A REGULAR MEETING

Of The

TRAVERSE CITY LIGHT AND POWER BOARD

Will Be Held On

TUESDAY, February 13, 2018

At

5:15 p.m.

In The

COMMISSION CHAMBERS
(2nd floor, Governmental Center)
400 Boardman Avenue

Traverse City Light and Power will provide necessary reasonable auxiliary aids and services, such as signers for the hearing impaired and audio tapes of printed materials being considered at the meeting, to individuals with disabilities at the meeting/hearing upon notice to Traverse City Light and Power. Individuals with disabilities requiring auxiliary aids or services should contact the Light and Power Department by writing or calling the following.

Jennifer St. Amour
Administrative Assistant
1131 Hastings Street
Traverse City, MI 49686
(231) 922-4940 ext. 201

Traverse City Light and Power
1131 Hastings Street
Traverse City, MI 49686
(231) 922-4940

Posting Date: 02-09-18
4:00 p.m.

AGENDA

Pledge of Allegiance

1. Roll Call

2. Disclosure of Recusal

3. Consent Calendar

The purpose of the consent calendar is to expedite business by grouping non-controversial items together to be dealt with by one Board motion without discussion. Any member of the Board, staff or the public may ask that any item on the consent calendar be removed therefrom and placed elsewhere on the agenda for full discussion. Such requests will be automatically respected. If an item is not removed from the consent calendar, the action noted in parentheses on the agenda is approved by a single Board action adopting the consent calendar.

a. Consideration of approving minutes of the Regular Meeting and Study Session of January 23, 2018. (Approval recommended) (p. 4)

b. Consideration of MECA Safety Training contract renewal. (Approval recommended) (Dixon) (p. 7)

c. Consideration of authorizing a Construction Agreement with Newkirk Electric Associates, Inc. for the Barlow Substation Transformer Replacement Project. (Approval recommended) (Dixon) (p. 12)

d. Consideration of approving an agreement with Energis Power Systems for substation transformer maintenance. (Approval recommended) (Dixon) (p. 14)

Items Removed from the Consent Calendar

a.

4. Unfinished Business

a. Consideration of the Heritage Option regarding additional solar. (Arends) (p. 16)

5. New Business

a. Consideration of the Fiber to the Premise Project Authorization Request and authorizing staff to seek competitive bids. (Menhart/Arends) (p. 20)

b. Consideration of a Fiber to the Premise Business Plan. (Menhart/Arends) (p. 48)

c. Consideration of the Substation Circuit Exits Project Authorization Request and authorizing staff to seek competitive bids. (Dixon) (p. 49)

d. Consideration of authorizing a consultant agreement with GRP Engineering, Inc. for engineering and construction management services for the Substation Circuit Exits Project. (Dixon) (p. 52)

e. Consideration of the Parsons Switching Station Project Authorization Request and authorizing staff to seek competitive bids. (Dixon) (p. 58)

f. Consideration of authorizing a Consultant Agreement with GRP Engineering, Inc. for engineering, construction management, and testing services for the Parsons Switching Project. (Dixon) (p. 61)

6. Reports and Communications

a. From Legal Counsel.

b. From Staff.

1. Presentation of 2018-19 Fiber Fund Budget. (Myers-Beman) (p. 63)

2. Annual Report. (Myers-Beman/Schroeder) (p. 66)

3. Quarterly Financial Statements. (Myers-Beman) (p. 77)

c. From Board.

1. Consideration of calling a Special Meeting on 2/27/18 to consider the Spartan Renewable Energy offer.

7. Public Comment

/js

TRAVERSE CITY
LIGHT AND POWER BOARD

Minutes of Regular Meeting
Held at 5:15 p.m., Commission Chambers, Governmental Center
Tuesday, January 23, 2018

Board Members -

Present: Jan Geht, Ross Hammersley, Pat McGuire, Jeff Palisin, Amy Shamroe, John Taylor, Tim Werner

Absent:

Ex Officio Member -

Present: Marty Colburn, City Manager

Others: Tim Arends, W. Peter Doren, Jeff Jocks, Karla Myers-Beman, Scott Menhart, Daren Dixon, Kelli Schroeder, Jacob Hardy, Tony Chartrand

The meeting was called to order at 5:15 p.m. by Chairman Geht.

Item 2 on the Agenda being Disclosure of Recusal

Item 3 on the Agenda being Consent Calendar

Moved by McGuire , seconded by Shamroe , that the following actions, as recommended on the Consent Calendar portion of the Agenda, be approved:

a. Approval of the Agenda.

b. Approve Minutes of the Regular Meeting of January 9, 2018.

c. Consideration of authorizing a Letter of Agreement with the Utility Workers Union of America, AFL-CIO Local No. 295.

CARRIED unanimously.

Items Removed from the Consent Calendar

None.

Item 4 on the Agenda being Unfinished Business

None.

Item 5 on the Agenda being New Business

None.

Item 6 on the Agenda being Reports and Communications

a. From Legal Counsel.

1. Discussion of an attorney-client privileged written document.

The following individuals addressed the Board:

W. Peter Doren, General Counsel

Moved by McGuire, seconded by Taylor, that the Board enter into closed session to discuss an attorney-client privileged written document.

Roll Call:
Yes – Hammersley, McGuire, Shamroe, Taylor, Werner, Palisin, Geht

CARRIED unanimously.

5:20 the Board entered into closed session.
5:32 the Board returned from closed session.

b. From Staff.

c. From Board

Item 7 on the Agenda being Public Comment

a. General

No one from the public commented.

There being no objection, Chairman Geht declared the meeting adjourned at 5:35 p.m.

Tim Arends, Secretary
LIGHT AND POWER BOARD

TRAVERSE CITY
LIGHT AND POWER BOARD

Minutes of Study Session
Traverse City Light and Power Board
Held at 5:15 p.m., Commission Chambers, Governmental Center
Tuesday, January 23, 2018

LIGHT AND POWER BOARD MEMBERS -

Present: Jan Geht, Ross Hammersley, Pat McGuire, Jeff Palisin, Amy Shamroe, Tim Werner, John Taylor

Absent:

EX OFFICIO MEMBER -

Present: Marty Colburn, City Manager

OTHERS: Tim Arends, Jeff Jocks, Scott Menhart, Karla Myers-Beman, Daren Dixon, Kelli Schroeder, Tony Chartrand, Jacob Hardy

The meeting was called to order at 5:35 p.m. by Chairman Geht.

1. Discussion regarding Fiber to the Premise.

The following individuals addressed the Board:

Amy Shamroe, City Commissioner
John Taylor, Board Member
Ross Hammersley, Board Member
Tim Arends, Executive Director
Scott Menhart, Manager of Telecom & Technology

Public Comment.

The following individuals from the Public addressed the Board:

b. General

Russell Schindler, 1123 W. Front Street, rate-payer
Megan Crandall, 417 W. Twelfth Street, rate-payer
Brian McGillivary, 332 Huron, rate-payer
Bruce Moore, President, Michigan Broadband Services, non- rate-payer

There being no objection, Chairman Geht declared the meeting adjourned at 7:23 p.m.

_____
Tim Arends, Secretary
LIGHT AND POWER BOARD

/js

TRAVERSE CITY
LIGHT & POWER

To: **Light & Power Board**
From: Daren Dixon, Operations Manager
Date: January 31, 2018
Subject: MECA Safety Training Contract Renewal

Michigan Electric Co-operative Association (MECA) has provided safety-related training to all employees of TCL&P for several years. The attached contract with MECA for Safety Training automatically renewed for an additional three (3) year term on January 1, 2018, for a fixed $28,235/year; however, Board approval is required for the renewal. The MECA contract provides the following invaluable services:

- Onsite safety training required by OSHA and MIOSHA
- Onsite safety training that is required by TCL&P policy
- Annual Offsite line school training (2 seats – 4 workshop trainings)
- Annual Safety Coordinator workshops.
- Training delivered includes procurement or development of all training materials
- Mutual Aid coordination and availability of a local safety representative during major outages
- Information for the internal development of emergency action plans, safety policies and procedures, and job hazard assessments
- Sharing of incidents, statistics, and lessons learned/best practices from around the industry.
- Assistance with accident/incident investigations

It is staff's recommendation to approve the funding of the contract renewal, as the utility is not staffed to provide the items listed above internally.

This item is appearing on the Consent Calendar as it is deemed by staff to be a non-controversial item. Approval of this item on the Consent Calendar means you agree with staff's recommendation.

If any member of the Board or the public wishes to discuss this matter other than clarifying questions, it should be placed on the "Items Removed from the Consent Calendar" portion of the agenda for full discussion. If after Board discussion you agree with staff's recommendation, the following motion is recommended:

(MOTION ON FOLLOWING PAGE)

FOR THE LIGHT & POWER BOARD MEETING OF FEBRUARY 13, 2018

MOVED BY _____, SECONDED BY _____,

THAT THE BOARD AUTHORIZES THE EXECUTIVE DIRECTOR TO ENTER INTO A THREE YEAR AGREEMENT WITH MECA FOR ITS SAFETY TRAINING PROGRAM FROM JANUARY 1, 2018 THROUGH DECEMBER 31, 2020.

Michigan Electric Cooperative Association

SAFETY PROGRAM AGREEMENT

The undersigned municipal utility ("Utility") hereby subscribes to participate in the Employee Safety Program described below (the "Program") and provided by the Michigan Electric Cooperative Association ("MECA").

The Utility and MECA hereby agree as follows:

1. The Program.

MECA shall provide the Program services to the Utility as more particularly set forth on Exhibit "A" attached to this Agreement and incorporated herein by reference.

The Program will be provided at a time scheduled by MECA in a single location within the Utility's service territory or in reasonably close proximity. MECA provides the Program services to multiple utilities and, for efficiency, reserves the right to combine the Utility's Program services with other utilities' participation at a more central location.

2. Term.

The initial term of this Agreement is three (3) years beginning January 1, 2012. The Agreement shall thereafter automatically renew for successive three (3) year renewal terms unless either party provides written notice of non-renewal to the other party not less than six (6) months prior to the expiration of the initial term or any renewal term. MECA may change the fees for the Program services for any subsequent renewal term by providing written notice to the Utility not less than eight (8) months prior to the expiration of the then-current term of this Agreement.

The Agreement may be earlier terminated by either party at any time (i) upon a default of the other party after written notice of the default and failure to cure the default within 30 days after receipt of the notice; or (ii) MECA ceasing to provide the Program services.

Upon an early termination based upon MECA ceasing to provide the Program, all pre-paid Program services shall be provided or the annual payment shall be refunded to the Utility.

3. Fees.

The annual fee for the Program shall be $20,000, payable in advance to MECA by December 1 of each preceding calendar year during the term of this Agreement. The annual fee is subject to change for each renewal term by written notice to the Utility as provided in Section 2.

4. Liability.

The Utility remains responsible for its compliance with all applicable safety requirements and recommendations. Nothing in this Agreement or in the provision of the Program services to the Utility and its employees shall cause MECA to assume any responsibility or any liability to any third party or to the Utility or its employees for the Utility's compliance with any applicable federal, state, local or industry standards or requirements.

The Utility hereby agrees to indemnify and hold MECA, and its directors, members, employees, contractors and agents, harmless from and against any claims made against MECA for any injury, death or damages, including all costs of defense against any such claim, arising out of or made in connection with the Utility's or its employees' failure to properly comply with any applicable safety standard or requirement.

Neither party shall be liable to the other party for any indirect, incidental or consequential damages related to either party's performance or non-performance of their obligations under this Agreement.

5. Assignment.

This Agreement shall be binding upon the parties hereto and their respective successors and permitted assigns; provided, however, that this Agreement may not be assigned by the Utility to any

unaffiliated person without the prior written consent of MECA.

6. **Notices.**

Any notice required or permitted to be given under this Agreement shall be in writing and shall be sent by first class mail, postage prepaid, to the addresses set forth below. Notice shall be deemed to be given upon mailing.

7. **No Agency.**

By entering into this Agreement and performing its obligations hereunder, MECA is acting solely as an independent contractor and shall not be, and shall not be deemed to be, an agent of the Utility for any purpose.

8. **Entire Agreement.**

This Agreement contains the entire agreement of the parties with respect to the provision of the Program services and supersedes all prior correspondence, conversations and negotiations with respect thereto. Except as otherwise provided herein, this Agreement may be changed or otherwise modified only in writing and signed by both parties hereto.

9. **Governing Law.**

This Agreement shall be governed by and interpreted in accordance with the laws of the State of Michigan.

The undersigned parties have caused this Agreement to be executed by their duly authorized officers or representatives as of the date accepted and executed by MECA below.

TRAVERSE CITY LIGHT & POWER

By: Edward S. Rice

Its: Executive Director

Address: 1131 Hastings Street

Traverse City, MI 49686

Accepted 29 Nov, 2011

MICHIGAN ELECTRIC COOPERATIVE ASSOCIATION

By: _____
Craig Borr, President and CEO

Address: 2859 W. Jolly Road
Okemos, MI 48864

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ID\WJP - 025166/0999

MECA

EXHIBIT "A"
Description of Employee Safety Program Services

SEGMENT PARTICIPANTS:

Traverse City L&P
Annual Program Investment: **$20,000**

Proposed Host Location:

Traverse City, MI

Term:

2012 - 2014

INCLUDED PROGRAM DELIVERABLES:

- **Eight (8) Traditional Safety Meetings**
  All safety meetings to be delivered at designated host location, topics to be selected from an approved list of available programs. Up to two (2) meetings can be substituted for equal number of Block Training or Crew Observation a la carte items.
- **Four (4) Safety Workshops**
  Attendance for up to two (2) utility employees per workshop per year. Pricing for additional participants to be determined. To be held jointly with other safety program participants. Workshop topics include:
  - **Accident Investigation Workshop**
  - **National Electric Safety Code (NESC) Workshop**
  - **Chainsaw Workshop**
  - **Safety Coordinators Workship**
- **Continued Participant Advantages**
  - **Mutual Aid Support**
  - **Accident Investigation**
  - **Accident and Near-Miss Review and Discussion**
- **Reliable Public Power Provider (RP3) Support and Assistance**

A LA CARTE OPTIONS:
Annual safety investment amount DOES NOT include the following a la carte items, available upon request:

- **Block Training**
  Hourly Rate: **(TBD)**
- **Crew Observations**
  Hourly Rate: **(TBD)**
- **Additional Workshop Participants**
  Cost Per Additional Participant: **(TBD)**

Program pricing calculated as follows: $12,500 site location fee divided equally among all segment participants, plus a utility fee of $7,500 (large utility) or $3,500 (small utility).

TRAVERSE CITY
LIGHT & POWER

To: **Light & Power Board**
From: Daren Dixon, Operations Manager
Date: February 5, 2018
Subject: Barlow Substation Transformer Replacements – Construction Agreement

At the May 9, 2017 Regular Board Meeting, staff presented and the Board approved the 69/13.8kv Barlow #1 and #2 Transformer Upgrades Project Authorization Request (Project). This Project is being undertaken to replace and upgrade the aged transformers currently in use at the Barlow Substation. Staff issued a Request for Proposals (RFP) for the installation of these two transformers and bids were received as follows:

Vendor		Price
Kent Power, Inc.	$	230,161
Newkirk Electric Associates, Inc.	$	164,267
Rauhorn Electric, Inc.	$	236,905
Reinhausen Manufacturing, Inc.	$	120,609

Reinhausen Manufacturing, Inc. did not attend the mandatory pre-bid meeting stipulated in the RFP, their bid is considered disqualified. Traverse City Light & Power (TCL&P) has previously conducted business with the low bidder, Newkirk Electric Associates, Inc., and is recommending TCL&P accept their bid and enter into a construction agreement. The recommended bid is higher than was anticipated from the estimated breakdown; however, it still fits within the overall budget.

This item is on the Consent Calendar as it is deemed non-controversial. Approval of this item on the Consent Calendar means you agree with staff's recommendation.

If any member of the Board or the public wishes to discuss this matter other than clarifying questions, it should be placed on the "Items Removed from the Consent Calendar" portion of the agenda for full discussion. If after Board discussion you agree with staff's recommendation, the following motion is recommended:

MOVED BY _____, SECONDED BY _____,

THAT THE BOARD AUTHORIZES THE CHAIRMAN AND SECRETARY TO ENTER INTO A CONSTRUCTION AGREEMENT FOR THE BARLOW SUBSTATION TRANSFORMER INSTALLATION WITH NEWKIRK ELECTRIC ASSOCIATES, INC. IN THE AMOUNT OF $164,267; SUBJECT TO APPROVAL AS TO SUBSTANCE BY THE EXECUTIVE DIRECTOR AND AS TO FORM BY GENERAL COUNSEL.

