketability of the contracts, where current contracts will compete with the external market, CWL resource alternatives, energy efficiency and behind-the-meter generation.
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.
 - a. In a similar process as described for contracts above, Horizons Energy will evaluate the profitability of the existing generation fleet compared to imports, new local generation and or purchased power agreements utilizing the EnCompass software. Horizons Energy will deploy the EnCompass economic retirements logic to identify useful life under alternative scenarios and evaluate the conversion options of the existing portfolio given cost estimates by the contractor for Part II. Key aspects of this analysis will include identifying the appropriate level of simulation detail necessary to identify costs and benefits of these resources.

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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.
 - a. Horizons Energy will develop a resource utilization plan which will incorporate existing contracts, resources and resources available to CWL and its customers. This forecast will track the greenhouse gas emissions of the City of Columbia by resource. In addition, Horizons Energy will provide renewable build strategies to meet the renewable requirement. Utilizing EnCompass software Horizons Energy will develop a strategy to effectively reduce greenhouse gas emissions from electric use.

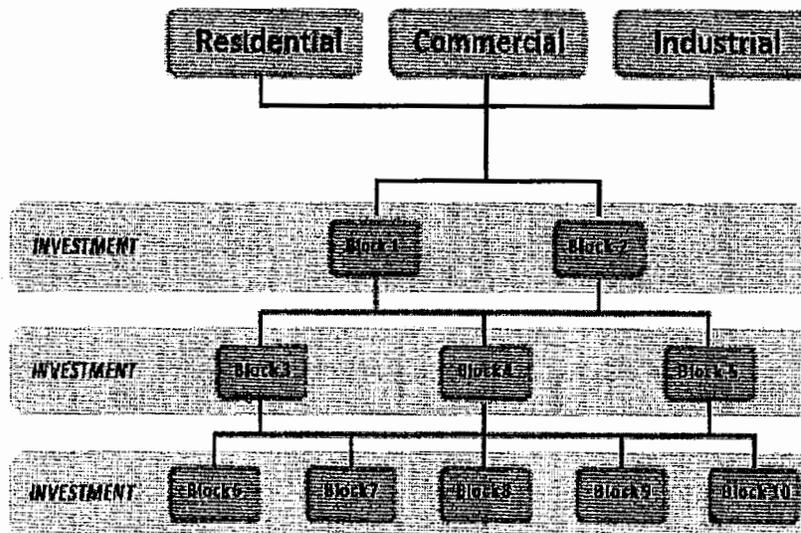
5. Conduct sensitivity studies. Recommend sensitivities, to be examined. Include load growth, cost, reliability and resiliency, renewable expectations, climate regulation and adoption of new technologies such as electric vehicle charging, increased use of heat pumps and increased customer solar utilization as mandatory sensitivities.
 - a. Horizons Energy in the Fall 2018 Energy Outlook developed the following nine scenarios. Each of these scenarios are plausible sensitivities to evaluate the economics of the City:
 - i. **Reference** which represents "business as usual" or the traditional outlook
 - ii. **High Natural Gas** pricing driven by degradation in oil and gas resource technology
 - iii. **Low Natural Gas** pricing consistent with Henry Hub forwards
 - iv. **High Demand** reflecting the potential for uplift in demand
 - v. **Low Demand** with the continued penetration of energy efficiency or slow economic growth
 - vi. **Carbon Tax** reflects a scenario consistent with EIA's \$15 carbon tax through 2030 and dropping to 2.5% increase/year above inflation thereafter
 - vii. **Low Natural Gas with a Carbon Limit** with a 40% reduction by 2030 from 2000 levels and downward to 80% reduction by 2050. Henry Hub prices are consistent with the Low Natural Gas scenario
 - viii. **High Natural Gas with a Carbon Limit** with a 40% reduction by 2030 from 2000 levels and downward to 80% reduction by 2050. Henry Hub prices are consistent with the High Natural Gas scenario

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- ix. **100% Renewable** reflects zero carbon additions only and accelerated economic retirements. Also increased energy efficiency and demand response coupled with reduced overnight cost for wind, solar and batteries
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.
- a. Horizons Energy will evaluate the economics and effectiveness of existing energy efficiency programs by performing both a cost/benefit and also as compared to other published program costs. Further, Horizons will estimate the historical and prospective impacts of standards, rebates and tax credits.

As part of the least-cost planning effort, Horizons Energy will identify the economics of potential new demand side and energy reduction programs. In these cases, the programs are introduced as resource options capable of competing with other resource types such as conventional and renewable generation. Consistent with other IRP efforts, Horizons Energy will represent energy efficiency programs as investment blocks. Each investment block contains a tranche of energy, the time-of-day pattern and the components of price for a program type. These demand tranches reflect the finite amount of less expensive EE that can be obtained in any one year after which the next set of measures become more expensive.

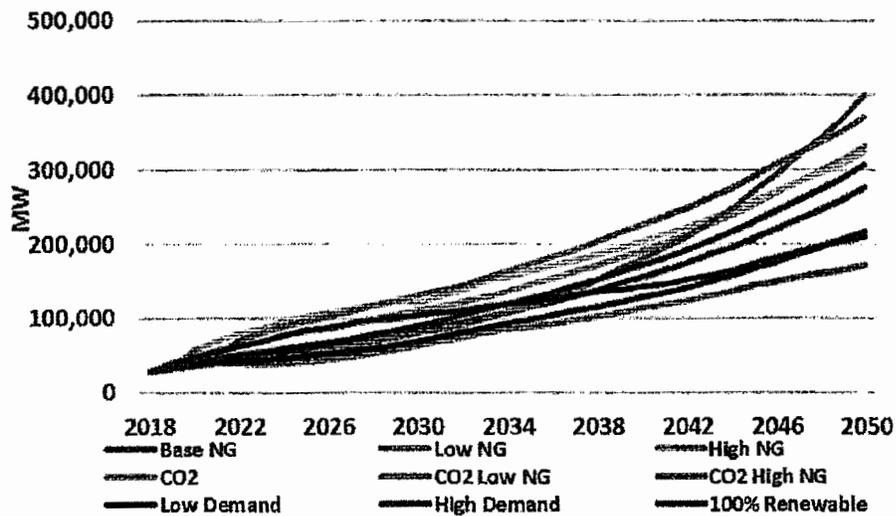
*Figure 3
Energy Efficiency Hierarchy*



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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.
 - a. Each of the scenarios in item 1.5 have varying levels of distributed energy resources and storage. Horizons Energy will evaluate both the technical potential as well as the appropriateness of the levels given these assumptions for the City.

*Figure 4
North America Behind-the-Meter Solar Capacity*



8. Evaluate CWL's position as a MISO member vs. SPP. Evaluate and compare the availability of renewable energy in SPP and MISO.
 - a. Horizons Energy's knowledge of MISO and SPP markets will be used to develop a high-level analysis of the cost and benefit of membership in MISO compared to SPP. A more detailed analysis could be conducted as an additional proposal to capture the full impact of integration with SPP.
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.
 - a. Horizons Energy will evaluate the current net metering cost and solar incentive programs against the outlook for various distributed energy scenarios in Item 1.5. Horizons Energy will determine the levelized value of solar from the IRP results. Cost structures from Part III will also be evaluated by Horizons Energy.

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*Table 1
Differences Between Net Metering and Value of Solar*

Net Metering	Value of Solar
Customer earns bill credits	
Credit value equal to retail rate	Credit value equal to value of solar rate
Credit value fluctuates with retail price	Value fixed by a XX-year contract
Net excess generation paid at retail rate	Net excess generation forfeited

Part III Approach – Cost of Service Study

The Prime Group will prepare a fully-allocated embedded cost of service study using NARUC methodology. The cost of service study will utilize a standardized EXCEL spreadsheet model that *functionally assigns*, classifies and allocates all of the utility's historical accounting costs for a recent twelve-month period. The first step will be to functionally assign all of the utility's costs into major functional groups. Functionally assigning costs in this manner will permit the study to be used to develop unbundled rates, as described below. The second step will be to *classify* all functionally assigned costs as commodity-related, customer-related, or specifically assigned. The third step will be to *allocate* the functionally assigned and classified costs to the classes of customers and special contracts identified by the utility. The classes of customers will generally correspond to the utility's rate schedules and special contract customers. The Prime Group will also perform pro forma adjustments to reflect any known and measurable changes in cost.