TRAVERSE CITY LIGHT & POWER

Traverse City Light & Power
Bid Tabulation Form

Project Name: Barlow Substation Transformer Installation

BIDDER	BID SECURITY	TOTAL CONTRACTOR BASE BID PRICE	REMARKS
Kent Power, Inc. 90 Spring Street Kent City, MI 49330	10%	$ 230,161.00	
Newkirk Electric Associates, Inc. 1875 Roberts Street Muskegon, MI 49442	10%	$ 164,267.00	Low Bid
Rauhorn Electric, Inc. 17171 23 Mile Road Macomb, MI 48042	10%	$ 236,905.00	
Reinhausen Manufacturing, Inc. 2549 N. 9th Avenue Humboldt, TN 38343	10%	$ 120,609.00	Did not attend the mandatory pre-bid meeting, bid is disqualified.

This is to certify that at 2:00PM, local time on Monday, February 5, 2018, the bids tabulated herein were publicly opened and read.

Traverse City Light & Power

By: _____

Tony Chartrand, System Engineer

TRAVERSE CITY
LIGHT & POWER

To: **Light & Power Board**
From: Daren Dixon, Operations Manager
Date: January 31, 2018
Subject: Substation Transformer Maintenance – Construction Agreement

Staff issued a Request for Proposals (RFP) for a third party vendor to provide all labor necessary for the maintenance and testing of Hall Street, Parsons and Cass Road substation transformers. All maintenance and inspections are to be completed by June 30, 2018. Bids were received as follows:

Vendor	Price
Delta Star	$ 109,750.00
Electric Power Systems	$ 172,580.00
Energis Power Systems	$ 109,252.28
Newkirk Electric Associates	$ 134,500.00
Premier Power Maintenance	$ 151,130.00
Reinhausen Manufacturing, Co.	$ 240,302.36
Vertiv Group Corporation	$ 21,930.00

Vertiv Group Corporation did not provide the bid bond required and did not bid on all maintenance and inspections requested in the RFP, their bid is considered incomplete. Traverse City Light & Power (TCL&P) has previously conducted business with the low bidder, Energis Power Systems, and is recommending TCL&P accept their bid and enter into a construction agreement.

This item is on the Consent Calendar as it is deemed non-controversial. Approval of this item on the Consent Calendar means you agree with staff's recommendation.

If any member of the Board or the public wishes to discuss this matter other than clarifying questions, it should be placed on the "Items Removed from the Consent Calendar" portion of the agenda for full discussion. If after Board discussion you agree with staff's recommendation, the following motion is recommended:

MOVED BY _____, SECONDED BY _____,

THAT THE BOARD AUTHORIZES THE CHAIRMAN AND SECRETARY TO ENTER INTO A CONSTRUCTION AGREEMENT FOR SUBSTATION TRANSFORMER MAINTENANCE AND INSPECTIONS WITH ENERGIS POWER SYSTEMS IN THE AMOUNT OF $109,252.28, SUBJECT TO APPROVAL AS TO SUBSTANCE BY THE EXECUTIVE DIRECTOR, AND AS TO FORM BY GENERAL COUNSEL.

TRAVERSE CITY LIGHT & POWER

Traverse City Light & Power
Bid Tabulation Form

Project Name: Substation Transformer Maintenance

BIDDER	BID SECURITY	TOTAL CONTRACTOR BASE BID PRICE	REMARKS
Delta Star 3550 Mayflower Drive Lynchburg, VA 24501	10%	$ 109,750.00	
Electric Power Systems 11861 Longsdorf Street Riverview, MI 48193	10%	$ 172,580.00	
Energis High Voltage Resources 1361 Glory Road Green Bay, WI 54304	10%	$ 109,252.28	Low Bid
Newkirk Electric Associates 1875 Roberts Street Muskegon, MI 49442	10%	$ 134,500.00	
Premier Power Maintenance 7262 Kensington Road Brighton, MI 48116	10%	$ 151,130.00	
Reinhausen Manufacturing, Co. 2549 N. 9th Avenue Humboldt, IN 38343	10%	$ 240,302.36	
Vertiv Group Corporation 610 Executive Campus Drive Westerville, OH 43082	None	$ 21,930.00	Incomplete Bid

This is to certify that at 2:00PM, local time on Tuesday, January 30, 2018, the bids tabulated herein were publicly opened and read.

Traverse City Light & Power

By: _____

Tony Chartrand, System Engineer

TRAVERSE CITY
LIGHT & POWER

To: **Light & Power Board**
From: Tim Arends, Executive Director
Date: February 5, 2018
Subject: Heritage Option

At the November 28, 2017 board meeting, Heritage Sustainable Energy, LLC's ("Heritage") expansion letter was introduced to the Board. The letter provides notice Heritage would like to provide additional solar energy in an amount of 2.25 MW in accordance with the Amended and Restated Power Purchase Agreement ("Agreement") dated August 16, 2017. Construction is planned to commence in the spring of 2018 subject to zoning approval from Elmwood Township.

In accordance with the Agreement, the utility has two options. (1) The utility, within sixty days of the receipt of the expansion notice, has the option to elect to purchase all, and not less than all, of the additional solar energy generated at a price of $99.50/MWh. (2) If the utility does not exercise this option, the utility will purchase the additional solar energy at the LMP Real-Time hourly rate at the Cons.TC Node not including capacity or renewable energy credits.

In addition to the option, Heritage has agreed to donate a 2% royalty interest in the project to the Father Fred Foundation with the proceeds therefrom to be utilized to help pay electric bills for Traverse City Light & Power (TCL&P) customers who are in need of such help. In addition, they have provided the option to reserve an additional 250 kW of solar panels that could be utilized for community solar on terms and conditions yet to be negotiated.

This information was provided to the City's Green Team along with the other renewable energy offers presented at the November 2017 board meeting. They have responded at this time they are interested in pursuing other renewable energy offers that would not require a rate subsidy paid by the city. TCL&P staff also provided an update on renewable energy including information on this proposal at the January 8, 2018 City Commission Study Session and at this time there appears no interest by City staff to move forward with this option.

Based on the avoided cost of solar currently estimated at $80.00/MWh if the option were to be executed for a fixed price of $99.50/MWh, this renewable energy would be a premium cost to the utility of approximately $49,000 per year averaged over the 20-year term of the agreement. Initially, this agreement is estimated to affect the projected wholesale price of electricity in 2018-19 by an increase of $.30 per MWh. (This would impact an average residential household annual costs by $1.80 and an average large industrial by $900.)

If the Board would like to move forward and exercise the option provided by Heritage consisting of purchasing an additional 2.25MW for $.0995 per kWh the following motion would be appropriate:

MOVED BY _____, SECONDED BY _____,

THAT STAFF EXERCISES THE OPTION DATED NOVEMBER 2, 2017 ALLOWED BY THE AMENDED AND RESTATED PURCHASE POWER AGREEMENT DATED AUGUST 16, 2017 FOR THE UTILITY TO PURCHASE 2.25 MW OF SOLAR ENERGY AT A FIXED PRICE OF $.0995 PER KWH.

Heritage
Sustainable Energy

November 2, 2017

Mr. Tim Arends
Traverse City Light & Power
1131 Hastings Street
Traverse City, MI 49686

Dear Mr. Arends:

I am writing to you regarding the Amended and Restated Power Purchase Agreement dated August 16, 2017 by and between TRAVERSE CITY LIGHT & POWER DEPARTMENT ("TCLP"), a Michigan municipal electric utility, ("Buyer") and HERITAGE SUSTAINABLE ENERGY, LLC ("Heritage"), a Michigan limited liability company ("Supplier"), ("the Agreement").

Specifically, pursuant to Section 6.2.2 of the Agreement, Supplier would like to supply Additional Solar Energy in an amount of 2.25 MW to be constructed in the spring of 2018. This letter will therefore serve as the Expansion Notice as set forth in the Agreement.

Also, as we discussed in our recent telephone conversation, Heritage will be making the following donation: we will donate a 2% royalty interest in the project to the Father Fred Foundation with the proceeds therefrom to be utilized to help pay electric bills for TCLP customers who are in need of such help. The 2% royalty would be for the entire 20 year term of the purchase contract with TCLP. TCLP would simply pay the Father Fred Foundation 2% of the value of the electricity generated from the 2.25 MW array and Heritage would receive 98%. Heritage prides itself on being a good corporate citizen of Traverse City, and on behalf of itself and its employees, is happy to be able to help in this regard.

Finally, again per our conversation, we will be reserving space for an additional 250 kW of solar panels. This space could be utilized for community solar on terms and conditions to be negotiated between TCLP, Heritage and the community. My understanding is that there is interest in the community for such a project, and we would be gratified to be part of making that happen.

Please let me know at your earliest convenience whether TCLP will be exercising its option to purchase the Additional Solar Energy.

Sincerely,

Martin G. Lagina

President and CEO, Heritage Sustainable Energy, LLC

Traverse City Light and Power
Heritage Proposal

Size of facility	2.25 MW
Annual Production	2,562,300 kWh's
Purchase Price	$ 0.0995
RECS	Included
Operational	2018
Assumes	Capacity credit and renewable recs provided

	Calendar Year	Annual Production	Purchase Price	Annual Cost	Short Term Run Without Inclusion of RECS	Estimated Costs if Purchased off the Market	Premium as a cost per kWh	Premium in Dollars
					Based on 13% Capacity Factor			
1	2019	2,562,300	$ 0.0995	254,948.85	$ 0.0596	$ 152,713.08	$ 0.0399	$ 102,235.77
2	2020	2,549,489	$ 0.0995	253,674.11	$ 0.0593	$ 151,184.67	$ 0.0402	$ 102,489.44
3	2021	2,536,741	$ 0.0995	252,405.74	$ 0.0635	$ 161,083.06	$ 0.0360	$ 91,322.68
4	2022	2,524,057	$ 0.0995	251,143.71	$ 0.0668	$ 168,607.03	$ 0.0327	$ 82,536.68
5	2023	2,511,437	$ 0.0995	249,887.99	$ 0.0691	$ 173,540.30	$ 0.0304	$ 76,347.69
6	2024	2,498,880	$ 0.0995	248,638.55	$ 0.0701	$ 175,171.48	$ 0.0294	$ 73,467.07
7	2025	2,486,385	$ 0.0995	247,395.36	$ 0.0718	$ 178,522.48	$ 0.0277	$ 68,872.88
8	2026	2,473,954	$ 0.0995	246,158.38	$ 0.0742	$ 183,567.35	$ 0.0253	$ 62,591.02
9	2027	2,461,584	$ 0.0995	244,927.59	$ 0.0765	$ 188,311.16	$ 0.0230	$ 56,616.43
10	2028	2,449,276	$ 0.0995	243,702.95	$ 0.0783	$ 191,778.30	$ 0.0212	$ 51,924.65
11	2029	2,437,029	$ 0.0995	242,484.43	$ 0.0806	$ 196,424.58	$ 0.0189	$ 46,059.86
12	2030	2,424,844	$ 0.0995	241,272.01	$ 0.0826	$ 200,292.14	$ 0.0169	$ 40,979.87
13	2031	2,412,720	$ 0.0995	240,065.65	$ 0.0853	$ 205,805.03	$ 0.0142	$ 34,260.63
14	2032	2,400,657	$ 0.0995	238,865.32	$ 0.0875	$ 210,057.45	$ 0.0120	$ 28,807.88
15	2033	2,388,653	$ 0.0995	237,671.00	$ 0.0897	$ 214,262.20	$ 0.0098	$ 23,408.80
16	2034	2,376,710	$ 0.0995	236,482.64	$ 0.0916	$ 217,706.63	$ 0.0079	$ 18,776.01
17	2035	2,364,826	$ 0.0995	235,300.23	$ 0.0940	$ 222,293.68	$ 0.0055	$ 13,006.55
18	2036	2,353,002	$ 0.0995	234,123.73	$ 0.0965	$ 227,064.72	$ 0.0030	$ 7,059.01
19	2037	2,341,237	$ 0.0995	232,953.11	$ 0.0992	$ 232,250.74	$ 0.0003	$ 702.37
20	2038	2,329,531	$ 0.0995	231,788.34	$ 0.1004	$ 233,884.92	$ (0.0009)	$ (2,096.58)
	Total	**48,883,313.28**		**$ 4,863,889.67**		**$ 3,884,520.99**		**$ 979,368.68**
							Average	**$ 48,968.43**

TRAVERSE CITY
LIGHT & POWER

To: **Light and Power Board**
From: Tim Arends, Executive Director
Date: February 1, 2018
Subject: Fiber to the Premise (FTTP) Project Authorization

TCL&P has been studying the feasibility of a Fiber to the Premise (FTTP) project at great lengths, which included a Study Session on 1/23/2018 with the full Board. From this study session, several directives were given to Staff to bring forward to a future Board meeting. This included a project authorization and to seek bids for a phased approach of the entire FTTP project.

The utility first considered this project more than a decade ago when it approved a dark fiber project in coordination with TCAPS. While the utility has several non-profit entities connected to that system, including the county, city, TCL&P, all schools within the area and others, it is recognized that this is an underutilized asset that could be deployed for the betterment of the community.

The cost within the approved Capital Improvement Plan (CIP) is currently at $11,000,000. This was approved by the board with the thought of having an outside entity serve at the ISP. However, after several meetings with the board appointed Ad Hoc Committee it was determined that TCL&P should serve as the ISP, at least in the initial phase. The reasoning behind this approach would be that the business plans that have been provided could be tested with actual results, as well, this approach could determine if the utility has or can attain the competency needed to run the system. The board determined that this decision, of who acts as the ISP, could be decided at a later date.

Staff, based on input from the board, is recommending a phased approach, circuit by circuit. Based on advice from our consultants, the first phase would include circuits HL-22, HL-31, and HL-33 out of the Hall Street Substation. These circuits would cover all of Central Neighborhood, almost all of the downtown area including 8th Street, and the entirety of Woodmere Avenue.

There are members of the board that would like a more detailed business plan before embarking on such an ambitious project. Conexon did provide a more "professional," full business plan report, which is attached. As well, a business plan was provided nearly ten years ago from Utility Financial Solutions (which, of course, would need updating). Another option could be to hire the company that performed the Holland Study, which some board members favored. This decision could be addressed by the board in the following agenda item.

Regardless of the forward path for TCL&P, the board desired the fastest deployment, while satisfying the many concerns and need for more information. While initially staff suggested that engineering and design could be done in coordination with an updated or new business plan, it was determined that bids should be sought for not only engineering and design, but for construction of the system and full deployment of the network (including testing, etc.). The reason is that it would be difficult to hold one company accountable for the proper functioning of the system if they were not also responsible for its design and construction.

Therefore, staff recommends and seeks Board approval to solicit proposals by method of an RFP for engineering/design, construction, and operations and maintenance of the system on a circuit by circuit basis. Future expansion of the system can be determined by the board, based on the results of prior deployments. The actual bids will help identify the true cost of the system for TCL&P.

MOVED BY _____, SECONDED BY _____,

THAT THE BOARD APPROVES THE PROJECT AUTHORIZATION REQUEST FOR FIBER TO THE PREMISE PROJECT; AND FURTHER AUTHORIZES STAFF TO SOLICIT PROPOSALS BY METHOD OF AN RFP FOR THE BOARDS FUTURE CONSIDERATION OF APPROVAL.

PROJECT AUTHORIZATION REQUEST

TRAVERSE CITY LIGHT & POWER

Project Name: Fiber to the Premise (FTTP)

Budgeted in CIP: Yes

Dollar Amount Budgeted: $11,000,000

Date of Board Presentation: February 13, 2018

Objective: To provide the benefits of high-speed internet access (and associated services) through a fiber optic network to all customers of TCL&P through a not-for-profit system that allows for local control of rates while proving the highest reliability of services.

Project Description:

The project consists of rolling out fiber in a phased approach to all customers served by TCL&P. Phase I of the project including circuits HL-22, HL-31, and HL-33 out of the Hall Street Substation (see the attached map).

Project Purpose and Necessity:

The purpose of this project is to utilize TCL&P's spare capacity fiber as a benefit for the entire community.

This project will also diversify TCL&P's offerings of solely providing electric services to include broadband services. With ongoing initiatives on power consumption reduction, TCL&P could add additional service offerings for long-term utility sustainability. Given that TCL&P already owns and operates the fiber backbone serving dark fiber customers, this project would expand upon this existing service while giving TCL&P another service offering to its portfolio.

Finally, as TCL&P is primarily a distribution company for electric services, this would be a very similar operation in nature to be a distribution company for fiber services.

Project Benefits:

The electrical grid will take advantage of fiber throughout the service territory for different items, such as distribution automation. Because the fiber would become more readily available, grid modernization projects would become more readily available.

Fiber throughout the area could also be utilized for a myriad of different opportunities and potential throughout the city. For example, fiber connections could be deployed to streetlights for monitoring and traffic calming. Currently, running fiber to just streetlights is cost prohibitive, but because of a large-scale deployment, it makes projects like this cost effective.

Many organization within the community, including leaders of some of the largest employers,

tremendous. That this service would increase property values, attract industry and entrepreneurs to the area and put the City of Traverse City in the forefront to become a tech hub in Northern Michigan.

Other Alternatives:

Do nothing and continue with operations as normal, or proceed by proving lit fiber services to the existing dark fiber customers.

Timing of Project:

Staff would put together an RFP for engineering design, construction, and deployment services for the board's future consideration in early 2018.

Project Timeline and Expenditures

RFP and selection will happen in 2018. Anticipated project start dates would be the first quarter of 2019. The expected project completion date for phase one would is the first quarter of 2020; however, customers can be served as the system is constructed.

Target Completion date of 2020 for full deployment of Phase I.

Preliminary Engineering Cost Estimate: These amounts will be determined as bids are received as the only estimates currently are included in the study for full deployment (see the full Conexon Study attached).

Financing Method:

Current cash reserves from the electric fund could be utilized through an interdepartmental loan to the fiber fund for Phase I of the project, or the utility could employ short-term borrowing, as allowed by city charter.

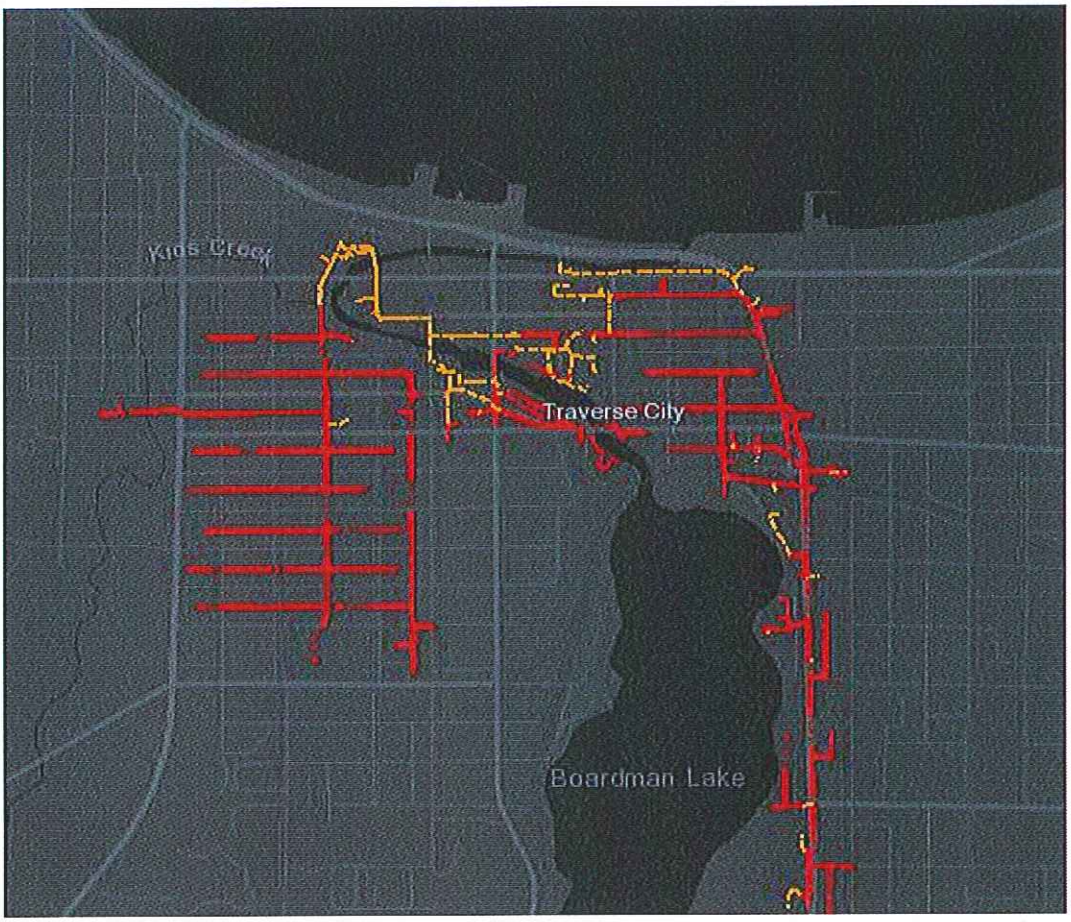
Additional Revenues: Customers of this project would bring in additional revenues to the TCL&P Fiber Fund as determined by Board approved rates. It is the intent that the TCL&P electric ratepayer's not subsidize this separate enterprise in the long-term. The users of the system will support its construction and operations going forward.

Impact on O&M Expenses: Depending on the future decision as to whom will service as the ISP (TCL&P or an outside provider(s)) staffing levels will change to adequately service the customers and maintain the network.

Staff Recommendation:

Staff recommends the board approve the Project Authorization Request, as presented, and authorize staff to seek bids for all aspects of FTTP (in an a la carte format).

This would include, but is not limit to, the following items: Project Management, Engineering Design for Fiber & Electronics, Fiber Construction, Electronics Installation and Provisioning, Fiber and Electronics O&M, Customer Call Center, etc.


Traverse City
Boardman Lake

TRAVERSE CITY
LIGHT & POWER

conexon

1. Background and Introduction

Conexon submits this report to Traverse City Light & Power (TCLP) as a supplement to the presentation made in February 2017 and the materials supplied at that time.

Conexon's sole mission is to support electric cooperatives in rising rural America by bringing world-class fiber to the home (FTTH) and 4G LTE mobile wireless connectivity to unserved and underserved areas of the country. In 2016, Conexon was retained by several Michigan electric cooperatives to produce a statewide business plan for fiber to the home networks across the state using electric cooperative infrastructure. Three of the electric cooperatives involved in the statewide plan are now constructing and/or operating fiber networks to serve their members.

In August 2016, TCLP engaged Conexon to produce a plan based on the approach being used by Michigan electric cooperatives.

Conexon's Methodology

We are a team of professionals from electric cooperatives and from the telecommunications industry who have been part of groundbreaking endeavors throughout our careers, including:

- the first rural gigabit service;
- the first FTTH network built to 100% of the members of an electric cooperative;
- the first rural network to deploy Next Generation PON technology;
- the first rural FTTH network built completely without government assistance;
- the first U.S. National fiber optic network;
- the first private Trans-Atlantic fiber optic network;
- the first U.S. national wireless network;
- the first U.S. national digital wireless data network.

To date, the Conexon team has assisted over fifty electric cooperatives with their fiber businesses, prepared business plans for dozens of coops and designed or managed construction for over a dozen coop fiber projects.

This report contains a complete and actionable business plan to construct, operate and maintain a FTTH network to TCLP's electric customers. The essence of the business plan is to deploy a FTTH network within two years and make available 100 Mbps and Gigabit services at affordable prices to 100% of Traverse City, including all homes, businesses and public institutions, without any subsidization from TCLP's electric customers. Our response herein details the output of that business plan, including our proposed business structure, key assumptions, plans and pricing, 10-year financial forecasts, and the roles and responsibilities of TCLP and a separate subsidiary or third-party operator.

Starting with the Co-Mo Connect project in Missouri, and with every coop we've assisted, we recommend that (1) the objective is universal service – the same high level of service at the same prices to 100% of a coop's members, (2) the electric-only members of the coop should

not subsidize the fiber business, and (3) the fiber network will be a valuable, long-term asset of the coop and should be owned by the members. The structural design we have established for coops across the country is one by which the coop owns the fiber and leases the fiber either to a separate subsidiary or a third party operator. Whether the operator is a separate subsidiary or third party, the business plan is the same.

We have taken the same approach in our planning for TCLP: 100% coverage without cross-subsidies from the electric ratepayers. This approach is the same whether TCLP chooses to operate the network or, as TCLP has requested, utilizes a third-party network operator.

This report contains the output of the business plan. We would welcome the opportunity to discuss our findings and proposals again in person or by phone, and to respond to any additional questions that may arise.

2. Business Structure

We propose a business structure whereby TCLP will own and maintain fiber constructed on TCLP's distribution lines to every TCLP electric customer, and a subsidiary or third-party operator will enter into an exclusive lease for dark fiber to operate the network and provide internet access, telephone and television services to TCLP's electric customers. TCLP's needs for internal communication and smart grid can be fulfilled by the operator, or can be addressed by reserving fiber strands for TCLP's needs.

At a high level, the business structure establishes clear demarcation lines and responsibilities. Specifically:

- TCLP contracts with Conexon or other firm for fiber design and project management
- TCLP owns the fiber on distribution lines
- TCLP leases dark fiber to separate subsidiary or third-party operator
    - Fiber lease calculated to provide TCLP positive cash flow in the first year and every year
- Guaranteed positive rate of return from lease for all fiber assets
- Separate subsidiary or third-party operator owns electronics and provides retail service
- Service made available to 100% of TCLP electric customers

The dark fiber lease payment will be calculated to fully cover TCLP's costs of construction, cost of money, maintenance, plus a share of revenue for a guaranteed return on investment. We have prepared a dark fiber lease agreement, which we will provide upon request. The agreement is set up so that the operator will pay TCLP on a per mile basis for fiber as the fiber is constructed and capable of being lit. By covering all of TCLP's costs, the agreement is designed to ensure that TCLP will be cash flow positive in the first year and every year.

The dark fiber lease payment ensures that the electric ratepayers do not subsidize the fiber business. An exclusive dark fiber lease will protect the electric ratepayers. Should TCLP decide

instead that it would prefer an open access network, we would caution against arrangements that will not fully cover TCLP's cost of construction and maintenance of the network.

In order to provide you financial detail, we have prepared a business plan that is split between the infrastructure owner (TCLP) and the operator. The first ten years of a 20-year financial plan is set out in the sections titled Financial Forecast.

This split business plan contains hundreds of assumptions based upon our experience and the dozens of coop fiber projects we have assisted. For the fiber infrastructure, the assumptions include:

- 24-month project duration
- Two phases of construction with board approval for each phase
- Distributed split or tap architecture for GPON technology
- All passive network from substation to premise
- Any financial benefit to TCLP from smart grid or economic development is an additional benefit, not calculated in the model
- 20-year bond, 2.75% interest
- 58% aerial, 42% underground (primary distribution)

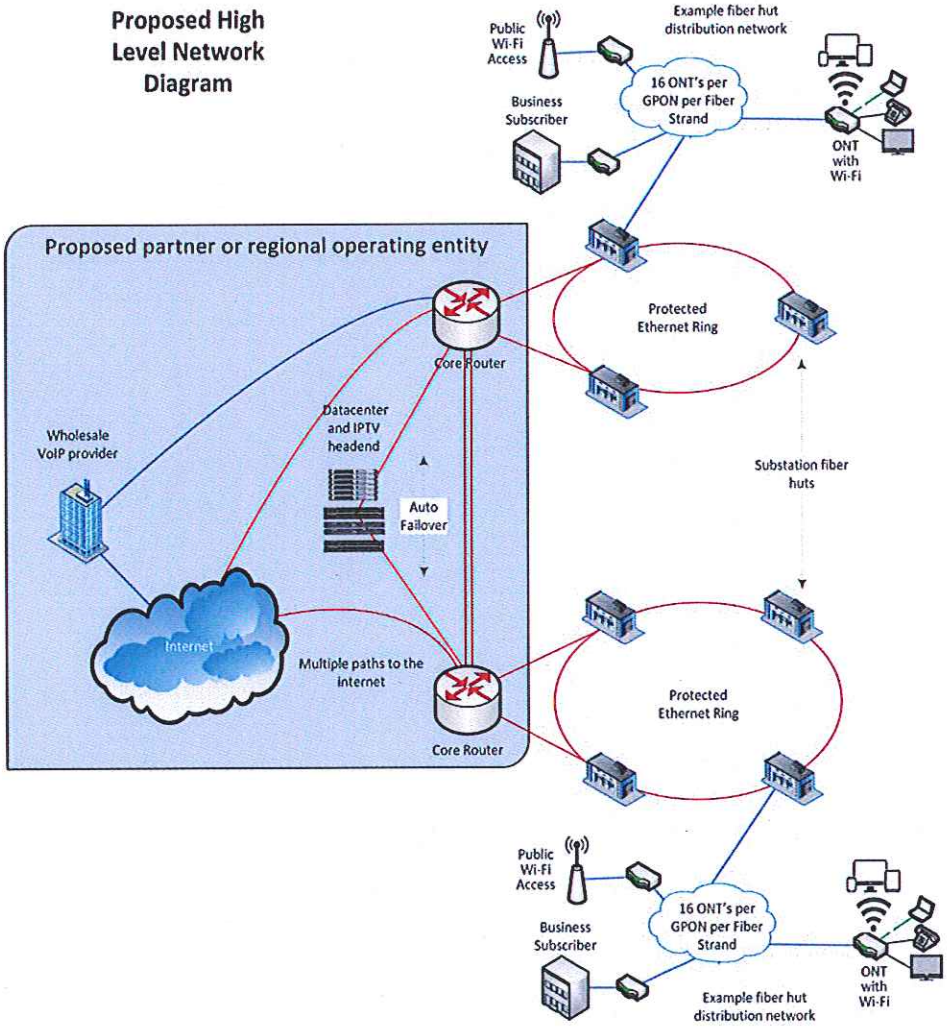
For operations, the assumptions include:

- 2-year project schedule coincides with cooperative fiber build
- GPON fiber to the home architecture
- Full triple play model
- 100 Mbps for $49.95 and Gigabit for $79.95 all symmetrical
- Residential unlimited local and long distance phone $24.95
- VoIP phone service provided by Third Party voice provider
- Percent taking service within 24 months of each phase start: 25%
- Penetration growth rate of 3% annually capping at 50%
- Declining phone take rate beginning at 25% of connects
- Declining TV take rate beginning at 60% of connects
- Gradually increasing highest internet tier take rate
- $50 marketing cost per new passing
- Installation charge of $100
- Smart grid communication to substations and downline SCADA devices provided at no charge to TCLP

We believe this structure fully satisfies TCLP's project requirements. Further detail is contained in our response to sections on the technology, deployment schedule and financing, all of which tie back the business plan described above.

3. Technology and Operations

The proposed solution to meet TCLP customers' need for broadband is a FTTH network. TCLP's operator would light the network utilizing gigabit passive optical network (GPON) technology. The distribution network would be an all passive network with no electronics between the substation equipment and the home. The network design will accommodate both XGS-PON and NG-PON2 technologies which have both been tested on an existing electric cooperative network eventually accommodating 82.5 Gbps capacity per strand of fiber.



Proposed high level network design. Diagram does not depict all substations or distribution feeders.

A telecommunications building would be installed at each substation and would include GPON access equipment connected via fiber on transmission or distribution lines. New fiber would be deployed to reach substations not yet connected to fiber optics. The demarcation points

between TCLP and the operating entity are the fiber patch panel located in substation telecommunication building/shelter and network interface device closure (NID) on side of home or at electric meter location. We propose indoor ONT's that are connected to NID demarcation with Wi-Fi availability. The operating entity will own the electronics at the substations and the customer premises, as well as the headend and other facilities necessary to provide video services. TCLP would be responsible for maintaining the physical fiber cable on transmission and distribution lines.

The FTTH network would provide gigabit capable internet, telephone with unlimited long distance, IP television, and SCADA and smart grid networking. Additional services such as home security, streaming video, monitoring, and demand response can be evaluated in the future.