The cost of service study will contain a detailed breakdown of costs for each class of service, including unit costs for each rate component.

Although there are a number of considerations in determining the level and structure of the rates that a utility should charge its customers, there are two basic principles of fairness used in designing utility rates that stand out above all of the others. The first principle of fairness is that customers should pay the costs that they impose on the system. It is generally recognized by both experts and non-experts alike that a utility's rates should reflect the cost of providing service. A cost of service study helps to determine what it costs to provide service to a class of customers so that this first principle can be applied. The second principle of fairness is that all customers should pay their fair share of the utility's margins. A cost of service study is prepared using standard methodologies for allocating costs that have been approved by regulatory commissions and the courts and that determine as accurately as possible what it costs to serve a class of customers. While it is sometimes necessary to consider the value of service and the competitiveness of service, the starting point in assessing the reasonableness of the rates to be charged by a utility is to evaluate the cost of service.

Designing rates that reflect the cost of providing service helps ensure that customers pay their fair share of the utility's costs and margins. In other words, implementing cost-based rates helps ensure that one class of customers does not subsidize another class of customers. From the perspective of inter-class subsidies, cost-based rates are more equitable.

Besides equity considerations, it is important for a utility's rates to send the right price signals to customers so that they can make informed decisions regarding their energy usage. Customers' usage patterns have a direct impact on the utility's costs, which in turn have a direct impact on the utility's rates. Therefore, with cost-based rates, customers are provided a proper price signal that reflects both the utility's costs and the results of their own purchase decisions. With cost-based rates, customers can make informed decisions based on the actual cost structure of the utility. When rates reflect the cost of providing service, the economics of a customer's decisions to purchase more or less of a utility service are aligned with the utility's economics, thus creating greater economic and engineering efficiencies for both the utility and its customers.

Another important reason for adopting a cost of service standard, when designing rates, is that cost-based rates are supportable and have more credibility before regulatory, legal or other authorities having direct or appellate jurisdiction over the utility's rates. With rates supported by a well-reasoned cost of service study, it is difficult for someone to advance arguments that the

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utility's rates are improperly subsidizing certain groups of customers. Regulatory agencies and courts tend to view rates not supported by a cost of service study as arbitrary and capricious.

On a more pragmatic level, a cost of service study is an important analytical tool for a utility. For example, a cost of service study can tell the management team whether the revenue collected from a particular rate class is at least covering the fully allocated cost of providing service. Utility managers, board members and other bodies with legal or regulatory authority will generally want some assurance that all classes of customers are at least covering the cost of providing service. A cost of service study is an excellent analytical tool for tracking whether each customer class is making at least some contribution to the utility's margins or profitability.

Additionally, individual rate components that accurately reflect the cost of providing service can help to reduce a utility's margin volatility as well as the volatility of customer energy bills. For example, a rate design that shifts a significant portion of a utility's fixed costs and margins from the customer charge to the energy charge results in customers with high levels of kWh usage paying more than their fair share of the utility's costs and margins. It also results in high margins for the utility when weather is extreme and the utility is selling large amounts of kWhs. High kWh sales also mean that customers are paying more fixed cost and margin than the utility actually needs and this is reflected in higher customer bills. Conversely, a rate design that shifts a significant portion of a utility's fixed costs and margins from the customer charge to the energy charge results in low margins when weather is mild and kWh sales are low. Low kWh sales also mean that customers are paying less fixed cost and margin than the utility actually needs and this is reflected in lower customer bills. This method of rate design increases volatility in utility margins and customer bills. All of this can be avoided by adopting a rate design with rate components that more accurately reflect costs.

A cost of service study is also an important analytical tool for identifying specific cost components of providing service to customers. The ability to identify specific components of a utility's costs for various functional services allows us to design innovative cost-based rates – such as unbundled rates, seasonally-differentiated rates, time-of-use rates, real-time pricing rates, high-load factor rates, weather normalized rates and other types of rates. In addition, a cost of service study is an important analytical tool for developing fixed carrying charges for new types of services, developing utility line extension policies and for benchmarking one utility's costs against another

Principal Steps in Performing a Cost of Service Study

The three principal steps of an embedded cost of service study are functional assignment, classification and class allocation. These three steps are necessary to ensure that the costs allocated to a class of customers reflect the costs that they impose on the utility as accurately as possible. In the first step – functional assignment – costs are assigned (or “functionalized”) to the major functional groups related to providing service. Functional assignment serves the following purposes: (1) it groups associated costs together to facilitate allocation on the basis of cost responsibility; (2) it provides a rational mechanism for grouping costs that do not appear to be related to major service functions; and (3) it provides a device for separating assignable costs from joint costs, which must be allocated. Functional assignment involves assigning costs to the functional services provided by a utility, such as power production, purchasing electric power, the transmission of the power over high-voltage lines (typically at voltages of 69 KV or higher) and the distribution of power over distribution lines (typically at voltages of less than 69

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KV). Functionally assigning all costs allows us to examine a utility's revenue requirement in finer detail and to more accurately assign cost responsibility in the next two steps of the study.

Cost of service studies will typically include, but may not be limited to, the following functional groups in order to provide a high degree of detail for purposes of designing rates as well as analyzing and tracking costs:

- Purchased Power
- Station Equipment
- Primary Distribution Plant
- Secondary Distribution Plant
- Line Transformers
- Customer Services
- Meters
- Lighting Systems
- Meter Reading, Billing and Cust Service
- Marketing

In the second step – classification – the major cost drivers are identified for each group of functionally assigned costs. Identifying the major cost drivers allows the service characteristics that give rise to the costs to serve as a basis for allocation. In this study, once the costs are functionally assigned, they are then classified by the following major cost drivers:

- Energy-related costs
- Demand-related costs
- Customer-related costs

Costs classified as energy related vary with the amount of energy that the customer consumes measured in kilowatt-hours. Fuel and purchased power expenses billed on the basis of an energy charge are examples of costs typically classified as energy related. Costs classified as demand related tend to vary with the capacity needs of customers, such as the amount of generation, transmission or distribution equipment necessary to meet customers' maximum demands at particular points in time. Production plant, purchased power expenses billed on the basis of a demand charge and the cost of transmission lines are examples of costs typically classified as demand costs. Those assets are sized to meet the maximum demands customers place on the system at a given time. To the extent that they are driven by the amount of equipment that a utility must install to meet customer needs, these demand related costs are also driven by customer usage patterns. Costs classified as customer related are not related to customer usage and include costs incurred to serve customers regardless of the quantity of electric energy they purchase or the peak demands they place on the system. These costs include the cost of the minimum system necessary to provide a customer with access to the electric grid. As will be discussed later in this report, costs functionally assigned as Primary & Secondary Distribution Plant were classified as demand-related and customer-related using the zero-intercept methodology. Customer Services, Distribution Meters, Lighting System, Meter Reading, Billing & Customer Service were classified as customer-related.

In the third and final step – class allocation – functionally assigned and classified costs are directly assigned or allocated to the customer classes on the basis of an allocation factor that is representative of the service characteristic that drives the utility's costs. For example, energy-related costs are allocated on the basis of the amount of kilowatt hours used by the customer class and demand-related costs are allocated on the basis of the appropriate measurement of the maximum demand that the customer class places on the system.

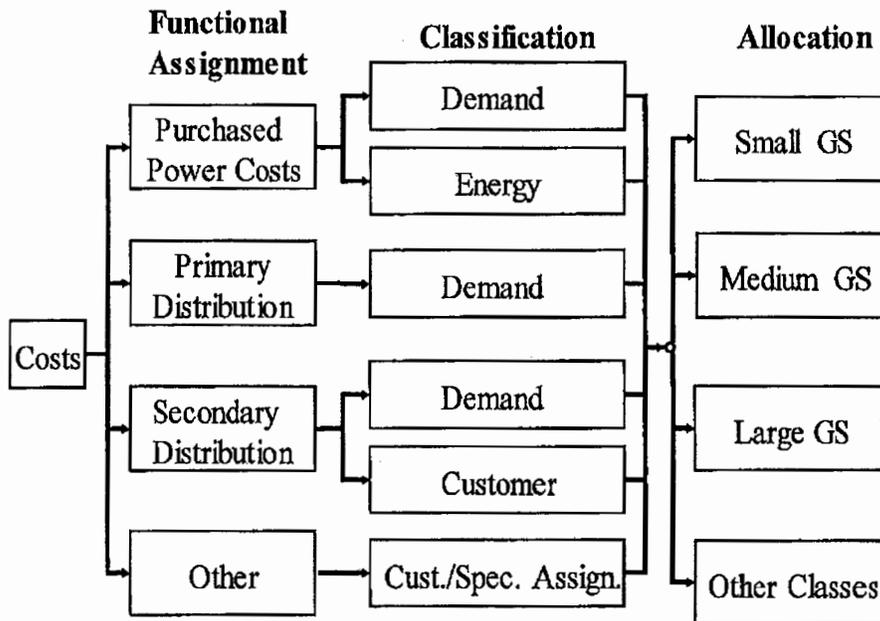
The reason that allocation procedures must be used to determine the cost of providing service to each rate class is that most of a utility's costs are represented by what are referred to as joint

costs. Joint costs are those costs incurred jointly for two or more types of operations where each operation does not have a separate incremental cost function. In the electric utility industry, production, transmission and most distribution facilities are jointly engaged in providing service to a multitude of customers with diverse load characteristics taking service at different rates of usage at various times of the day, month or year. Consequently, in the utility industry very few costs can be directly attributed to specific customers or specific customer groups. Therefore, most of the utility's costs must be allocated to the customer classes on the basis of an allocation process that reasonably attributes costs on the basis of cost causation.

Where facilities were installed for, and used by, specific members, and those members do not receive reliability benefits from being connected to the utility's backbone distribution system, the cost of those facilities should be directly assigned to those members.

The three steps of the cost of service study are summarized in the graph shown in Figure 5. As explained above, costs are first assigned to the functional groups, then classified as demand-related, energy-related or customer-related and then allocated to the customer classes, as follows:

*Figure 5
Cost of Service Process*



Cost Determination

When we say that costs are functionally assigned, classified and then allocated, what do we mean by the term "costs"? What "costs" are we referring to?

In reference to a cost of service study, "costs" refer to a utility's "revenue requirements" or, synonymously, the utility's "cost of service". A utility's rates must be sufficient to produce enough revenue to cover its revenue requirement on a going forward basis. Essentially, revenue requirements include all of the utility's accounting costs plus an appropriate level of

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margins. More specifically, a utility's revenue requirements include the following components of cost: (i) operation and maintenance expenses; (ii) depreciation expenses; (iii) utility operating margins (including interest expenses on borrowed funds); (iv) income taxes (as applicable); and (v) other taxes (e.g., property taxes) (as applicable). The following formula is useful in identifying the items generally included in revenue requirements:

$$\text{Rev Req} = \text{O\&M} + \text{Depreciation} + \text{UOM} + \text{IT} + \text{OT}$$

Where: Rev Req	= Revenue requirements
O&M	= Operation and maintenance expenses
Depr	= Depreciation expenses
UOM	= Utility operating margins (including interest)
IT	= Income taxes (as applicable)
OT	= Other taxes, such as property taxes (as applicable)

One of the primary objectives of this study is to determine the extent to which revenues from each class of consumers contribute toward the return on total investment. For purposes of this study, Utility Operating Margins are defined as operating revenues less operation and maintenance expenses, depreciation expenses, income taxes (as applicable), and other taxes:

$$\text{Utility Operating Margins} = \text{Operating Revenues} - \text{O\&M} - \text{Depr} - \text{IT} - \text{OT}$$

The cost of service study also calculates a rate of return for each customer class. For purposes of this study, rate of return is calculated by dividing utility operating margins by the net cost rate base, as follows:

$$\text{Rate of Return} = \text{Utility Operating Margins} \div \text{Net Cost Rate Base}$$

In this formula, net cost rate base is a measure of the utility's net investment (gross investment less accumulated depreciation) required to provide service to customers. It must be strongly emphasized that since interest has not been identified as an operating expense in the cost of service, a portion of the Utility Operating Margins (as well as the Rate of Return) goes to cover interest expenses. It is important to recognize that net cost rate base represents the utility's investment in facilities needed to provide service to customers irrespective of how the investment in these facilities was funded. As a general matter, a utility's net cost rate base will have been funded by both borrowed funds (i.e., short and long-term debt) and internally generated funds (members' equity). Therefore, the rate of return on rate base is comparable to the utility's weighted cost of capital (i.e., weighted by both debt and equity). The reason that the rate of return is calculated in this manner is to provide a clear representation of the contribution that each class is making toward providing a return on the utility's total capital (i.e., rate base) supplied to provide service.

The net cost rate base represents the value of the assets used to provide utility service. It includes the following components:

- (1) Plant in service;
- (2) Construction work in progress;
- (3) Cash working capital;
- (4) Materials and supplies;
- (5) Prepayments; and
- (6) Deferred Debits

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less the following:

- (1) Accumulated depreciation; and
- (2) Customer Deposits.

Cash working capital represents an amount of cash funding required by the utility to carry out its business. For purposes of this study, cash working capital was calculated on the basis of 45 days of annual operation and maintenance expenses, excluding purchase power expenses (i.e., operation and maintenance expenses excluding purchase power expenses were multiplied by a factor determined by dividing 45 days by 365 days).

Pro-Forma Adjustments

A utility's rates should be designed to recover the cost of providing service to customers on a going forward basis. Although it is standard practice to utilize a recent historical test year to determine revenue requirements, some of the components of cost may not be representative of the level of costs that the utility will likely experience on a going forward basis. For example, during the test year used in a cost of service study, the utility's wholesale power supplier may have increased rates. Therefore, to determine the appropriate revenue requirements representative on a going-forward basis, it is important to make a pro-forma adjustment to test-year purchased power expenses to incorporate the current rates being charged by the supplier. If a pro-forma adjustment were not made, then the purchased power expenses captured in the utility's annual revenue requirements will understate the level of expenses that the utility would expect to see once new rates go into effect.

Part III – Cost of Service Study Scope of Work (SOW)

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.
 - a. The Prime Group will prepare a fully-allocated embedded cost of service study using NARUC methodology. The cost of service study will utilize a standardized EXCEL spreadsheet model that functionally assigns, classifies and allocates all of the utility's historical accounting costs for a recent twelve-month period.
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.
 - a. The Prime Group will review and make recommendations with respect to the City of Columbia's current practices for cost of service analysis, debt service coverage calculations, cash reserve policy and rate design structure.
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.
 - a. The Prime Group will construct and provide a financial model that determines the annual cost of providing service (revenue requirement) for a 10-year period. The model will forecast sales and expenses for a 10-year period and calculate the annual revenue requirement. The model can be used to perform scenario analysis to determine the impact on revenue requirement from various policy and financial decisions.
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.