We recommend a tap or distributed split architecture for GPON technology. We design and construct both distributed tap and distributed split architecture and leave excess strands for dedicated and point to point circuits. The GPON network will support private VLAN's to offer point to point ethernet circuits across the entire network. The network will be capable of NG-PON2 which also introduces multiple wave lengths for shared access and dedicated point to point waves.

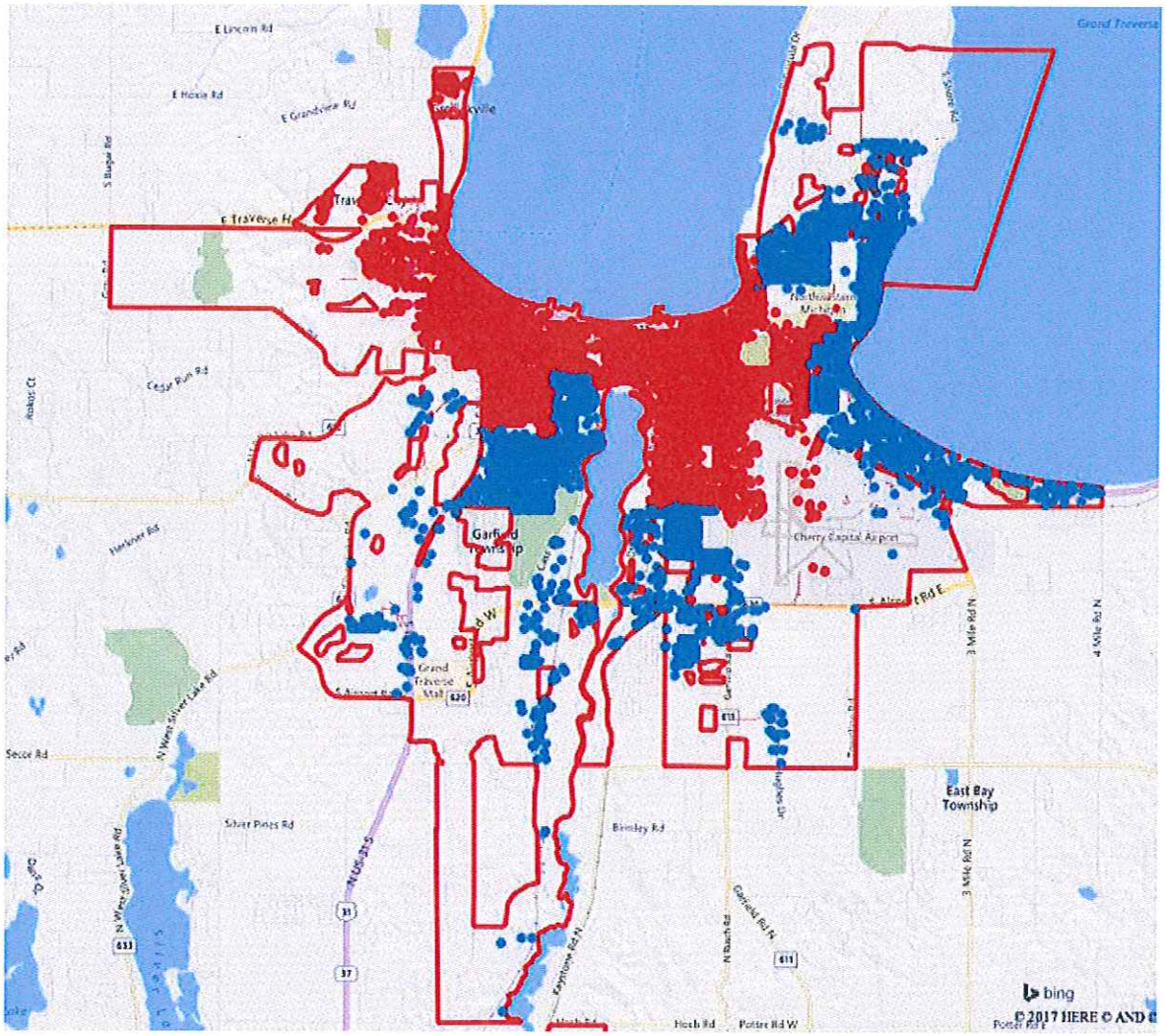
A significant majority of all costs of a rural FTTH deployment are construction and materials. Ongoing advancements in electronics have meant that the capacity of that plant can be upgraded with electronics, rather than the addition of more fiber strands. A typical GPON or gigabit passive optical network capable of 2.5 Gbps on a single fiber can be upgraded with the new next generation, NG-PON2, standard, which will support 80 Gbps on a single fiber. This upgrade can be done with a "success-based" method, inserting the waves on the existing fiber keeping the original 2.5 Gbps GPON network intact. This allows the preservation of existing investment while enabling exponential growth in capacity.

4. Schedule

Below is our proposed 2-year schedule construction schedule. Construction would follow the structure of the electric network, substation by substation and feeder by feeder. As each feeder is constructed, the customers served electrically by the feeder will be notified of the opportunity to subscribe to service, so that mainline construction, drops to the home, and installations are performed in an efficient manner.

At the end of the first phase of construction, we would review with the TCLP board the actual costs and revenues as compared to the business plan we have presented, and make any necessary adjustments. Since the dark fiber lease fee is based on the cost of construction, we would re-calculate the lease fee if costs have been materially different than the plan.

The order of substations identified below can be modified, particularly if TCLP has other priorities. Generally, we favor constructing to more densely populated substations in the early phases, and the order below reflects such an approach.



First phase depicted by meters colored red; second phase depicted by meters colored blue.

Phase	Services passed	Aerial miles	UG miles	Total miles	Density	Capital investment
1	6,121	47	26	73	83.7	$8,263,762
2	4,675	59	52	111	42.3	$7,948,533
	10,796	**106**	**78**	**184**	**58.8**	**$16,212,295**

5. Competition and Take Rates

Subscriber take rate is critical to meeting revenue projections in the financial model. Take rate is also the biggest unknown variable when starting a project. Several factors play into take rate including demographics, competition, and packaging and pricing. In addition to subscriber take rate, higher service tier take rates can help drive additional revenue from an existing fiber connection.

Assumptions used in these projections are supported by using the take rates of other similar projects. TCLP's demographics were compared to other cooperative and municipal electric FTTH projects. Competition will be the main factor in predicting customer take rates. All take rates below are projected at 24 months after construction begins in an area.

Four different categories of competition were utilized to predict take rates. Using FCC 477 data along with other publicly available data, every service point in TCLP's territory was classified into four categories and given a predicted take rate probability. Using this methodology, the following take rates were determined:

- Unserved – Any location that did not have at least an advertised 10 mbps service available.
- DSL class service – Locations with speeds available up to 24 mbps.
- Full triple play broadband competition with greater than 25mbps download speed – These locations have all three services available with good broadband speeds and a full television offering available for bundling.
- FTTH service with real broadband speeds– These locations have the potential of all three services available with good broadband speeds and a possible full television offering available for bundling.

COMPETITIVE OFFERINGS

Competitor	Technology	Speed	Internet Price	Intro Pricing	TV
AT&T	DSL	1.5mbps 3.0mbps	$30.00 $30.00	Y	Y
Charter	Cable	60mbps	Intro $44.99 $59.99	Y	Y

DEMOGRAPHIC COMPARISON WITH CONTROL MARKETS

Demographic	Traverse City Market	Municipal power FTTH market	Rural cooperative market 1	Rural cooperative market 2
Population growth (2000-2015)	15.8%	12.2%	10.8%	-2.2%
Median household income	$52,950	$40,177	$47,725	$44,449
Per capita income	$28,050	$24,643	$20,901	$21,559
% families below poverty	6.8%	16.9%	12.9%	12.5%
% families with retirement or SSI	56.6%	49.7%	70.6%	55.2%
% households with public assistance	19.3%	31.6%	21.4%	24.6%
Population without high school diploma	6.3%	14.8%	14.8%	14.8%
Population with college degree	31.5%	27.2%	17.5%	14.7%

We compare the demographics of an area to adjust our take rate assumptions when necessary. Nationally, over seventy percent of households subscribe to broadband today, and the subscription rates vary depending upon demographics. High-income households subscribe at a greater level than low-income. Low-income households report wireless-only internet access at substantially higher levels than the rest of the population. People with college degrees subscribe at a higher level than those without college or high school degrees. Families with school age children subscribe at a higher level than households without school age children. Urban and suburban households subscribe at a higher level than rural households. We find that differences between rural areas and urban or suburban areas are due to availability and affordability, not demand. Unsurprising to us, when priced at $49.95 for 100 Mbps symmetrical, uncapped service, and $79.95 for 1 Gbps symmetrical, uncapped service, rural America subscribes to broadband at the same rates as the rest of the country. TCLP's demographics are in line with our control markets and we have not made any adjustments to our assumptions due to the demographic profile.

6. Services and Pricing

As mentioned in other sections, we recommend residential offers of 100 Mbps symmetrical, uncapped service for $49.95 per month and 1 Gbps symmetrical, uncapped service for $79.95 per month. A managed Wi-Fi service would be available for $4.95 per month. Unlimited local and long distance telephone service would be priced at $24.95 per month. Pricing for television packages will be determined at a date closer to launch based on current wholesale video programmer pricing.

Our approach is to offer "always fair" pricing, to have just two tiers of service and to avoid promotions and gimmicks where prices are raised after several months. Above, we show the current service offers of the telephone and cable competitors. Our recommended pricing will be very attractive, even assuming a competitive response.

We propose a minimum 100 Mbps symmetrical service offering because we don't consider 25/3 Mbps, much less the FCC's rural definition of 10/1 Mbps, to be adequate for today's residential internet use. The FCC's definition of broadband, as an asymmetrical 25/3 Mbps level of service, was established for political, not economic or technological reasons. We would not choose to offer 25/3 Mbps service, since our experience is that the vast majority of rural Americans prefer more robust services.

Broadband is not just a speed for a single device. Broadband is the capability to access the Internet with the speed, capacity and latency necessary for whatever number of devices are normally in use at a home or business or school at any time. Households typically have multiple devices using the internet throughout the day: computers of various types, smartphones, tablets, televisions, gaming devices, as well as an increasing number of devices connected as part of the larger ecosystem known as the Internet of Things. Because of the increased number of devices, and the increase in video streaming, the average household use of the internet has increased from 2 GB a month to 100-150 GB within the past decade. That growth is expected to continue. Within ten years, we full well expect the average household to use 1 Terabyte of service per month. We believe the network you build today should be capable of meeting future needs.

Our recommended pricing of broadband is intended to make the service affordable to all households. To the extent that the $49.95 price point is still out of reach, the newly reformed federal Lifeline program now provides assistance to subscribers of broadband service. The Lifeline program pays $9.25 per month. Eligibility by consumers for Lifeline requires participation in one of the following federal assistance programs: SNAP, Medicaid, SSI, FPHA or the Veterans Pension benefit or Survivors Pension benefit. Most households earning less than $40,000 per year are eligible for Lifeline assistance.

7. Financial Forecast – TCLP as the Operator

Description	Value
Subscribers end of construction period	2,870
Total capital investment for fiber	$16,212,295
Net income breakeven	Year 6
Overall net income breakeven (accumulated losses recovered)	Year 11
Number of employees end of construction in operating entity	11

Below are the outputs of our business plan with TCLP as the operator, showing TCLP's 10-year financial summary, projected income statement, balance sheet, and cash flow. We have prepared financial projections over twenty years, which have been made available.

Traverse City Fiber Model: Preliminary Summary

Year:	1	2	3	4	5	6	7	8	9	10
Miles constructed end of year	69	175	176	178	180	182	183	185	187	189
Premises Passed	6,121	10,796	10,904	11,013	11,123	11,234	11,347	11,460	11,575	11,691
Subscribers	808	2,870	3,252	3,641	4,038	4,442	4,854	5,273	5,701	6,136
Revenue	$571,686	$2,660,106	$4,510,797	$5,159,967	$5,838,441	$6,547,343	$7,287,813	$8,061,001	$8,868,059	$9,710,143
Revenue growth	0.0%	365.3%	69.6%	14.4%	13.1%	12.1%	11.3%	10.6%	10.0%	9.5%
Employees	9	11	11	11	11	11	11	13	13	13
EBITDA	-$1,015,072	-$228,086	$932,935	$1,258,584	$1,614,313	$1,985,445	$2,372,693	$2,690,676	$3,030,736	$3,466,643
EBITDA growth		77.5%	509.0%	34.9%	28.3%	23.0%	19.5%	13.4%	12.6%	14.4%
EBITDA margin	-177.6%	-8.6%	20.7%	24.4%	27.6%	30.3%	32.6%	33.4%	34.2%	35.7%
EBITDA - Capex	-$9,278,835	-$8,176,619	$221,827	$572,297	$908,042	$1,240,091	$1,375,403	$1,862,340	$2,240,991	$2,655,120
Capex	$8,263,762	$7,948,533	$711,108	$686,287	$706,271	$745,354	$997,291	$828,336	$789,745	$811,523
Cumulative Capex	$8,263,762	$16,212,295	$16,923,404	$17,609,690	$18,315,962	$19,061,316	$20,058,606	$20,886,942	$21,676,687	$22,488,210
Debt balance	$9,964,089	$18,251,353	$18,525,518	$18,515,321	$18,167,971	$17,477,447	$16,637,011	$15,625,820	$14,586,820	$13,519,248

Traverse City Fiber Model: Projected Income Statement

Year:	1	2	3	4	5	6	7	8	9	10
Revenue										
Internet revenue	258,585	1,174,079	1,955,055	2,204,292	2,459,593	2,721,067	2,988,825	3,262,980	3,543,646	3,830,939
Video revenue	231,559	1,086,514	1,870,297	2,170,275	2,491,561	2,835,144	3,202,022	3,593,202	4,009,696	4,452,510
Voice revenue	40,295	182,437	302,934	340,591	378,970	418,084	457,941	498,554	539,934	582,091
Large commercial revenue	64,200	321,000	555,073	638,823	724,193	811,206	899,887	990,261	1,082,352	1,176,186
Bundle discounts	(22,954)	(103,924)	(172,563)	(194,014)	(215,877)	(238,157)	(260,862)	(283,997)	(307,568)	(331,583)
Total Revenue	$571,686	$2,660,106	$4,510,797	$5,159,967	$5,838,441	$6,547,343	$7,287,813	$8,061,001	$8,868,059	$9,710,143
Bandwidth costs	192,000	192,000	193,412	204,636	216,030	227,601	239,353	251,290	263,419	275,745
Video programming costs	170,702	793,336	1,352,622	1,554,621	1,767,769	1,992,384	2,228,775	2,477,237	2,738,050	3,011,473
Telephone costs	11,180	50,616	84,047	94,495	105,143	115,995	127,054	138,321	149,802	161,498
Total Cost of Sales	373,882	1,035,952	1,630,082	1,853,752	2,088,943	2,335,980	2,595,181	2,866,849	3,151,272	3,448,716
Gross Margins	197,804	1,624,154	2,880,715	3,306,215	3,749,498	4,211,363	4,692,632	5,194,151	5,716,787	6,261,426
Operating Expenses										
Corporate overhead labor and expense	554,063	800,578	735,528	776,219	802,330	829,256	857,024	885,660	915,189	945,638
Direct Labor and Benefits	130,500	267,525	274,213	281,068	288,095	295,298	302,680	387,809	477,005	488,930
Technical support costs	7,271	33,103	55,099	62,037	69,108	76,314	83,658	91,141	98,765	106,532
Marketing expenses	306,050	306,050	306,050	306,050	306,050	306,050	306,050	306,050	306,050	306,050
Maintenance	5,212	18,302	26,312	26,575	26,841	27,109	27,380	27,654	27,931	28,210
City gross revenue fees	28,584	133,005	225,540	257,998	291,922	327,367	364,391	403,050	443,403	485,507
General Operating Expenses	181,196	293,677	325,037	337,683	350,839	364,524	378,756	402,112	417,710	433,917
Total Operating Expenses	1,212,876	1,852,240	1,947,779	2,047,631	2,135,185	2,225,918	2,319,939	2,503,476	2,686,051	2,794,784
EBITDA	(1,015,072)	(228,086)	932,935	1,258,584	1,614,313	1,985,445	2,372,693	2,690,676	3,030,736	3,466,643
Interest income	0	0	0	0	0	0	0	0	0	0
Interest expense	137,006	398,207	516,809	521,232	516,976	503,208	482,606	457,518	429,710	401,138
Depreciation	164,900	903,138	1,191,757	1,261,826	1,331,728	1,403,804	1,459,623	1,400,197	1,343,065	1,393,694
Net Income before taxes	(1,316,979)	(1,529,431)	(775,630)	(524,474)	(234,391)	78,433	430,464	832,961	1,257,960	1,671,811
Income taxes	0	0	0	0	0	0	0	0	0	0
Net Income (loss)	(1,316,979)	(1,529,431)	(775,630)	(524,474)	(234,391)	78,433	430,464	832,961	1,257,960	1,671,811
Cumulative Net Income (loss)	(1,316,979)	(2,846,410)	(3,622,040)	(4,146,514)	(4,380,905)	(4,302,471)	(3,872,007)	(3,039,046)	(1,781,085)	(109,274)