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- a. The Prime Group will review the City of Columbia's current policies on extending its facilities to serve new customers and construct a line extension policy that ensures that existing customers do not bear the cost of providing service to new customers. Line extension policy is critical to ensuring that growth doesn't create upward pressure on rates for existing customers and actually has the beneficial effect of lowering average costs per customer by spreading the utility's fixed costs over more customers. The basis for a good line extension policy is a revenue requirement calculation that determines how much a utility can invest in facilities to serve a new customer based on the revenue generated by the new customer. Facility investment that is not covered by the revenue expected to be generated by the new customer should be paid for up front by the new customer.
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.
 - a. The Prime Group will identify revenue risk in the City of Columbia's current rate structures and offer strategies for mitigating those risks. There is revenue risk inherent in many rate structures that can be mitigated by improving the rate structure or by other measures within the same rate structure. For example, two-part energy rates have revenue risk based on weather patterns. Mild weather will cause the utility to sell less kWh and therefore under recover its revenue requirement. Those risk can be addressed in a variety of ways, including changing the rate structure to a demand rate, raising the customer charge, weather normalizations adjustments, etc.
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.
 - a. The Prime Group, working with the City of Columbia's staff, will determine the revenue requirement for the City's electric utility. The Prime Group will develop rate design spreadsheets for each existing rate class served by the City of Columbia that shows the billing determinants for each rate component and the revenue derived from each component and show the same billing units applied to the new proposed rate design. The Prime Group will calculate a rate of return for each rate class by dividing the utility margin for each class by the net cost rate base allocated to each class.
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.

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- a. The Prime Group will work the City of Columbia's staff to evaluate the effect of their renewable targets on rates. This can be accomplished through a revenue requirement analysis whereby the revenue requirement is calculated with renewable costs and with the base case cost that do not include renewables.
8. Identify and evaluate other potential income sources, such as pole attachment fees and electric vehicle charging stations.
 - a. The Prime Group will evaluate other sources of income for the utility, such as pole attachment charges, electric vehicles, etc.
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.
 - a. The Prime Group will conduct a study of financing programs and will recommend the feasibility of models such as PAYS, PACE, etc.
10. Provide benchmark based on current charges compared to other utilities of similar size and geographic region.
 - a. The Prime Group will provide a comparison of the current rates for the City of Columbia and other utilities of similar size in the same geographic region.

Staff Experience – Horizons Energy**Greg Turk – Managing Partner, Project Leader Part I and Primary Contact**

Greg is the founder of Horizons Energy and will act as primary resource for the analyses to be provided by Horizons Energy. Greg has 30+ years of experience in the energy industry including integrated resource planning, asset valuations, software development, testimony for resource expansion and project management. He has a BS in Physics and Mathematics from Elmhurst College and an MS in Public Policy and Public Administration from Purdue University.

Greg's recent consulting engagements include a short-term production simulation of an SPP client to identify energy and ancillary service value of combustion turbines and optimal timing of maintenance outages and the delivering a budget, resource expansion and stochastic scenarios to the Tennessee Valley Authority.

Greg performed national evaluation of Clean Power Plan, testimony support for resource expansion and forecasts of MISO and PJM capacity markets.

Greg developed and integrated multiple market models, including energy, capacity, coal, natural gas pipeline / LNG and market-based resource expansion for North American electricity organizations. Created or aided in development of features into optimal integrated resource plan (IRP) expansion tool, including advanced fuels and emissions logic, decision tree structure and stochastic modeling. Provided clients with advanced risk analytic capabilities, resulting in development of actionable hedging strategies and strategic responses to uncertainty.

Greg also created proprietary network and web infrastructure for secure, on-demand analytic service. Developed highly efficient multi-client parallel processing module for performing

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stochastic analysis. Updated database and analytics, conforming to evolving energy industry changes. Provided training, maintenance and support services.

Kathy Jones – Executive Consultant

Kathy has 30+ years of experience in the energy industry. She brings her experience of the energy industry, trends and strategic changes to Horizons Energy to offer consulting services focused on North American energy markets, integrated resource planning and asset assessments. Kathy's expertise falls into environmental, renewable as well as energy market knowledge. She has a BSBE in Business Administration with a heavy concentration in Finance.

Kathy was the East Coast lead for the ABB Advisory Group energy market consulting practice. In addition, Kathy focused on the Southeast markets, renewable and environmental practice.

Kathy developed and analyzed custom scenarios impacting energy markets, including the EPA Clean Power Plan and Electric Power Horizons, a North American scenario-based planning service. With Kathy's tenure at ABB she participated in asset valuations totaling over \$1 billion, numerous market analyses and integrated resource plans.

Prior to joining ABB, Kathy worked for an investor-owned utility, now named Duke Energy Carolinas (DEC) (formerly Carolina Power & Light). While at DEC, Kathy conducted integrated resource plans, cost of service studies, financial forecast, cost of capital witness preparation, prudence analysis for regulatory proceedings as well as merger and acquisition analyses.

Staff Experience – The Prime Group**Larry Feltner – Project Leader Part III**

Larry is a Managing Partner with The Prime Group. He has more than 30 years of experience in preparing cost of service studies, developing retail and wholesale electric rates, developing time of use rates, developing electric vehicle rates, providing support in regulatory proceedings, marketing and forecasting and planning. Larry has worked on over 100 cost of service studies for investor-own, cooperative and municipal utilities.

His accomplishments include developing performance based, time of use rates, distributed generation rates, net metering rates, renewable generation rates and developing tracking mechanisms to recover environmental costs, fuel supply costs and gas supply costs. He has experience in designing and negotiating electric and gas special contracts with large industrial and commercial customers. He has also done extensive work on model development and forecasting electric sales, demands and revenues.

Since joining The Prime Group in April 2000, Larry has assisted electric, gas and water clients in developing unbundled products and services, developing new rate schedules, preparing cost of service studies, performing economic evaluations, preparing divestiture studies and developing marketing programs and presenting results of cost of service studies and rate design to utility and municipal utility Boards. He has a B.A. degree in Business Management from Transylvania University and an MBA from the University of Kentucky.

Steve Seelye – Executive Consultant

Steve is one of the founders of The Prime Group and a Managing Partner of the consulting firm. Mr. Seelye has more than 35 years of experience in providing ratemaking, planning, regulatory and marketing support for electric, gas and water utilities. Steve has assisted investor-owned,

City of Columbia RFP 140/2018 Electric Integrated Resource and Master Plan Proposal

cooperative and municipal utilities all over the United States and Canada in performing cost of service studies, developing retail and wholesale rates, analyzing revenue requirements, managing major regulatory initiatives, preparing depreciation studies and performing economic studies. He has worked with more than 100 electric, gas and water utilities. He co-founded The Prime Group with Marty Blake in 1996.

Steve Seelye has testified as an expert witness in over 75 rate cases and other regulatory proceedings before numerous state regulatory commissions and the Federal Energy Regulatory Commission ("FERC") in the areas of revenue requirement support, embedded and marginal cost of service studies, rate design, merger and acquisition studies, depreciation studies, lead-lag studies, fuel adjustment clauses, territory disputes and the pricing of reactive power service. During his tenure with The Prime Group, Steve Seelye has testified on behalf of Nevada Power Company, Sierra Pacific Power Company, Mobile Gas Company, Louisville Gas and Electric Company, Kentucky Utilities Company, East Kentucky Power Cooperative, Big Rivers Electric Corporation, Delta Natural Gas Company, Vectren, Central Illinois Lighting Company, Richmond Power and Light, Intermountain Rural Electric Association, Prestonsburg Municipal Utilities, Lee County Electric Cooperative, South Kentucky Electric Cooperative and many other utilities.

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With expertise in applied mathematics, his technical background includes performing optimization and statistical studies, developing pricing structures for utility products and services, developing cost studies for complex rate filings, preparing financial pro-formas and business cases for new product development, managing the rate case preparation and filing process and preparing financial support for rate case filings. He has a B.S. degree in Mathematics and extensive graduate training in engineering and physics from the University of Louisville. Steve has also taught linear algebra, differential equations, college algebra and AP Calculus to college and high school students.

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Eric is a Principal with the Prime Group. He graduated from Purdue University with a Bachelor's Degree in Mechanical Engineering Technology. Since joining The Prime Group in 2000, he has performed cost of service studies, developed unit cost analyses, performed profitability analyses and rate design for electric utility clients. He has made numerous presentations and facilitated strategic planning sessions with Boards of Directors. He has taught classes on cost of service studies and rate design to various clients all over the country.

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Qualifications – Horizons Energy

Horizons Energy LLC (www.horizons-energy.com) was formed in Ohio as a Limited Liability Company in September 2016 by Greg Turk. Although Horizons Energy is a relatively new company, the team has over 60 years of combined experience performing integrated resource planning studies on behalf of many clients. The studies have ranged from incremental support for various aspects of a client's IRP to full turnkey development of the IRP.

Horizons Energy's consulting offering includes:

- Integrated Resource Planning
- Uncertainty/Risk Assessment
- Market Price Forecasting
- Renewable Energy Impacts
- Asset Valuation
- Energy Efficiency Design
- Reliability Assessment
- Environmental Analyses
- Public Policy Studies
- Strategic/Business Planning

Horizons Energy maintains a formal strategic partnership with Anchor Power, (www.anchor-power.com) led by Norm Richardson, developer of the EnCompass software used by Horizons Energy.

Horizons Energy partners with Anchor Power and the EnCompass model. EnCompass is the premier software for making optimal power supply decisions, from short-term scheduling and trading to long-term capital investment. By combining the full operational details of power plants and complex contracts with the ability to simplify and relax constraints for long-term simulations, EnCompass is the only model needed for all facets of power planning and forecasting. Large, interconnected power markets may be modeled in order to forecast zonal or nodal energy, ancillary and capacity prices; or determine the value of a single asset or entire portfolio using input market price assumptions.

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Similar Projects

- **City of Lake Worth Utilities.** In 2018, performed an economic assessment of resource options, including: conventional and renewable generation as well as utility scale batteries and assessing profitability of city-owned generation.
- **NYISO (confidential).** In 2018, performed life-cycle, utility scale battery evaluations including energy, ancillary service and capacity value.
- **Renewable Evaluations in ERCOT and PJM:** (confidential) In 2017, provided multi-scenario assessments to a group of commercial and industrial companies to determine viability of PPA and VPPA contracts.
- **Public Service Colorado Bid.** (confidential) In 2017, provided market assessment and bidding strategy for a client bidding into the PSCo area.
- **Tennessee Valley Authority.** In 2017, provided a forecast of the TVA five-year budget plan and long-term resource expansion plan.
- **Maryland DNR and Exeter.** In 2011, 2012 and 2016, provided customized scenarios for state-wide energy and capacity needs, including market-based resource plans for the Maryland Long-Term Electricity Report (LTER).
- **North American Renewables.** (confidential) In 2016 and 2017, provided evaluation of the economics of solar, wind and battery resources in multiple North American markets for an international renewable energy company.
- **NCMPA1.** Annually from 2012 to 2017, developed stochastic analysis and consulting in support of the company's portfolio risk management efforts.
- **Indiana IOU IRP.** (confidential) In 2016, aided in the development of scenarios, bounding market drivers, review and interpreting strategies in support of the utility's IURC filing.
- **Kansas City Power & Light.** In 2016, provided a predictive analytics study where multi-variable stochastic analysis were developed around medium-term business decisions, principally focused around maintenance optimization based upon the production cost savings in the SPP market, including energy and ancillary services.
- **Indiana Municipal Power Agency.** In 2015, performed and authored IMPA's IRP including scenario development, stochastic analysis, resource optimization and risk assessment to meet the requirements of the Indiana IRP rules.
- **Investor Owned Utilities.** (confidential) In 2014, performed long-term market assessments including regional resource expansion and market prices under a range of fuel and emissions scenarios for a number of IOUs.
- **PJM Renewables.** (confidential) In 2013, produced a forward-looking forecast for PJM which included production costing, resource expansion to determine asset value for a range of renewable resources for an industry trade group.
- **Greenpeace.** In 2012 produced an assessment of the cost of Duke Energy Progress and Duke Energy Carolinas resource plans compared to a green strategy developed by Greenpeace.

Qualifications – The Prime Group

The Prime Group, LLC is a utility consulting firm that was formed by Dr. Martin Blake and Steve Seelye in 1996. When they started The Prime Group, they recognized that there was a strong market for professional rate and regulatory services for investor-owned, cooperative and municipal utilities. Since forming the company, The Prime Group has provided cost of service, rate and regulatory support for over 150 utilities around the country.

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The Principal areas of professional services offered by the Prime Group include:

Regulatory Support and Innovative Rate Development

- Regulatory Support and Innovative Rate Development
- Regulatory strategy development
- State and federal regulatory filing preparation
- Rate case management and support
- Expert testimony and support
- Cost of service development and support
- Developing innovative rates to achieve strategic objectives
- Unbundling rates and preparing menus of rate options for customers
- Performance-based rate and incentive rate development
- Open access transmission tariffs
- Depreciation studies
- Lead/Lag Studies

Strategic Planning and Analysis

- Strategic planning facilitation
- Relationships between regulated and unregulated affiliates
- Strategic financial modeling
- Cash flow and revenue requirement analysis
- Financial pro-formas
- Economic evaluations of investment alternatives

Education and Training for Staff and Boards of Directors

- Cost of service development and use
- Economics of power production and delivery
- Retail ratemaking
- Wholesale ratemaking
- Rate of return regulation
- Competitive market fundamentals
- Electric industry overview
- Electric system technologies
- The institutions and organizations of the electric utility industry
- Account executive training in sales and customer negotiation
- Industry issues and trends

Similar Projects

Kentucky Utilities Company – Performed cost of service studies, rate design studies, economic evaluations. Contact: Derek Rahn, PO Box 32010, Louisville, Kentucky, Phone: 502-627-4127.

Kit Carson Electric Cooperative (New Mexico) - Performed cost of service study, developed cost-based rates, provided expert testimony in rate case. Contact: Luis Reyes, PO Box 578, Taos, NM 87571, Phone: 575-758-2258

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Tri-County Electric Cooperative Association (Missouri) – Performed cost of service study and developed rates in accordance with Board's request. Contact: Jane Bahler-Hurt, PO Box 159, Lancaster, MO 63548, Phone: 660-457-3733 ext. 212

The Energy Cooperative (Ohio) - Performed cost of service study, developed cost based, unbundled rates and a purchased power cost adjustment clause. Contact: Joe Higdon, PO Box 4970, Newark, OH 43058-4970, Phone: 800-255-6815

Lee County Electric Cooperative (Florida) - Performed cost of service study, developed cost based, unbundled rates and designed retail rates in accordance with Board's requests. Contact: Denise Vidal, 4980 Bayline Drive, North Fort Myers, FL 33917, Phone: 239-656-2399

Hancock-Wood Electric Cooperative Inc. (Ohio) - Performed cost of service study, developed unbundled rates and developed a rate strategy to get all classes of service to a minimum rate of return over a 10-year period. Contact: George Walton, PO Box 190, North Baltimore, OH 45872-0190, Phone: 419-257-3241

Cass County Electric Cooperative (North Dakota) - Performed cost of service study, developed cost based, unbundled rates and a purchased power cost adjustment clause. Contact: Arden Breimeier, 4100 32nd Ave. S, Fargo, ND 58104, Phone: 701-356-4420

City of New Haven (Indiana) – Submitted testimony regarding water cost of service and rates for wholesale water contract (2018). Contact: Robert Glennon (Attorney for city), 3697 North County Road 500 E, Danville, IN 46122, Phone: 317-852-2723

Some of the municipal utilities for which we have performed cost of service and rate studies include the City of Berea, Kentucky; City of Fountain, Colorado; Richmond, Indiana; Crawfordsville, Indiana; Columbus, Ohio; Olive Branch, Mississippi; Prestonsburg, Kentucky; Pikeville, Kentucky; Ellsworth, Iowa; Pueblo, Colorado; Livermore, Iowa; Crown Point, Indiana; New Haven, Indiana; and Brookston, Indiana.

Estimated Schedule of Work

Part I – The Integrated Resource Plan and associated tasks are estimated to take 20 weeks from kick-off to completion of a final report.

Part III - Cost of service study typically takes between 6 and 9 weeks to complete once receiving data from the client. Rate design will be completed two weeks after the cost of service study. The other items can be done concurrently with the cost of service study and rate design. The cost of service analysis looking forward ten years (financial model) would typically take 3 to 4 weeks after the completion of the 10-year load forecast in Part I.