Traverse City Fiber Model: Projected Balance Sheet

Year:	1	2	3	4	5	6	7	8	9	10
Assets										
Cash	601,074	190,606	21,694	16,206	10,090	4,334	2,214	346,083	1,065,689	2,190,339
Receivables	47,640	221,676	375,900	429,997	486,537	545,612	607,318	671,750	739,005	809,179
Deferred Income Tax	-	-	-	-	-	-	-	-	-	-
Total current assets	**648,715**	**412,281**	**397,593**	**446,203**	**496,627**	**549,946**	**609,531**	**1,017,833**	**1,804,694**	**2,999,517**
	-	-	-	-	-	-	-	-	-	-
Long term property	3,876,432	10,145,948	10,484,480	10,811,691	11,147,901	11,493,272	11,847,973	12,212,172	12,586,043	12,969,761
Mid term property	3,785,979	4,572,566	4,740,012	4,900,791	5,065,599	5,234,502	5,407,564	5,584,853	5,766,434	5,952,377
Short term property	601,351	1,493,782	1,698,912	1,897,208	2,102,462	2,333,542	2,803,070	3,089,917	3,324,209	3,566,072
Long term accumulated depreciation	(77,529)	(357,976)	(770,585)	(1,196,508)	(1,635,700)	(2,088,523)	(2,555,348)	(3,036,551)	(3,532,516)	(4,043,632)
Mid term accumulated depreciation	(75,720)	(493,647)	(959,276)	(1,441,316)	(1,939,635)	(2,454,640)	(2,986,744)	(3,536,365)	(4,103,929)	(4,689,869)
Short term accumulated depreciation	(11,652)	(216,415)	(529,935)	(883,797)	(1,278,014)	(1,713,989)	(2,174,684)	(2,544,057)	(2,823,594)	(3,120,231)
	-	-	-	-	-	-	-	-	-	-
Total assets	**8,747,577**	**15,556,538**	**15,061,202**	**14,534,273**	**13,959,239**	**13,354,109**	**12,951,361**	**12,787,802**	**13,021,342**	**13,633,995**
	-	-	-	-	-	-	-	-	-	-
Liabilities and Equity										
Payables and deferred revenue	100,467	151,595	157,723	165,466	172,173	179,134	186,357	201,028	215,607	224,021
Bank debt	9,964,089	18,251,353	18,525,518	18,515,321	18,167,971	17,477,447	16,637,011	15,625,820	14,586,820	13,519,248
Total liabilities	**10,064,556**	**18,402,948**	**18,683,242**	**18,680,787**	**18,340,144**	**17,656,580**	**16,823,368**	**15,826,848**	**14,802,427**	**13,743,269**
	-	-	-	-	-	-	-	-	-	-
Accumulated income/loss	(1,316,979)	(2,846,410)	(3,622,040)	(4,146,514)	(4,380,905)	(4,302,471)	(3,872,007)	(3,039,046)	(1,781,085)	(109,274)
Contributed equity	-	-	-	-	-	-	-	-	-	-
Total Equity	**(1,316,979)**	**(2,846,410)**	**(3,622,040)**	**(4,146,514)**	**(4,380,905)**	**(4,302,471)**	**(3,872,007)**	**(3,039,046)**	**(1,781,085)**	**(109,274)**
	-	-	-	-	-	-	-	-	-	-
Total Liabilities and Equity	**8,747,577**	**15,556,538**	**15,061,202**	**14,534,273**	**13,959,239**	**13,354,109**	**12,951,361**	**12,787,802**	**13,021,342**	**13,633,995**

Traverse City Fiber Model: Projected Cash Flow Summary

Year:	1	2	3	4	5	6	7	8	9	10
Cash Flow Statement										
Cash flow from operations	(1,099,252)	(749,200)	268,031	690,997	1,047,505	1,430,122	1,835,605	2,183,397	2,548,350	3,003,745
Debt service	-	(745,067)	(809,217)	(866,947)	(914,937)	(951,507)	(984,128)	(1,011,192)	(1,039,000)	(1,067,572)
Capital Expenditures										
Capex - Fiber plant	(3,458,150)	(5,275,715)	(87,339)	(88,212)	(89,094)	(89,985)	(90,885)	(91,794)	(92,712)	(93,639)
Capex - New drops	(318,283)	(824,418)	(200,463)	(186,577)	(193,057)	(199,647)	(206,349)	(213,166)	(220,098)	(227,148)
Capex - Maintenance	-	(19,382)	(50,730)	(52,422)	(54,058)	(55,740)	(57,466)	(59,240)	(61,061)	(62,930)
Capex - Network	(3,928,580)	(1,669,018)	(372,576)	(359,075)	(370,062)	(381,233)	(392,590)	(404,136)	(415,874)	(427,806)
Capex - Startup and operations	(558,750)	(150,000)	-	-	-	-	(240,000)	(60,000)	-	-
Proceeds from debt financing	9,964,089	9,032,332	1,083,382	856,749	567,587	260,983	143,693	-	-	-
Equity contributions	-	-	-	-	-	-	-	-	-	-
Equity distributions	-	-	-	-	-	-	-	-	-	-
Total sources and uses	**601,074**	**(400,469)**	**(168,912)**	**(5,488)**	**(6,116)**	**12,994**	**7,879**	**343,869**	**719,606**	**1,124,650**
Cash balance	601,074	200,606	31,694	26,206	20,090	33,084	40,964	384,833	1,104,439	2,229,089
Debt balance	9,964,089	18,251,353	18,525,518	18,515,321	18,167,971	17,477,447	16,637,011	15,625,820	14,586,820	13,519,248

8. Financial Forecast – Independent Operator

Description	Value
Subscribers end of construction period	2,870
Total capital investment for fiber	$10,095,448
Net income	Year 2
Overall net income breakeven	Year 2

TCLP would finance the construction of the mainline fiber, drops and installations, which includes network design and make ready costs. An independent, third-party operator would finance all electronics, at the substation and at the customer premises, as well as the television headend and set top boxes.

TCLP's business is net income positive in the first year, as shown in the income statement below. As described in the section on Business Structure, positive cash flow for TCLP is part of the design of our proposed structure.

Traverse City Fiber Model - Independent Operator: Preliminary Summary

Year:	1	2	3	4	5	6	7	8	9	10
Miles constructed end of year	69	175	176	178	180	182	183	185	187	189
Homes Passed	6,121	10,796	10,904	11,013	11,123	11,234	11,347	11,460	11,575	11,691
Revenue	$295,177	$1,054,069	$1,539,284	$1,574,042	$1,610,232	$1,647,921	$1,687,179	$1,728,079	$1,770,698	$1,815,114
Revenue growth	0.0%	257.1%	46.0%	2.3%	2.3%	2.3%	2.4%	2.4%	2.5%	2.5%
EBITDA	$84,817	$780,399	$1,223,688	$1,305,826	$1,335,899	$1,367,287	$1,400,053	$1,434,262	$1,469,985	$1,507,293
EBITDA growth		820.1%	56.8%	6.7%	2.3%	2.3%	2.4%	2.4%	2.5%	2.5%
EBITDA margin	28.7%	74.0%	79.5%	83.0%	83.0%	83.0%	83.0%	83.0%	83.0%	83.0%
EBITDA - Capex	-$3,891,615	-$5,338,617	$886,409	$979,873	$1,000,955	$1,023,187	$1,046,630	$1,071,346	$1,097,404	$1,124,872
Capex	$3,976,432	$6,119,015	$337,279	$325,953	$334,944	$344,100	$353,423	$362,916	$372,581	$382,420
Cumulative Capex	$3,976,432	$10,095,448	$10,432,727	$10,758,680	$11,093,624	$11,437,724	$11,791,147	$12,154,063	$12,526,643	$12,909,063
Debt balance	$4,210,578	$9,779,784	$9,411,708	$9,028,908	$8,630,796	$8,216,760	$7,786,163	$7,338,341	$6,872,607	$6,388,243

Traverse City Fiber Model - Independent Operator: Projected Income Statement

Year:	1	2	3	4	5	6	7	8	9	10
Revenue										
Fiber lease revenue	295,177	1,054,069	1,539,284	1,574,042	1,610,232	1,647,921	1,687,179	1,728,079	1,770,698	1,815,114
Management and admin	-	-	-	-	-	-	-	-	-	-
Total Revenue	295,177	1,054,069	1,539,284	1,574,042	1,610,232	1,647,921	1,687,179	1,728,079	1,770,698	1,815,114
Gross Margins	295,177	1,054,069	1,539,284	1,574,042	1,610,232	1,647,921	1,687,179	1,728,079	1,770,698	1,815,114
Operating Expenses										
Utility management labor	121,438	124,473	127,585	76,123	78,026	79,976	81,976	84,025	86,126	88,279
Maintenance	5,212	18,302	26,312	26,575	26,841	27,109	27,380	27,654	27,931	28,210
City gross revenue fees	14,759	52,703	76,964	78,702	80,512	82,396	84,359	86,404	88,535	90,756
General Operating Expenses	68,952	78,191	84,734	86,815	88,954	91,152	93,412	95,734	98,122	100,576
Total Operating Expenses	210,360	273,670	315,596	268,215	274,332	280,634	287,127	293,817	300,713	307,821
EBITDA	84,817	780,399	1,223,688	1,305,826	1,335,899	1,367,287	1,400,053	1,434,262	1,469,985	1,507,293
Interest income	0	0	0	0	0	0	0	0	0	0
Interest expense	84,212	286,886	391,191	376,468	361,156	345,232	328,670	311,447	293,534	274,904
Depreciation	79,529	293,438	422,563	435,828	449,046	462,627	476,577	490,904	505,614	520,714
Net Income before taxes	(78,923)	200,076	409,933	493,530	525,697	559,428	594,805	631,911	670,837	711,674
Income taxes	0	0	0	0	0	0	0	0	0	0
Net Income (loss)	(78,923)	200,076	409,933	493,530	525,697	559,428	594,805	631,911	670,837	711,674
Cumulative Net Income (loss)	(78,923)	121,153	531,086	1,024,616	1,550,313	2,109,741	2,704,546	3,336,457	4,007,294	4,718,969

Traverse City Fiber Model - Independent Operator: Projected Balance Sheet

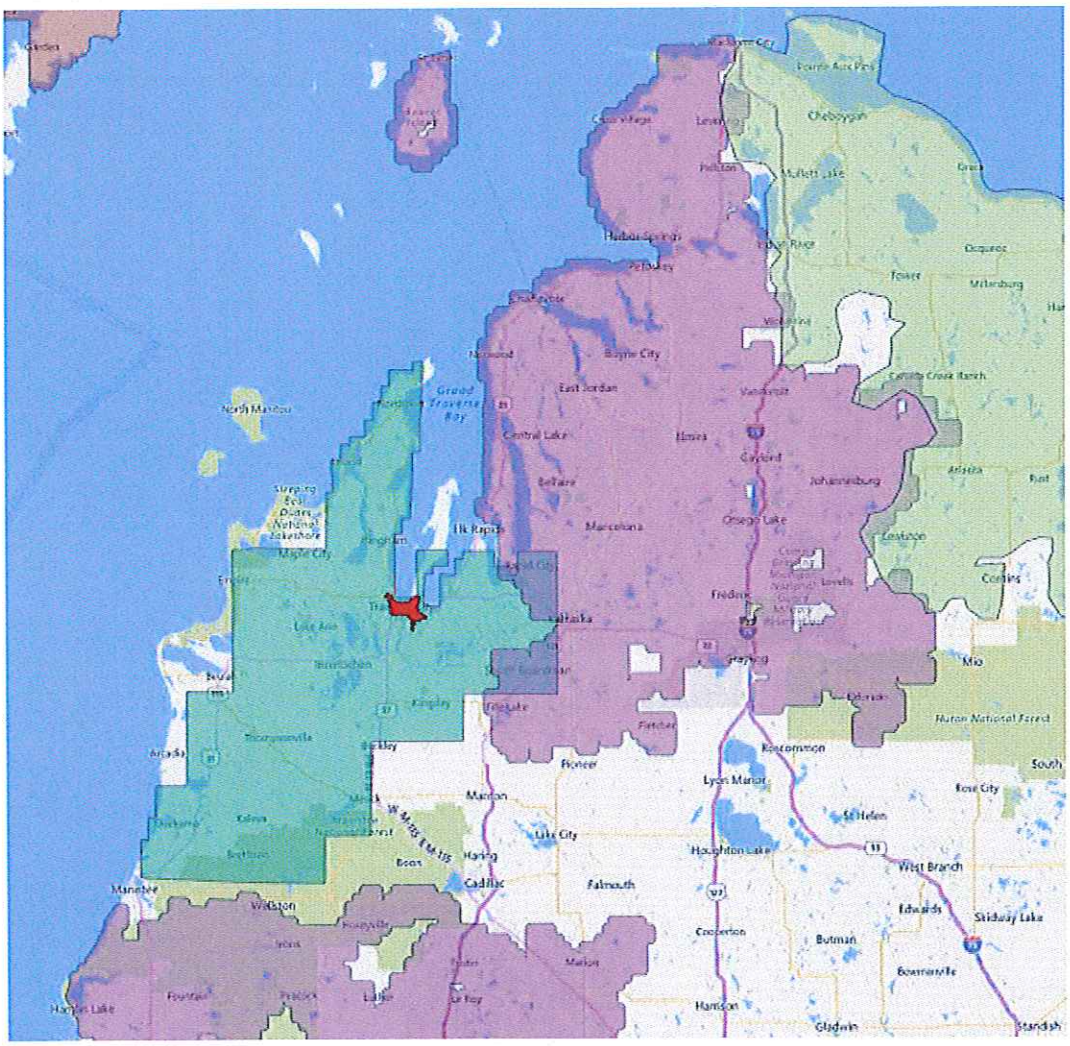
Year:	1	2	3	4	5	6	7	8	9	10
Assets										
Cash	227,683	113,422	203,623	417,383	656,564	917,868	1,202,499	1,511,727	1,846,886	2,209,381
Receivables	24,598	87,839	128,274	131,170	134,186	137,327	140,598	144,007	147,558	151,259
Loans to subsidiary	-	-	-	-	-	-	-	-	-	-
Deferred Income Tax	-	-	-	-	-	-	-	-	-	-
Total current assets	252,281	201,261	331,896	548,553	790,750	1,055,195	1,343,097	1,655,733	1,994,444	2,360,641
	-	-	-	-	-	-	-	-	-	-
Long term property	3,776,432	9,895,448	10,232,727	10,558,680	10,893,624	11,237,724	11,591,147	11,954,063	12,326,643	12,709,063
Mid term property	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Short term property	-	-	-	-	-	-	-	-	-	-
Long term accumulated depreciation	(75,529)	(348,966)	(751,530)	(1,167,358)	(1,596,404)	(2,039,031)	(2,495,608)	(2,966,513)	(3,452,127)	(3,952,841)
Mid term accumulated depreciation	(4,000)	(24,000)	(44,000)	(64,000)	(84,000)	(104,000)	(124,000)	(144,000)	(164,000)	(184,000)
Short term accumulated depreciation	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
Total assets	4,149,185	9,923,743	9,969,093	10,075,875	10,203,971	10,349,888	10,514,636	10,699,283	10,904,960	11,132,863
	-	-	-	-	-	-	-	-	-	-
Liabilities and Equity										
Payables and deferred revenue	17,530	22,806	26,300	22,351	22,861	23,386	23,927	24,485	25,059	25,652
Bank debt	4,210,578	9,779,784	9,411,708	9,028,908	8,630,796	8,216,760	7,786,163	7,338,341	6,872,607	6,388,243
Total liabilities	4,228,108	9,802,590	9,438,007	9,051,259	8,653,657	8,240,146	7,810,090	7,362,826	6,897,666	6,413,895
	-	-	-	-	-	-	-	-	-	-
Accumulated income/loss	(78,923)	121,153	531,086	1,024,616	1,550,313	2,109,741	2,704,546	3,336,457	4,007,294	4,718,969
Contributed equity	-	-	-	-	-	-	-	-	-	-
Total Equity	(78,923)	121,153	531,086	1,024,616	1,550,313	2,109,741	2,704,546	3,336,457	4,007,294	4,718,969
	-	-	-	-	-	-	-	-	-	-
Total Liabilities and Equity	4,149,185	9,923,743	9,969,093	10,075,875	10,203,971	10,349,888	10,514,636	10,699,283	10,904,960	11,132,863