The schedule incorporates five meetings over the course of the project. These are intended to coincide with project milestones. Some meetings may also coincide with the meetings of the Task Force.

Upon completion, Horizons Energy and The Prime Group will provide a written report of results and findings.

The table below provides an estimated or representative work schedule.

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Table 2
Estimated Work Schedule

Estimated Schedule	Week																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Meetings																				
Part I: Integrated Resource Plan																				
Peak and Energy Forecast																				
Review current generation and capacity import contracts																				
Review local generation assets																				
Develop a resource utilization plan																				
Conduct sensitivity cases																				
Review current DSM programs																				
Evaluate the potential for public and private distributed generation and storage																				
Evaluate CWL's position as a member of MISO member versus SPP member																				
Conduct a value of solar study																				
Part III: Cost of Service																				
Cost of Service Analysis																				
Rate Design																				
Financial Model in Support of Forecasting Cost of Service/Revenue Requirements																				
Additional Areas of Investigation: Revenue at Risk, Study of Financing Programs, Etc.																				
Report Preparation																				
Introduction, background, other																				
Part I: Integrated Resource Plan																				
Part III: Cost of Service																				
Summary																				
Present Final Report																				

Deliverables from CWL

Accounting Data

1. Financial Statements/reports that correspond to the test year. The term test year is the twelve months the cost of study will be based on. The test year is frequently a calendar year, although any twelve-month period can be used.
2. Trial Balance or Detailed General Ledger – showing operating revenues, expenses and plant balances by FERC account primary account number, if applicable, for the test year (12-month period.)
3. CPR (Continuing Property Records) – plant detail, especially for the following accounts, as applicable (including number of units and investment by type of equipment):
 - a. Account 365 – Overhead Conductors and Devices
 - b. Account 367 – Underground Conductors
 - c. Account 368 – Line Transformers (if account includes station transformers then differentiate between line transformers and station transformers)
 - d. Account 369 – Services (including both feet of conductor and number of services)
 - e. Account 370 – Meters (denote system monitoring and/or substation meters)
 - f. Account 371 – Installations on Customer Premises (please describe what is included in this account and if multiple subaccounts are utilized then provide detail)
4. Monthly Purchase Power Detail for the test year (12-month period) detail should show demand, energy and other charges; invoices.

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5. Wholesale Supplier's Rate Schedule.
6. Year-End Accumulated Depreciation (depreciation reserve) broken down by primary FERC Plant Account Number, if applicable
7. Annual Depreciation Expenses (annual depreciation accruals) broken down by primary FERC Plant Account Number, if applicable
8. Labor expenses (payroll expenses) broken down by primary FERC O&M expenses (i.e., labor dollars that have been expensed)
9. Estimate of installed cost of meters by rate schedule (i.e., meter installation and equipment cost for a typical customer served under each rate schedule)
10. Estimate of installed cost of services by rate schedule (i.e., service installation and equipment cost for a typical customer served under each rate schedule)
11. Current unit cost for each conductor and transformer size shown in the utility's CPR records.
12. Any hourly load data that the utility might have.
13. Does the utility have any transmission lines and transmission substations?
14. The amount and interest rates for all bonds issued to finance electric plant
15. Are there any plans to issues new bonds on the next twelve months? If yes, the amount and interest of the new bond.
16. Copy of the financial forecasts.
17. Adjustment for payroll cost and other known and measurable changes.
18. Financial reports for the past ten years, which will be used for preparation of the ten-year revenue requirement forecast.
19. Construction budgets and financing plans for the next five to ten years.

Billing Determinants

The objective of this data is to recalculate test year revenue for each of the utility's rate schedules in order to verify that we have valid billing units for the test year. ***It is important to keep in mind that a utility's rate schedules are not the same as the revenue classes reported in the Income Statement.***

1. **Monthly** Billing Determinants ("billing units") for the test year by rate schedule. Billing determinants include the following for each rate schedule:
 - a. Number of customers for each month of the test year,
 - b. KWh sales for each month of the test year,
 - c. KW billing demand for each month of the test year,
 - d. Revenue for each rate schedule for each month of the test year.
 - e. If a rate schedule is a blocked rate, please provide kWh by each rate block. Including any related information need to block kWh, for example kW used to block kWh.
 - f. If the utility is considering changes to the block structure, please provide a bill frequency analysis. Please see the attached bill frequency analysis.
2. Hourly load data by rate class for 12 months for all classes for which a Time of Use Rate is required, if available. If not available, any estimation of on-peak/off-peak differential based on experience or other data would be useful.
3. Monthly unit charges billed under a Fuel Cost Adjustment, Power Cost Adjustment, Energy Cost Adjustment or other tracking mechanism. Also, please include monthly unit charges that are billed in the monthly revenue.
4. Number of streetlights by month by rate schedule. This needs to be broken down by light type in the tariff.
5. Copy of all retail rate schedules & tariffs.

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6. Copy of all special contracts.

Transmittal Letter

Attn: Ryan Williams, Assistant Director of Utilities

City of Columbia

701 E. Broadway, 5th Floor

Columbia, MO 65205

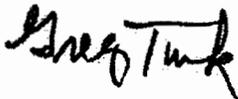
Dear Mr. Williams:

Thank you for the opportunity for Horizons Energy and The Prime Group to submit the enclosed scope of work and pricing to provide assistance in preparing a Cost of Service Study for the City of Columbia.

Our organizations are fully committed to support the goals and objectives required to make this a successful project.

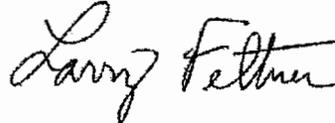
If you have any questions regarding our qualifications, please contact Greg directly at (614) 553-7816 or Larry at (502) 405-3304. We look forward to working closely with you on this important project and thank you for the opportunity to provide our proposal.

Sincerely,



Greg Turk
Managing Partner
Horizons Energy
6216 Memorial Drive
Dublin, OH 43017
greg.turk@horizons-energy.com

Sincerely,



Larry Feltner
Managing Partner
The Prime Group
P.O. Box 837
Crestwood, KY 40014-0837
lfeltner@theprimegroupplc.com

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Part III – Cost of Service Study

Scope of Work (SOW)

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.
 - a. The Prime Group will prepare a fully-allocated embedded cost of service study using NARUC methodology. The cost of service study will utilize a standardized EXCEL spreadsheet model that functionally assigns, classifies and allocates all of the utility's historical accounting costs for a recent twelve-month period.
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.
 - a. The Prime Group will review and make recommendations with respect to the City of Columbia's current practices for cost of service analysis, debt service coverage calculations, cash reserve policy and rate design structure.
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.
 - a. The Prime Group will construct and provide a financial model that determines the annual cost of providing service (revenue requirement) for a 10-year period. The model will forecast sales and expenses for a 10-year period and calculate the annual revenue requirement. The model can be used to perform scenario analysis to determine the impact on revenue requirement from various policy and financial decisions.
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.

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- a. The Prime Group will review the City of Columbia's current policies on extending its facilities to serve new customers and construct a line extension policy that ensures that existing customers do not bear the cost of providing service to new customers. Line extension policy is critical to ensuring that growth doesn't create upward pressure on rates for existing customers and actually has the beneficial effect of lowering average costs per customer by spreading the utility's fixed costs over more customers. The basis for a good line extension policy is a revenue requirement calculation that determines how much a utility can invest in facilities to serve a new customer based on the revenue generated by the new customer. Facility investment that is not covered by the revenue expected to be generated by the new customer should be paid for up front by the new customer.
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.
 - a. The Prime Group will identify revenue risk in the City of Columbia's current rate structures and offer strategies for mitigating those risks. There is revenue risk inherent in many rate structures that can be mitigated by improving the rate structure or by other measures within the same rate structure. For example, two-part energy rates have revenue risk based on weather patterns. Mild weather will cause the utility to sell less kWh and therefore under recover its revenue requirement. Those risk can be addressed in a variety of ways, including changing the rate structure to a demand rate, raising the customer charge, weather normalizations adjustments, etc.
 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.
 - a. The Prime Group, working with the City of Columbia's staff, will determine the revenue requirement for the City's electric utility. The Prime Group will develop rate design spreadsheets for each existing rate class served by the City of Columbia that shows the billing determinants for each rate component and the revenue derived from each component and show the same billing units applied to the new proposed rate design. The Prime Group will calculate a rate of return for each rate class by dividing the utility margin for each class by the net cost rate base allocated to each class.

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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.
 - a. The Prime Group will work the City of Columbia's staff to evaluate the effect of their renewable targets on rates. This can be accomplished through a revenue requirement analysis whereby the revenue requirement is calculated with renewable costs and with the base case cost that do not include renewables.
8. Identify and evaluate other potential income sources, such as pole attachment fees and electric vehicle charging stations.
 - a. The Prime Group will evaluate other sources of income for the utility, such as pole attachment charges, electric vehicles, etc.
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.
 - a. The Prime Group will conduct a study of financing programs and will recommend the feasibility of models such as PAYS, PACE, etc.
10. Provide benchmark based on current charges compared to other utilities of similar size and geographic region.
 - a. The Prime Group will provide a comparison of the current rates for the City of Columbia and other utilities of similar size in the same geographic region.

Project Team**Larry Feltner – Project Leader**

Larry is a Managing Partner with The Prime Group. He has more than 30 years of experience in preparing cost of service studies, developing retail and wholesale electric rates, developing time of use rates, developing electric vehicle rates, providing support in regulatory proceedings, marketing and forecasting and planning. Larry has worked on over 100 cost of service studies for investor-own, cooperative and municipal utilities.

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Proposed Pricing

The cost of the scope of work as described in the above scope of work is \$68,000, as detailed below:

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Task	Brief Description	Projected Cost	Estimated Consulting Number of Weighted Average Consulting Hours
1	Cost of Service Study	\$ 32,000	156
2	Review Current Methodology	5,000	24
3	Cost of Service Forecast	11,000	54
4	Facilities Extension Polices	3,000	15
5	Evaluate Revenue at Risk	3,000	15
6	Develop Rates by Program	4,000	20
7	Evaluate the Effect of Renewable Targets	2,000	10
8	Evaluate Potential Income Sources	3,000	15
9	Evaluate Financing Programs	3,000	15
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Total Project		\$ 68,000	332

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Prime Group Resource

Billing Rate per Hour

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These rates include all salaries and fringe benefits as well as expenses for secretarial services, phones, FAX, overnight delivery, etc.

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The schedule incorporates five meetings over the course of the project. These are intended to coincide with project milestones. Some meetings may also coincide with the meetings of the Task Force.

Upon completion, The Prime Group will provide a written report of results and findings.

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2. Trial Balance or Detailed General Ledger – showing operating revenues, expenses and plant balances by FERC account primary account number, if applicable, for the test year (12-month period.)
3. CPR (Continuing Property Records) – plant detail, especially for the following accounts, as applicable (including number of units and investment by type of equipment):

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- a. Account 365 – Overhead Conductors and Devices
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 - c. Account 368 – Line Transformers (if account includes station transformers then differentiate between line transformers and station transformers)
 - d. Account 369 – Services (including both feet of conductor and number of services)
 - e. Account 370 – Meters (denote system monitoring and/or substation meters)
 - f. Account 371 – Installations on Customer Premises (please describe what is included in this account and if multiple subaccounts are utilized then provide detail)
4. Monthly Purchase Power Detail for the test year (12-month period) detail should show demand, energy and other charges; invoices.
 5. Wholesale Supplier's Rate Schedule.
 6. Year-End Accumulated Depreciation (depreciation reserve) broken down by primary FERC Plant Account Number, if applicable
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 11. Current unit cost for each conductor and transformer size shown in the utility's CPR records.
 12. Any hourly load data that the utility might have.
 13. Does the utility have any transmission lines and transmission substations?
 14. The amount and interest rates for all bonds issued to finance electric plant
 15. Are there any plans to issues new bonds on the next twelve months? If yes, the amount and interest of the new bond.
 16. Copy of the financial forecasts.
 17. Adjustment for payroll cost and other known and measurable changes.
 18. Financial reports for the past ten years, which will be used for preparation of the ten-year revenue requirement forecast.
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Billing Determinants

The objective of this data is to recalculate test year revenue for each of the utility's rate schedules in order to verify that we have valid billing units for the test year. ***It is important to keep in mind that a utility's rate schedules are not the same as the revenue classes reported in the Income Statement.***

1. Monthly Billing Determinants ("billing units") for the test year by rate schedule. Billing determinants include the following for each rate schedule:
 - a. Number of customers for each month of the test year,
 - b. KWh sales for each month of the test year,
 - c. KW billing demand for each month of the test year,
 - d. Revenue for each rate schedule for each month of the test year.

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- e. If a rate schedule is a blocked rate, please provide kWh by each rate block. Including any related information need to block kWh, for example kW used to block kWh.
 - f. If the utility is considering changes to the block structure, please provide a bill frequency analysis. Please see the attached bill frequency analysis.
2. Hourly load data by rate class for 12 months for all classes for which a Time of Use Rate is required, if available. If not available, any estimation of on-peak/off-peak differential based on experience or other data would be useful.
3. Monthly unit charges billed under a Fuel Cost Adjustment, Power Cost Adjustment, Energy Cost Adjustment or other tracking mechanism. Also, please include monthly unit charges that are billed in the monthly revenue.
4. Number of streetlights by month by rate schedule. This needs to be broken down by light type in the tariff.
5. Copy of all retail rate schedules & tariffs.
6. Copy of all special contracts.

Transmittal Letter

Attn: Ryan Williams, Assistant Director of Utilities

City of Columbia

701 E. Broadway, 5th Floor

Columbia, MO 65205

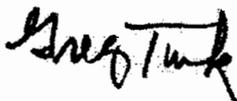
Dear Mr. Williams:

Thank you for the opportunity for Horizons Energy and The Prime Group to submit the enclosed scope of work and pricing to provide assistance in preparing a Cost of Service Study for the City of Columbia.

Our organizations are fully committed to support the goals and objectives required to make this a successful project.

If you have any questions regarding our qualifications, please contact Greg directly at (614) 553-7816 or Larry at (502) 405-3304. We look forward to working closely with you on this important project and thank you for the opportunity to provide our proposal.

Sincerely,



Greg Turk
Managing Partner
Horizons Energy
6216 Memorial Drive
Dublin, OH 43017
greg.turk@horizons-energy.com

Sincerely,



Larry Feltner
Managing Partner
The Prime Group
P.O. Box 837
Crestwood, KY 40014-0837
lfeltner@theprimegrouppllc.com

City of Columbia RFP 140/2018 Electric Integrated Resource and Master Plan Proposal

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Part III – Cost of Service Study

Scope of Work (SOW)

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.
 - a. The Prime Group will prepare a fully-allocated embedded cost of service study using NARUC methodology. The cost of service study will utilize a standardized EXCEL spreadsheet model that functionally assigns, classifies and allocates all of the utility's historical accounting costs for a recent twelve-month period.
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.
 - a. The Prime Group will review and make recommendations with respect to the City of Columbia's current practices for cost of service analysis, debt service coverage calculations, cash reserve policy and rate design structure.
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.
 - a. The Prime Group will construct and provide a financial model that determines the annual cost of providing service (revenue requirement) for a 10-year period. The model will forecast sales and expenses for a 10-year period and calculate the annual revenue requirement. The model can be used to perform scenario analysis to determine the impact on revenue requirement from various policy and financial decisions.
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.