Traverse City Fiber Model - Independent Operator: Projected Cash Flow Summary

Year:	1	2	3	4	5	6	7	8	9	10
Cash Flow Statement										
Cash flow from operations	(6,462)	435,548	795,556	922,513	972,237	1,019,440	1,068,652	1,119,965	1,173,474	1,229,279
Debt service	-	(353,920)	(368,077)	(382,800)	(398,112)	(414,036)	(430,598)	(447,821)	(465,734)	(484,364)
Capital Expenditures										
Capex - Fiber plant	(3,458,150)	(5,275,715)	(87,339)	(88,212)	(89,094)	(89,985)	(90,885)	(91,794)	(92,712)	(93,639)
Capex - New drops	(318,283)	(824,418)	(200,463)	(186,577)	(193,057)	(199,647)	(206,349)	(213,166)	(220,098)	(227,148)
Capex - Maintenance	-	(18,882)	(49,477)	(51,164)	(52,793)	(54,468)	(56,189)	(57,956)	(59,770)	(61,633)
Capex - Network	-	-	-	-	-	-	-	-	-	-
Capex - Startup and operations	(200,000)	-	-	-	-	-	-	-	-	-
Proceeds from debt financing	4,210,578	5,923,126	-	-	-	-	-	-	-	-
Loan disbursements to subsidiary	-	-	-	-	-	-	-	-	-	-
Loan payments from subsidiary	-	-	-	-	-	-	-	-	-	-
Equity contributions	-	-	-	-	-	-	-	-	-	-
Equity distributions	-	-	-	-	-	-	-	-	-	-
Contributions in associated org	-	-	-	-	-	-	-	-	-	-
Total sources and uses	**227,683**	**(114,261)**	**90,200**	**213,761**	**239,181**	**261,304**	**284,631**	**309,228**	**335,159**	**362,495**
Cash balance	227,683	113,422	203,623	417,383	656,564	917,868	1,202,499	1,511,727	1,846,886	2,209,381
Debt balance	4,210,578	9,779,784	9,411,708	9,028,908	8,630,796	8,216,760	7,786,163	7,338,341	6,872,607	6,388,243

10. Partnerships with Michigan Electric Cooperatives

We encourage partnerships with neighboring distribution and transmission cooperatives to enable sharing of resources, equipment, and services where possible. Specifically, in the case of TCLP's region, we recommend a relationship with another provider or a future statewide or regional partnership among electric utilities providing broadband. The partnership could be as simple as purchasing voice and IPTV service or as complex as the other provider or the statewide or regional partnership entity being the provider on TCLP's fiber. Each of Midwest Energy and Communications, Great Lakes Energy and Homeworks Tri-County Electric Cooperative are currently providing broadband service to their members or have begun fiber projects.



11. Keys to Success

- Partnership – There are currently 3 electric cooperatives in Michigan building fiber to the home with several other cooperatives expressing interest. We believe partnership and cooperation among electric cooperatives and TCLP would create advantages over going it alone.

- Proven technology and architecture – The proposed deployment for TCLP is a proven solution built on proven individual technologies. The solution is a known working solution able to provide reliable gigabit internet, telephone, and either linear IPTV or over-the-top video. GPON technology is the most widely used FTTH platform in the world and with new advances in the standards, the fiber optic infrastructure will last for decades.

- Personnel – Selecting the right personnel with the required technical abilities and the motivation to succeed and the persistence to overcome obstacles is critical. A project of this scale is not easy and there will be many unforeseen challenges and barriers. Long hours and hard work will be required of the personnel involved in the project. The right people will be motivated by the challenge and goal of the success of the project and will give South Central every opportunity to succeed. We recommend a continuing engagement with Conexon to ensure the implementation matches the presented plan.

- Make-ready – Fiber make-ready costs can be a significant expense to the project. Make-ready costs can vary wildly depending upon age and condition of existing electric distribution infrastructure. Finding alternatives to replacing poles is instrumental in keeping costs low while still maintaining appropriate clearances for safety.

- Marketing – Most electric utilities operate in a monopoly environment. Sometimes a culture exists that does not easily translate to a competitive business. Marketing is not typically seen as a necessary expense in providing electricity. Creating a professional image and an effective marketing strategy for a FTTH business can pay dividends in increased take rates and selling additional services to new subscribers. A good marketing effort can supplement the positive reputation of the electric utility.

- Customer service – TCLP can capitalize on its reputation for customer service to provide a better experience than phone and cable companies. Many new subscribers will be selecting choices for each of the subscribed services. Preparing your personnel to help those subscribers select the right package before the first connections are made is important. Every employee has the potential to be a sales person for the new services whether they are in the field or on the phone.

- Execution – Our experience has been that the greatest risk is not demand or technology or economics, it is operational execution, particularly in timely meeting the members' expectations for construction and installation. To meet your customers' desire for fiber services, the pace should reach 50 new installations each week, week in and week out, over the course of first two to three years. It is a more rapid pace of new customers, or new services for members, than most electric coops or small municipal systems have experienced. If your operations partner does not have experience working at that pace, you risk falling behind the demand and falling behind the revenue projections.

Traverse City Light and Power
Meeting with Jason Allen
January 31, 2018

Rural Electrification started in 1936 through the Agricultural Act, the most recent bill was passed in 2014. If the utility was provided funds in the 1930s through the 1940s the utility is automatically eligible for loan program which currently has a rolling rate of 1.33 to 1.5% or a fixed rate of 2.45% for 25 years. Most recently, the activity of this program is $7B. In addition, the Director of Rural Utility Services is interested in the TCL&P Fiber Project and is willing to come to Traverse City to discuss the project in the future. **1) KARLA TO INVESTIGATE IF THE UTILITY WAS A RECEIPIENT OF THESE FUNDS. 2) STAFF TO READ THE AGRICULTURAL ACT, SECTION 6000 TO OBTAIN AN UNDERSTANDING OF THE PROGRAM.**

The State did not deny our most recent application, but rather deferred it due to limited amount of funds available because of funds being allocated towards bridges and the City of Flint. With the new infrastructure bill, 80% of the funds will be sent to the State and 20% to Rural Development. It was discussed it would be beneficial to meet to discuss future funding distributions with Governor Snyder along with Casey Cowell, Tim Arends, Jean Derenzy, City Commissioner or Light and Power Board Member, State of Michigan Representative Inman and Senator Schmidt. **JEAN DERENZY TO ORGANIZE MEETING.**

The new Agricultural Bill is being issued in October of this year and it would be helpful to discuss the TCL&P Fiber Project primarily with U.S. Representative Jack Bergman and discuss what TCL&P would like to see in the Bill regarding Block Grant Funding more specifically defining who is eligible. Additionally, may be beneficial to discuss the project with Senator Debbie Stabenow. **1) JASON ALLEN TO SET UP MEETING WITH JACK BERGMAN. 2) TIM ARENDS TO TALK WITH DEBBIE STABENOW.**

TCL&P to meet with Sherman Farms, Shoreline Fruit and Sara Lee and discuss our project plans and obtain their support for the meeting with the Director of Rural Utility Services. **JEAN DERENZY TO SET UP MEETINGS.**

TCL&P to discuss the project with MMEA and APPA and obtain their general and lobbying support for language in the Agricultural Bill being issued in October. **TIM ARENDS TO TALK WITH MMEA AND APPA.**

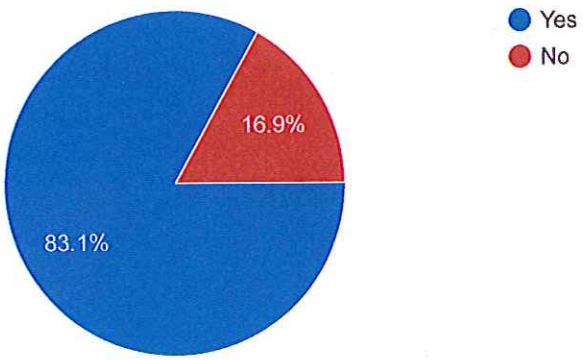
High-Speed Fiber-Optic Internet in Traverse City.

136 responses

Residential Customer

#1: Are you a residential customer of TCL&P?

136 responses

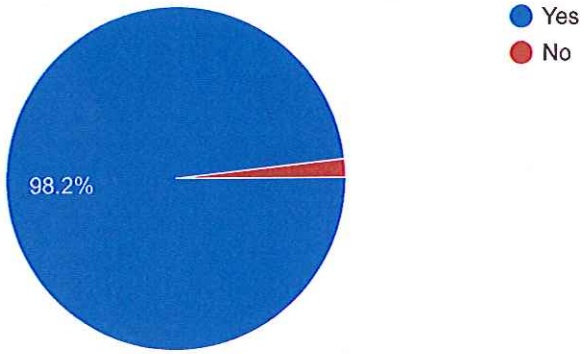


Continue, if you answered yes to question #1,

#1a: If TCL&P offered high-speed fiber-optic residential Internet service that increased your bi-directional connection speed substantially but at a

comparative price, would you switch Internet providers to TCL&P?

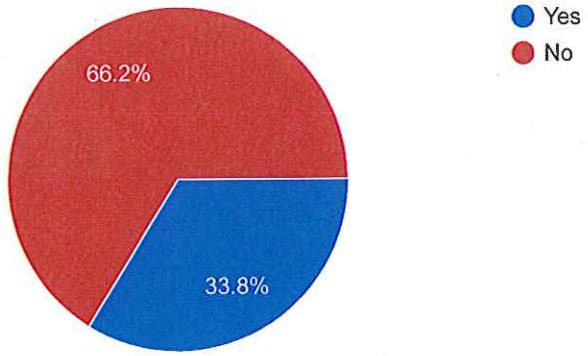
113 responses



Business Customer

#2: Are you a business customer of TCL&P or a decision maker at a business serviced by TCL&P?

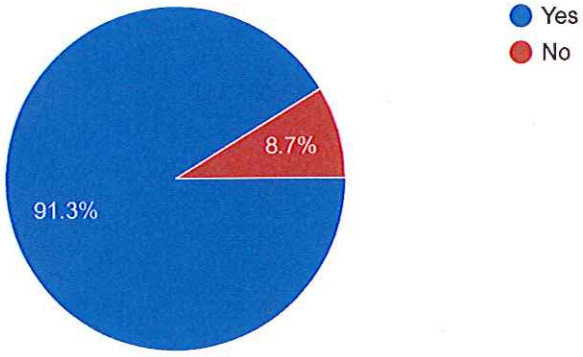
136 responses



Continue, if you answered yes to question #2,

#2a: If TCL&P offered a Business high-speed fiber-optic Internet service that increased your bi-directional connection speed substantially but at a comparative business price, would you switch Internet providers to TCL&P?

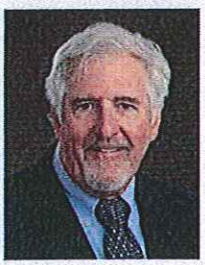
46 responses



Thank you for your participation!

By Casey Cowell

Catch-up time — we need gig fiber now



Casey Cowell is a tech entrepreneur, philanthropist and startup investor. He is a principal of local investment group Boomerang Catapult LLC.

The litmus test for where to locate and grow your enterprise in the past focused on factors like highway access, water and power services, or rail and other transportation. It's entirely different today. Top of the list for many enterprises now is access to true high-speed internet.

Communities with speed attract new enterprise. Those without are left behind.

As of this past summer, about 25 percent of the U.S. is wired for gigabit fiber. Gig fiber is internet connectivity from your home or office at the speed of one billion bits per second. (My company's first modem products in 1976 provided 300 bps!) There are nearly four billion internet users globally — more than 50 percent of the world population. Fiber's breadth, reliability and speed is affecting our society.

In communities like ours — small, somewhat remote and moving to transition their economies, gigabit fiber is a game changer.

Whether communicating with satellites, developing software to be deployed around the world, mining cryptocurrencies or any number of new and exciting ventures that can happen right here in Traverse City, a common thread is that they all require true high-speed internet. Traverse City Light and Power in the spring of 2017 committed to add to its capital plan gigabit fiber deployment across our city. The sooner deployment happens the better.

Consider the number of people now able to telecommute to jobs on the other side of the country or the other side of the world. Some are doing that right here in Traverse City. "Your New Boss: An Algorithm" in the December 10th Wall Street Journal spells this out.

Here's a summary:

The last few years have seen dramatic advances in Artificial Intelligence and Machine Learning — a well-known example is IBM Watson. There are now Machine Learning applications that track and evaluate worker performance over thousands of workers. When new projects need to be staffed, the computers choose the employees ... no matter where they're located (say, Traverse City) because with gig-speed communications, teams and interactions can become location agnostic. Per Tomas Chamorro-Premuzic, a professor of business psychology at University College London, "What managers do mostly is identify potential, build teams, assign tasks, measure performance and provide feedback. Generally speaking, humans aren't very good at these tasks." Increasingly, players will be chosen by an objective algorithm that will be location agnostic in its choices.

This is great for our residents and community — if we have the internet speed.

Our area's first Blockchain Boomerang is Eric Bravick. He spent time in our area growing up and always wanted to live and work here. As an engineer and mathematician, he has worked on the design and development of over 50 commercial grade data centers throughout Asia, Europe and North American that have focused on massive data storage, artificial intelligence, cryptocurrency operations and trading. Eric on locating here:

"Returning to Traverse City to run an internet based company has been full of unnecessary difficulties. Given that much of the country is wired, managers of internet companies assume high-speed fiber is available, reliable and affordable, thus making competitive connection to the global business economy a non-issue. Moving to Traverse City, I quickly discovered I had reverted to Cable-Modem world, where speed is limited, reliability is poor and cost is high. It's really far past time for Traverse City to embrace high-speed fiber throughout our area. The loss of productivity and opportunity is far greater than the entire cost of a fiber buildout for the city when you add up all the stories like mine and combine them."

Gigabit fiber is not a futuristic luxury, but an absolute necessity for our community. Just like paved roads, water lines and reliable, plentiful power, it is a requirement to conduct business and a basic expectation throughout much of our country. True high-speed internet will not be the one solution that will springboard our economy and attract outstanding companies to grow here. But lack of it could continue to drag us down. Let's Get It. Encourage and help TCLP to make this happen. GTB

TRAVERSE CITY
LIGHT & POWER

To: **Light and Power Board**
From: Tim Arends, Executive Director
Date: February 1, 2018
Subject: Fiber to the Premise (FTTP) Feasibility Plan

At the Fiber to the Premise (FTTP) Study Session on 1/23/2018, several members of the Board expressed interest in obtaining a written format of a feasibility study, similar to Holland Board of Public Works plan, which was completed by Columbia Telecommunications Corporation (CTC). While TCL&P originally hired Conexon to do a feasibility study, this was done with a presentation format style so Conexon could fully engage and work with the Board throughout discussions. Conexon presented their findings to the full Board on 2/14/2017 and continued to work with the ad hoc throughout the project.

Given the interest in a written business plan, Staff engaged with Conexon to transform their original presentation to more of a written format, similar to CTC's, and included it in the packet for Board review. Staff has also reached out to CTC to get an updated feasibility study proposal, which is also included in the packet for the Boards consideration. The CTC proposal is estimated at $88,500 with a twelve-week completion date.

The FTTP Project is considered a major undertaking for the utility not only in its cost, but operationally. Considering its magnitude the board may desire another independent study be conducted before moving forward with approval of construction. As mentioned in the prior agenda item, this plan will be simultaneously conducted while also bidding the engineering, design, construction, etc.

Staff recommends employing CTC to perform a new business plan as identified in their proposal, which it attached. If the board agrees with staff's recommendation, the following motion would be appropriate:

MOVED BY _____, SECONDED BY _____,

THAT THE BOARD AUTHORIZES THE EXECUTIVE DIRECTOR TO EXECUTE AN AGREEMENT FOR SERVICES FROM CTC, SUBJECT TO REVIEW AS TO FORM BY GENERAL COUNSEL.