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- a. The Prime Group will review the City of Columbia's current policies on extending its facilities to serve new customers and construct a line extension policy that ensures that existing customers do not bear the cost of providing service to new customers. Line extension policy is critical to ensuring that growth doesn't create upward pressure on rates for existing customers and actually has the beneficial effect of lowering average costs per customer by spreading the utility's fixed costs over more customers. The basis for a good line extension policy is a revenue requirement calculation that determines how much a utility can invest in facilities to serve a new customer based on the revenue generated by the new customer. Facility investment that is not covered by the revenue expected to be generated by the new customer should be paid for up front by the new customer.
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.
 - a. The Prime Group will identify revenue risk in the City of Columbia's current rate structures and offer strategies for mitigating those risks. There is revenue risk inherent in many rate structures that can be mitigated by improving the rate structure or by other measures within the same rate structure. For example, two-part energy rates have revenue risk based on weather patterns. Mild weather will cause the utility to sell less kWh and therefore under recover its revenue requirement. Those risk can be addressed in a variety of ways, including changing the rate structure to a demand rate, raising the customer charge, weather normalizations adjustments, etc.
 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.
 - a. The Prime Group, working with the City of Columbia's staff, will determine the revenue requirement for the City's electric utility. The Prime Group will develop rate design spreadsheets for each existing rate class served by the City of Columbia that shows the billing determinants for each rate component and the revenue derived from each component and show the same billing units applied to the new proposed rate design. The Prime Group will calculate a rate of return for each rate class by dividing the utility margin for each class by the net cost rate base allocated to each class.

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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.
 - a. The Prime Group will work the City of Columbia's staff to evaluate the effect of their renewable targets on rates. This can be accomplished through a revenue requirement analysis whereby the revenue requirement is calculated with renewable costs and with the base case cost that do not include renewables.
8. Identify and evaluate other potential income sources, such as pole attachment fees and electric vehicle charging stations.
 - a. The Prime Group will evaluate other sources of income for the utility, such as pole attachment charges, electric vehicles, etc.
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.
 - a. The Prime Group will conduct a study of financing programs and will recommend the feasibility of models such as PAYS, PACE, etc.
10. Provide benchmark based on current charges compared to other utilities of similar size and geographic region.
 - a. The Prime Group will provide a comparison of the current rates for the City of Columbia and other utilities of similar size in the same geographic region.

Project Team**Larry Feltner – Project Leader**

Larry is a Managing Partner with The Prime Group. He has more than 30 years of experience in preparing cost of service studies, developing retail and wholesale electric rates, developing time of use rates, developing electric vehicle rates, providing support in regulatory proceedings, marketing and forecasting and planning. Larry has worked on over 100 cost of service studies for investor-own, cooperative and municipal utilities.

His accomplishments include developing performance based, time of use rates, distributed generation rates, net metering rates, renewable generation rates and developing tracking mechanisms to recover environmental costs, fuel supply costs and gas supply costs. He has experience in designing and negotiating electric and gas special contracts with large industrial

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and commercial customers. He has also done extensive work on model development and forecasting electric sales, demands and revenues.

Since joining The Prime Group in April 2000, Larry has assisted electric, gas and water clients in developing unbundled products and services, developing new rate schedules, preparing cost of service studies, performing economic evaluations, preparing divestiture studies and developing marketing programs and presenting results of cost of service studies and rate design to utility and municipal utility Boards. He has a B.A. degree in Business Management from Transylvania University and an MBA from the University of Kentucky.

Steve Seelye – Executive Consultant

Steve is one of the founders of The Prime Group and a Managing Partner of the consulting firm. Mr. Seelye has more than 35 years of experience in providing ratemaking, planning, regulatory and marketing support for electric, gas and water utilities. Steve has assisted investor-owned, cooperative and municipal utilities all over the United States and Canada in performing cost of service studies, developing retail and wholesale rates, analyzing revenue requirements, managing major regulatory initiatives, preparing depreciation studies and performing economic studies. He has worked with more than 100 electric, gas and water utilities. He co-founded The Prime Group with Marty Blake in 1996.

Steve Seelye has testified as an expert witness in over 75 rate cases and other regulatory proceedings before numerous state regulatory commissions and the Federal Energy Regulatory Commission ("FERC") in the areas of revenue requirement support, embedded and marginal cost of service studies, rate design, merger and acquisition studies, depreciation studies, lead-lag studies, fuel adjustment clauses, territory disputes and the pricing of reactive power service. During his tenure with The Prime Group, Steve Seelye has testified on behalf of Nevada Power Company, Sierra Pacific Power Company, Mobile Gas Company, Louisville Gas and Electric Company, Kentucky Utilities Company, East Kentucky Power Cooperative, Big Rivers Electric Corporation, Delta Natural Gas Company, Vectren, Central Illinois Lighting Company, Richmond Power and Light, Intermountain Rural Electric Association, Prestonsburg Municipal Utilities, Lee County Electric Cooperative, South Kentucky Electric Cooperative and many other utilities.

Prior to joining The Prime Group, Steve Seelye led the Market Management and Rate department at Louisville Gas and Electric Company where he was responsible for rate and regulatory filings for the gas and electric businesses at the utility. He has managed gas and electric rate cases including strategy development, witness preparation, timeline development, filing preparation, witness preparation, cost of service study development, financial pro forma analysis, rate and tariff development and responding to data requests.

His accomplishments include developing performance-based, environmental cost recovery and fuel supply cost recovery rate mechanisms, as well as negotiating numerous special contracts with large industrial and commercial customers. He also has experience in negotiating sales of generating assets and in negotiating unit power sales. Steve has designed load research programs, prepared electric and gas demand forecasts, prepared system planning studies and performed numerous economic studies.

City of Columbia RFP 140/2018 Electric Integrated Resource and Master Plan Proposal

With expertise in applied mathematics, his technical background includes performing optimization and statistical studies, developing pricing structures for utility products and services, developing cost studies for complex rate filings, preparing financial pro-formas and business cases for new product development, managing the rate case preparation and filing process and preparing financial support for rate case filings. He has a B.S. degree in Mathematics and extensive graduate training in engineering and physics from the University of Louisville. Steve has also taught linear algebra, differential equations, college algebra and AP Calculus to college and high school students.

Eric Blake – Senior Consultant

Eric is a Principal with the Prime Group. He graduated from Purdue University with a Bachelor's Degree in Mechanical Engineering Technology. Since joining The Prime Group in 2000, he has performed cost of service studies, developed unit cost analyses, performed profitability analyses and rate design for electric utility clients. He has made numerous presentations and facilitated strategic planning sessions with Boards of Directors. He has taught classes on cost of service studies and rate design to various clients all over the country.

Jeff Wernert – Senior Consultant

Jeff is a Principal with the Prime Group. He graduated from the University of Louisville with a Bachelor of Science and a Master of Science degree in Electrical Engineering. Since joining The Prime Group, Jeff has performed numerous cost of service studies for cooperatives across the country, developed unit cost analyses for unbundled and time-differentiated rate designs, developed retail and wholesale rates for G&Ts and distribution cooperatives and assisted in retail rate case filings in Kentucky, Indiana and Maryland and presented results of cost of service studies and rate design to cooperative utility Boards and made presentations to trade groups and member meetings for cooperatives. Jeff also assists clients by representing them and providing reports regarding Midcontinent ISO technical committees including the: 1) Market Subcommittee; 2) Balancing Authority Committee; 3) Resource Adequacy Subcommittee; 4) Reliability Subcommittee; and 5) Reliable Operations Working Group.

Proposed Pricing

The cost of the scope of work as described in the above scope of work is \$68,000, as detailed below:

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Task	Brief Description	Projected Cost	Estimated Consulting Number of Weighted Average Consulting Hours
1	Cost of Service Study	\$ 32,000	156
2	Review Current Methodology	5,000	24
3	Cost of Service Forecast	11,000	54
4	Facilities Extension Policies	3,000	15
5	Evaluate Revenue at Risk	3,000	15
6	Develop Rates by Program	4,000	20
7	Evaluate the Effect of Renewable Targets	2,000	10
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 - d. Revenue for each rate schedule for each month of the test year.

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- e. If a rate schedule is a blocked rate, please provide kWh by each rate block. Including any related information need to block kWh, for example kW used to block kWh.
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