TRAVERSE CITY
LIGHT & POWER

To:	**Light & Power Board**
From:	Daren Dixon, Operations Manager
Date:	February 6, 2018
Subject:	Project Authorization Request – Substation Circuit Exits Replacement

Staff is requesting authorization from the Board to proceed with development, design and construction to replace substation underground circuit exits with 750kCM 15kV copper cable in full conduit. Exits to be replaced are at Barlow Rd (four circuits: BW22, BW23, BW30, BW31), Parsons Rd (four circuits: PC21, PC22, PC23, PC30), and Cass Rd substations (four circuits: CD 21, CD23, CD31, CD22). This work was identified in the 2016 Electric Distribution Study performed by GRP Engineering, Inc. and has been in the TCL&P Six Year Capital Improvements Plan.

Staff recommends Board approval of the project authorization for the Substation Circuit Exits Replacement Project and seeks the necessary Board approvals for expenditures in order to complete the project by August 31, 2018.

If the Board concurs, the following motion is recommended:

MOVED BY _____, SECONDED BY _____,

THAT THE BOARD APPROVE AS PRESENTED THE SUBSTATION CIRCUIT EXITS REPLACEMENT PROJECT AND DIRECTS STAFF TO SOLICIT CONSTRUCTION BIDS AND MATERIAL QUOTES FOR THE BOARD'S CONSIDERATION OF APPROVAL AFTER DESIGN COMPLETION.

PROJECT AUTHORIZATION REQUEST

TRAVERSE CITY LIGHT & POWER

Project Name: Substation Exits Replacement 2018

Budgeted in CIP: Yes

Dollar Amount Budgeted: $560,000

Date of Board Presentation: February 13, 2018

Objective: Target Completion date of August 31, 2018

Project Description:

Replacement of underground circuit exits at Barlow Rd (four circuits: BW22, BW23, BW30, BW31), Parsons Rd (four circuits: PC21, PC22, PC23, PC30), and Cass Rd substation (four circuits: CD 21, CD23, CD31, CD22) with 750kCM 15kV copper cable in full conduit.

Project Purpose and Necessity:

While the breakers, switches, and overhead cable for each of these circuits are rated at 600A, the existing circuit exit cable is rated at 500A, making them a weak link for future growth and use in emergencies. The cable is also 30+ years old and approaching the projected end of life. This project is to replace aging cable and terminations and to bring these circuits up to full carrying capacity of 600A. These circuit exits are identified in the TCL&P Distribution System Study done by GRP in 2016.

Project Benefits:

Increased capacity for all 12 circuits, which is useful for growth and emergencies. Replaces aging cable and terminations, which is beneficial for reliability. Having the cables installed in conduit will allow for significantly quicker replacement as needed in the future, which minimizes either outages or the length of time for abnormal system configuration.

Alternatives:

Delaying the replacement of the circuits would risk prolonged outages or reduce the options for switching load for emergencies or planned work, particularly as load increases.

Timeline:

Project Kickoff February 19, 2018
Design Complete April 11, 2018
Bid Opening May 2, 2018
Construction Start May 21, 2018
Construction End August 31, 2018

PROJECT AUTHORIZATION REQUEST

TRAVERSE CITY LIGHT & POWER

Financing Method:

Cash from TCL&P fund balance. Bonding will not be required.

Revenues:

There will be no additional revenues.

Impact on O&M Expenses:

There are no reductions in O&M expenses in the near future. However, a cable termination failure could result in expensive O&M repair costs.

Staff Recommendation:

Staff recommends that the Board approve the Substation Exits Replacement project as presented and to authorize staff to seek competitive bids for construction.

Budget:

Professional Services:	$52,000
Material:	$185,000
Labor:	$267,000
Contingency:	$56,000
Total:	$560,000

TRAVERSE CITY
LIGHT & POWER

To: **Light & Power Board**
From: Daren Dixon, Operations Manager
Date: February 5, 2018
Subject: Substation Circuit Exits Replacement – Professional Engineering Services

Attached is a proposal from GRP Engineering, Inc. ("GRP") regarding professional engineering services relating to the Substation Circuit Exits Replacement project for your consideration of approval. Staff's recommendation to approve entering into an agreement for these services is contingent upon Board approval of the project, which was submitted for approval at the February 13, 2018 Board meeting.

GRP will provide design engineering services, contract administration, and project management services for the circuit exit replacements for Barlow, Cass and Parsons Substations from beginning through project completion. The following are the engineering services proposed lump sum costs:

Substation	Fee
Barlow Substation	$11,000
Cass Road Substation	$12,000
Parsons Substation	$ 8,000

The Contract/Project Administration services are proposed at an hourly rate not to exceed the following maximum total:

Substation	Fee
Barlow Substation	$7,000
Cass Road Substation	$8,000
Parsons Substation	$6,000

(MOTION ON FOLLOWING PAGE)

FOR THE LIGHT & POWER BOARD MEETING OF FEBRUARY 13, 2018

If the Board concurs, the following motion is recommended:

MOVED BY _____, SECONDED BY _____,
THAT THE BOARD AUTHORIZES THE CHAIRMAN AND SECRETARY TO ENTER INTO AN AGREEMENT WITH GRP ENGINEERING, INC. FOR PROFESSIONAL ENGINEERING SERVICES AT A LUMP SUM FEE OF $31,000, AND FOR CONTRACT/PROJECT ADMINISTRATION AT AN HOURLY FEE WITH A NOT TO EXCEED TOTAL OF $21,000 RELATING TO THE SUBSTATION CIRCUIT EXIT REPLACEMENT PROJECT. AGREEMENT SUBJECT TO APPROVAL AS TO SUBSTANCE BY THE EXECUTIVE DIRECTOR AND AS TO FORM BY GENERAL COUNSEL.

January 8, 2018

Mr. Daren Dixon
Operations Manager
Traverse City Light & Power
1131 Hastings St.
Traverse City, MI 49686

RE: Substation Exit Cable Replacement
Engineering Services Proposal

Dear Daren:

GRP Engineering, Inc. is pleased to present this proposal to Traverse City Light & Power (TCL&P) for engineering services associated with the Substation Exit Cable Replacement project. This project is being undertaken to replace aging cable, increase the ampacity of each circuit exit to full 600A capacity, and replace failing cable terminations. The scope of this project includes installation of conduit and new 750kCM 15kV CU cable on four circuits at Cass Road Substation (CD21, CD23, CD30 & CD31), all four circuits at Barlow Substation, and four circuits at Parsons Substations (PC21, PC22, PC23, & PC30). Estimated total project cost is $560,000.

Although this project will be combined for bidding and construction purposes, all costs will be separated for each substation. This engineering services proposal is also separated by substation, although it is based on award of the full project. GRP Engineering's understanding is that all work will be contracted out for this project. One construction contract will be prepared covering installation of both conduit and cable, with costs broken out by substation. GRP Engineering will complete design, assist with material procurement, prepare and process one construction contract, perform construction staking, observation, and contract administration. Proposed schedule is to complete construction by August 31, 2018.

Substation Exit Cable Replacement Engineering Design Phase

- Project administration (maintain correspondence & meeting minutes.)
- Project planning & control (design schedules & cost estimates.)
- Project kickoff meeting with TCL&P staff.
- Field inventory of cable endpoints including risers, cabinets, and/or switchgear.
- Complete design of the 13.8kV substation underground exits including conduit layout, site restoration, and riser assemblies.
- Design underground system to meet all applicable standards including those of the current edition of the National Electric Safety Code (NESC)
- Prepare new construction and removal staking sheets.
- Prepare underground layout, detail, and site restoration drawings.
- Coordinate design with Parsons Switching Station project.
- Two (2) design review meetings with TCL&P staff.

- Prepare construction assembly drawings meeting TCL&P standards.
- Assist TCL&P with material procurement including bidding, evaluation and award.
- Prepare new construction and removal unit lists for contractor bidding.
- Prepare construction specifications.
- Preparation of one (1) construction contract plus assistance with bid and award. Construction contract will be prepared so that contractor costs will be separated by each substation.
- Printing & shipping of all required construction drawings sets.
- Prepare and process all required permit applications.

GRP Engineering, Inc. proposes to complete the Design Phase engineering services for the Substation Exit Cable Replacement Project for the lump sum fees listed below. All fees include expenses and all subcontracted services.

Substation	Fee
Barlow Substation	$11,000
Cass Road Substation	$12,000
Parsons Substation	$ 8,000

Substation Exit Cable Replacement Contract Administration Phase

- Prepare construction contract including contractor's bid, bonds and insurance.
- Attendance at three (3) preconstruction meetings, one per substation.
- Construction staking of all underground conduit centerlines, padmount equipment and riser poles.
- On-site representation during conduit installation at critical times.
- On-site representation during electrical cable installation at critical times.
- Coordination between TCL&P, construction contractors, and other affected projects and parties.
- Monitor and verify construction compliance with engineering drawings and specifications and all NESC requirements.
- Preparation of monthly progress reports, which will include contractor performance and any work quality issues.
- Final inventory and preparation of punch lists and energization release forms for the new 13.8kV underground circuit exits system.
- Process all contractor invoicing and change orders *(if required.)*
- Prepare all necessary contract close-out documents.
- Provide record drawings including two (2) bound sets and files in AutoCAD 2018 format.

GRP Engineering, Inc. proposes to complete the Contract Administration Phase services for the Substation Exit Cable Replacement Project on an hourly basis for the maximum fees listed below. All fees include expenses and all subcontracted services.

Substation	Fee
Barlow Substation	$7,000
Cass Road Substation	$8,000
Parsons Substation	$6,000

Should additional services be required outside the scope of this proposal, we will complete those tasks on an hourly basis based on the attached rate sheet. All services performed for Traverse City Light & Power within this scope will be billed on a monthly basis and all costs will be separated per substation.

Deliverables

Deliverables will include:

- Substation construction plan & elevation view drawings (24"x36") in AutoCad & pdf format.
- Construction bid documents & specifications (8.5"x11") in pdf format.
- New construction and removal unit list (8.5"x11") in MSExcel & pdf format.
- Material list (8.5"x11") in MSExcel & pdf format.
- Record drawings in the formats listed above.

Proposed Project schedule:

Project Kickoff	February 19, 2018
Design Complete	April 11, 2018
Bid Opening	May 2, 2018
Construction Start	May 21, 2018
Construction End	August 31, 2018

This proposal is based on award of engineering for all three substations, TCL&P providing most recent substation layout drawings in AutoCAD format, and does not include survey or easement acquisition services.

We appreciate the opportunity to submit this proposal and look forward to being of service to you. Please contact me should you have any questions regarding this proposal.

Sincerely,

GRP Engineering, Inc.

Michael P. McGeehan, P.E.
President

Enclosures

cc: Traverse City Light & Power
Mr. Tim Arends

GRP ENGINEERING, INC.
HOURLY BILLING RATES

Employee Title	Engineer Level	Hourly Rate Range
Senior Project Manager	8	$150 - $180
Project Manager	7	$130 - $150
Senior Engineer	6	$115 - $130
Project Engineer	4 - 5	$105 - $110
Engineer	2 - 3	$85 - $105
Entry Level Engineer	1	$65 - $85
Engineering Technician		$45 - $70
Engineering Support		$35 - $50
Administrative Support		$45 - $60

Expenses will be invoiced at cost including, but not limited to, mileage, meals, lodging, printing and reproduction.

All subcontracted services will be invoiced at cost, with no additional markup.

Rates are valid through December 31, 2018

TRAVERSE CITY
LIGHT & POWER

To:	**Light & Power Board**
From:	Daren Dixon, Operations Manager
Date:	February 6, 2018
Subject:	Project Authorization Request – Parsons Switching Station

Staff is requesting authorization from the Board to proceed with development, design and construction to construct a 69kV switchyard plus new transformer high and low side switching equipment, as well as a control house at the existing Parsons Substation in order to improve reliability for customers fed from Parsons and Barlow Substations. This work was identified in the 2016 Electric Distribution Study performed by GRP Engineering, Inc. and has been in the TCL&P Six Year Capital Improvements Plan.

Staff recommends Board approval of the project authorization for the Parsons Switch Station Project and seeks the necessary Board approvals for expenditures in order to complete the project by January 1, 2019.

If the Board concurs, the following motion is recommended:

MOVED BY _____, SECONDED BY _____,

THAT THE BOARD APPROVE AS PRESENTED THE PARSONS SWITCH STATION PROJECT AND DIRECTS STAFF TO SOLICIT CONSTRUCTION BIDS AND MATERIAL QUOTES FOR THE BOARD'S CONSIDERATION OF APPROVAL AFTER DESIGN COMPLETION.

PROJECT AUTHORIZATION REQUEST

TRAVERSE CITY LIGHT & POWER

Project Name: Parsons Switch Station

Budgeted in CIP: Yes

Dollar Amount Budgeted: $1,560,000

Date of Board Presentation: February 13, 2018

Objective: Target Completion date of January 1, 2019

Project Description:

Install 2-69kVdeadend structures, 2-69kV breakers, 7-69kV disconnect switches and associated bus work, 2-69kV circuit switchers, 3-motor operators for 15kV switches, fence and ground grid expansion, a new control house, control panels, battery system and all associated protective relaying.

Project Purpose and Necessity:

To improve reliability for all customers fed from Barlow and Parsons Substations by providing automated switching on the 69kV transmission system from Barlow Substation to Hammond Substation in the event of transmission line faults and by updating transformer protection to current standards.

Project Benefits:

Minimizes the risk of large-scale outages due to transmission line faults for Barlow and Parsons Substations. Increased speed and efficiency when switching the transmission line. Upgrading the transformer protection which will extend the life of the transformer. The upgraded protection also eliminates the possibility of customer equipment being damaged via a lost phase.

Alternatives:

Continue to rely on manually switching the transmission feed in event of a transmission line fault or required system switching.

Timeline:

Project Kickoff	February 19, 2018
Design Complete	July 9, 2018
Bid Opening	August 7, 2018
Construction Award	August 14, 2018
Construction Start	September 10, 2018
Project Substantially Complete	January 1, 2019
Project Closeout	February 1, 2019

Financing Method:

Cash from the TCL&P electric fund balance. Bonding will not be required.

Revenues:

No additional revenues are forecast; however, some amount of revenue would be lost in the event of an outage requiring manual switching or required system switching. The amount of this is dependent upon the time year, the amount of customer load, and the time it takes to switch.

Impact on O&M Expenses:

Future maintenance issues for added facilities would be offset at least in part by automation of switching. This is dependent upon the potential for outage occurances.

Staff Recommendation:

Staff recommends that Board approve the Parsons Switch Station Project authorization and necessary expenditures in order to improve reliability for its customers.

Budget:

Professional Services	$188,000
Materials	$350,000
Labor	$866,000
Contingency	$156,000
	$1,560,000

FOR THE LIGHT & POWER BOARD MEETING OF FEBRUARY 13, 2018

TRAVERSE CITY
LIGHT & POWER

To: **Light & Power Board**
From: Daren Dixon, Operations Manager
Date: February 6, 2018
Subject: Parsons Switch Station – Professional Engineering Services

The Parsons Switch Station Project is being undertaken to improve reliability to customers fed from Barlow and Parsons Substations by installing a new switchyard and control house at Parsons Substation. Staff issued a Request for Proposals (RFP) for the engineering design and project management for this Project and received bids as follows:

Vendor	Price
GRP Engineering, Inc.	$188,000
Power Systems Engineering, Inc.	$196,816

Staff recommends that the TCL&P Board acceptance of GRP's bid. The recommended bid is in line with projected project costs. Staff's recommendation to approve entering into an agreement for these services is contingent upon Board approval of the project, which was submitted for approval at the February 13, 2018 Board meeting.

If the Board concurs, the following motion is recommended:

MOVED BY _____, SECONDED BY _____,

THAT THE BOARD AUTHORIZES THE CHAIRMAN AND SECRETARY TO ENTER INTO AN AGREEMENT WITH GRP ENGINEERING, INC. FOR PROFESSIONAL ENGINEERING SERVICES AND PROJECT MANAGEMENT AT A LUMP SUM FEE OF $104,000, AND FOR CONTRACT ADMINISTRATION, START-UP AND TESTING AT AN HOURLY FEE WITH A NOT TO EXCEED TOTAL OF $84,000 RELATING TO THE PARSONS SWITCH STATION PROJECT. AGREEMENT SUBJECT TO APPROVAL AS TO SUBSTANCE BY THE EXECUTIVE DIRECTOR AND AS TO FORM BY GENERAL COUNSEL.

TRAVERSE CITY LIGHT & POWER

Traverse City Light & Power
Bid Tabulation Form

Project Name: Parsons Switch Station Engineering & Project Management

BIDDER	TOTAL CONTRACTOR BASE BID PRICE	REMARKS
GRP Engineering, Inc. 459 Bay Street Petoskey, MI 49770	$ 188,000.00	Low Bid
Power System Engineering, Inc. 1532 W. Broadway Monona, WI 53713	$ 196,816.00	

This is to certify that at 2:00PM local time on Tuesday, February 6, 2018, the bids tabulated herein were publicly opened and read.

Traverse City Light & Power

By: _____

Tony Chartrand, System Engineer

TRAVERSE CITY
LIGHT & POWER

To: **Light & Power Board**
From: Karla Myers-Beman, Controller
Date: February 13, 2018
Subject: Presentation of the Fiber Fund 2018-19 Budget

Enclosed is the Fiber Fund and related cash flow for the fiscal year end June 30, 2019.

BUDGET

Revenues have significantly increased in the projected revenues relating to the new fiber connections for the Security Camera System at each substation in the approximate amount of $50,000 annually. Budgeted revenues have increased based on the new fiber connection charges to Traverse City Light & Power and the City for $46,200 each for the Automated Metering Infrastructure Project ("AMI"). Initial capital costs required to modify the dark fiber system to operate the AMI System for $140,000 is recorded under the Reimbursement revenue line item.

Professional services increased relating to the Fiber to the Premise Project ("FTTP") Business Plan engagement commencing during the fiscal year and with completion anticipated in the fiscal year end June 30, 2019. (The final budget will be modified to incorporate the decision made by the Board on the business plan earlier in the meeting).

This budget does not reflect any activity relating to FTTP. Once the project is in the financing and construction phase, this activity will be reflected in the balance sheet primarily through bonds/loan payable, cash and fixed assets. If a bond were to be issued, any bond issuance costs that need to be expensed in the current year as required by GASB 65 or any operating revenue/expense expected to be received or incurred, will be presented as a budget adjustment to the Board once the information is available.

CASH FLOW

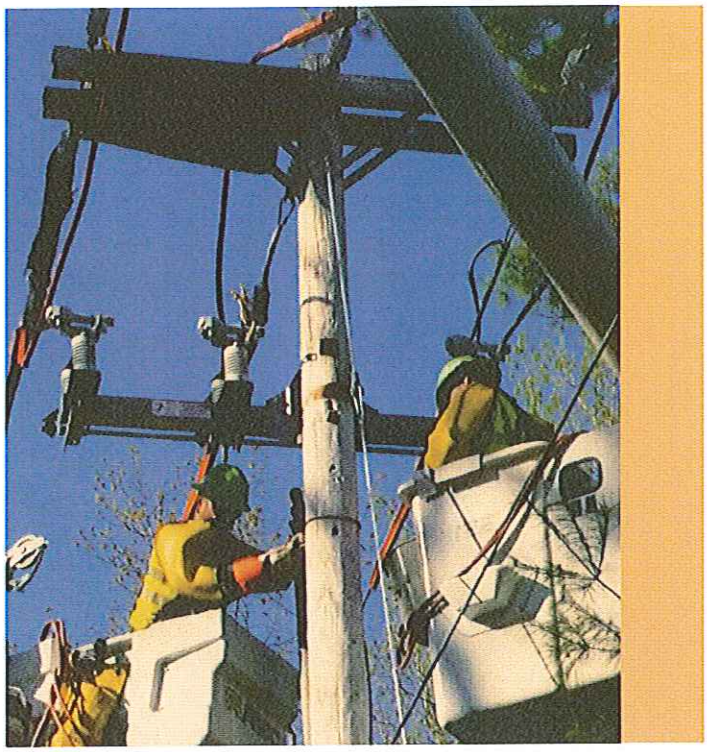
The projected six-year cash flow represents inflationary increases in fiber revenue and related expenses unless projected numbers are available. One-time expenses such as the professional services related to the FTTP Business Plan are removed from future year's inflationary increases. Additionally, staff has included planned repayments to the Electric Fund for the initial investments into the Fiber Fund with repayment to be completed by year 2022-23.

Traverse City Light & Power
Fiber Optics Fund
2018-19 Budgeted Revenues and Expenses

	FY 15/16 Actual	FY 16/17 Actual	FY 17/18 Budgeted	FY 17/18 Projected	FY 18/19 Recommended
Operating revenues					
Charges for services	$ 278,376	$ 279,746	$ 319,000	$ 352,000	$ 458,000
Other	129	-	-	-	-
Total Operating Revenues	278,505	279,746	319,000	352,000	458,000
Operating expenses					
Salaries and wages	44,601	56,984	81,500	63,000	64,900
Fringe benefits	35,081	49,451	93,900	68,950	70,250
Office & operation supplies	1,829	1,273	1,000	1,500	2,000
WIFI operations and maintenance	28,678	30,488	29,800	31,400	32,100
Hardware and software	-	5,850	5,400	5,400	5,750
Professional services	1,727	24,026	-	44,250	44,250
Legal services	2,475	2,280	1,500	2,500	2,500
City fee	13,932	13,999	15,975	18,000	23,000
Professional development	-	-	2,500	2,500	2,500
Insurance	-	435	1,000	1,000	1,000
Repair and maintenance	11,171	2,999	20,000	16,000	16,000
Vehicle rental	8,974	8,026	13,000	10,000	10,000
Miscellaneous		43	-	100	100
Depreciation expense	143,383	144,630	145,000	145,000	146,000
Total operating expenses	291,851	340,484	410,575	409,600	420,350
Operating income (loss)	(13,346)	(60,738)	(91,575)	(57,600)	37,650
Non-operating revenues (expenses)					
Reimbursements	54,127	33,525	53,400	68,900	177,800
Interest revenue	125	231	500	500	1,130
Loss on disposal of fixed assets	-	(3,897)	-	-	-
Total non operating revenues	54,252	29,859	53,900	69,400	178,930
Other financing transfers					
Transfer out	(175,000)	(125,000)	(125,000)	(125,000)	(175,000)
Change in net position	$ (134,094)	$ (155,879)	$ (162,675)	$ (113,200)	$ 41,580

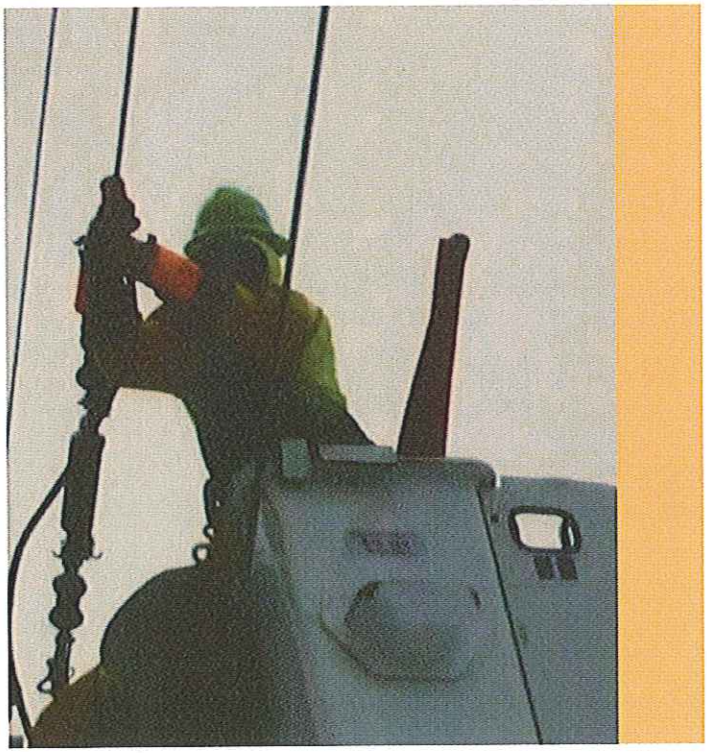
Traverse City Light & Power - Fiber Fund

Fiscal Year:	Actual 2016/17	Estimate 2017/18	Estimate 2018/19	Estimate 2019/20	Estimate 2020/21	Estimate 2021/22	Estimate 2022/23
Receipts							
Charges for services - Fiber	$ 279,746	$ 352,000	$ 458,000	$ 467,160	$ 476,503	$ 476,503	$ 486,033
Non Operating Revenues - Reimbursements	33,525	68,900	177,800	32,826	39,856	31,400	31,415
Non Operating Revenues - Interest Revenue	231	500	1,130	1,541	2,041	2,008	2,780
Timing of payables/receivables	(75,256)	75,256	-	-	-	-	-
Total Receipts	**238,246**	**496,656**	**636,930**	**501,527**	**518,400**	**509,911**	**520,228**
Payments							
Fiber Expense	165,366	233,200	242,250	201,960	205,999	210,119	214,322
WIFI Expense	30,488	31,400	32,100	32,742	33,397	34,065	34,746
Capital Investments	16,262	15,000	140,000	-	-	-	-
Transfer to Electric Fund	125,000	125,000	175,000	175,000	175,000	175,000	83,875
Total Payments	**337,116**	**404,600**	**589,350**	**409,702**	**414,396**	**419,184**	**332,943**
Cashflow Surplus/Deficit (-)	**(98,870)**	**92,056**	**47,580**	**91,825**	**104,004**	**90,727**	**187,286**
Opening Cash & Investments Balance	**$ 209,098**	**$ 110,228**	**$ 202,284**	**$ 249,864**	**$ 341,689**	**$ 341,689**	**$ 445,693**
Closing Cash & Investments Balance	**$ 110,228**	**$ 202,284**	**$ 249,864**	**$ 341,689**	**$ 445,693**	**$ 432,415**	**$ 632,978**



TRAVERSE CITY
LIGHT & POWER

2016-2017
ANNUAL REPORT



Our Message

Traverse City Light and Power's (TCL&P's) 104 year commitment to the Traverse City community has and will continue to be at the forefront. Our mission is simple, provide the community and customers the public power benefits of "safety, lower rates, high reliability, local control and exceptional customer service."

Jan Geht
Board Chairperson

Timothy Arends
Executive Director

What We Have Accomplished

This past year, TCL&P has continued to place considerable focus on upgrading our electric system; creating greater efficiencies, and identifying opportunities to take the utility to the next level in technological advances. All of which have remained congruent with our Strategic Plan, and the overall vision of the utility.

TCL&P's larger project focus for the 2016-2017 fiscal year included:

- Beginning the overhaul and upgrade of the entire BW-31 Circuit. This electric line and associated infrastructure is the power source for all customers located east of Railroad Avenue, south of Eighth Street and the base of Old Mission Peninsula.
- Completing the Orchard Heights Overhead-to-Underground Conversion Project that involved undergrounding an inaccessible overhead distribution line with the end goal to reduce outages, energy losses and maintenance costs.
- Successfully securing the approvals necessary to look further into providing Fiber to the Premise (FTTP) to all TCL&P customers.
- Seeking bids and selecting a vendor to upgrade all TCL&P electric meters and City of Traverse City water meters by the end of 2018.

Our Continued Commitment

As we look to the future, the utility will remain focused on identifying and implementing new technology and performing the necessary upgrades to ensure that your system maintains its high level of reliability.

Our focus will expand with new initiatives such as strengthening our renewable generation portfolio. The utility will be assisting the City of Traverse City on achieving its 100% renewable energy goal by 2020, while at the same time seeking out projects that will benefit all ratepayers in compliance with the state mandate required by the energy legislation passed in December 2016.

Through all this, TCL&P and its dedicated workforce will continue to provide the customers and community the public power benefits of a consumer owned, not-for-profit, municipal utility that is innovative and forward thinking in a fiscally responsible manner.

Our Year

Safety

For the 2016-2017 fiscal year the Safety Committee, comprised of both union and non-union employees, met six times throughout the year, with an additional eight utility wide safety training sessions held ranging from pole top rescue to CPR and First Aid.

Again this year, the utility had one minor lost time accident due to a back strain that resulted in one lost work day. Employees will continue to discuss and investigate safety related issues to ensure safe work practices continue to be a number one priority.

Employees

TCL&P employs thirty-eight full-time employees, of which twenty-six are union and twelve are non-union. In fiscal year 2016-2017, the utility had two new hires and two retirements, along with five employees recognized for their years of service ranging from five years up to thirty years.

Additionally, TCL&P successfully negotiated a three year contract with the Utility Workers Union of America (UWUA), Local 295.

Financial

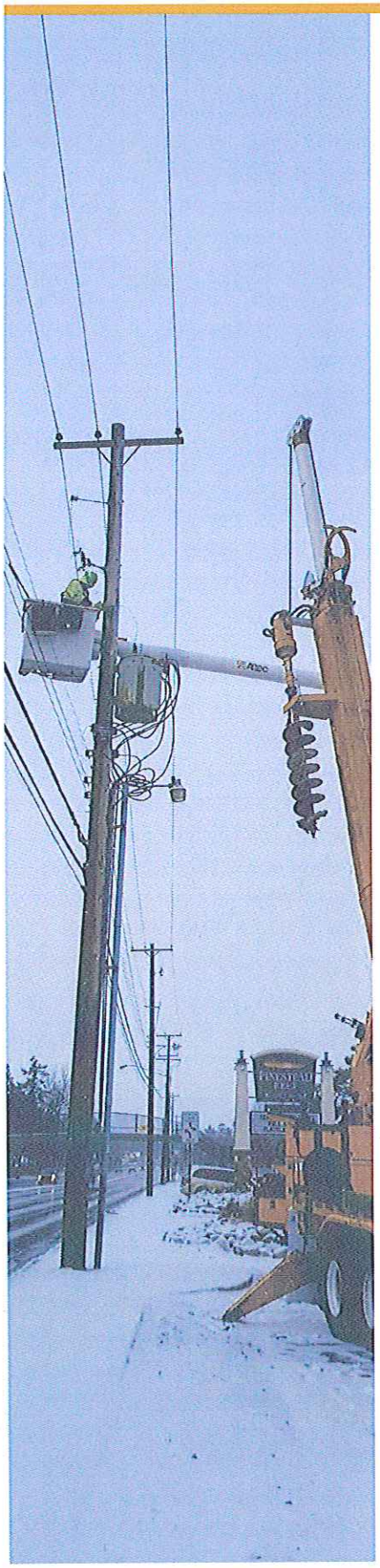
The utility continues to be financially healthy while providing the seventh lowest retail rates in the State of Michigan (EIA 2016 data). The utility developed LED rates for the Street Lighting and Private Area Lighting tariff rates in conjunction with updating the utility's High Pressure Sodium rates.

The average purchase power cost in the prior fiscal year was $63.90 and increased slightly to $65.30 in the current fiscal year, which is 67% of the utility's expenditures.

Generation

The utility continues to work in conjunction with the Michigan Public Power Agency (MPPA) on seasonal purchases, firm energy contract purchases, developing a long-term capacity purchase program, proposing future purchase power entitlements/ projects and assisting in developing a renewable energy program.

The City of Traverse City pledged through a resolution on December 19, 2016 to power all City operations with renewable power by 2020. The utility is working closely with the City to make sure they achieve their goal of 100% renewables.



Reliability

The utility invested approximately $179,578 in tree trimming which equated to 6 road miles and responded to 190 customer generated requests. A properly maintained right of way significantly reduces the length and occurrence of outages. The utility's ASAI index (total of customer hours available divided by total customer hours demanded) in 2017 was 99.993%.

This year the utility was able to complete a major rebuild on another segment of 69kV transmission line from LaFranier Road and Hammond Road to the Barlow substation. This improved capacity and reliability for the east side of our service area.

Technology

There has been significant technology projects, with the expectation this will not change as the use of technology streamlines and makes processes more effective and efficient.

Projects that commenced throughout the year included: a new work order asset management program, new GIS applications for viewing and collecting field asset information, updated server infrastructure, new phone provider with advanced routing capabilities, and installation of new security cameras at all locations where critical assets reside. A successful Advanced Metering Infrastructure (AMI) bid was completed and approved, and deployment is currently underway and expected to be finished by late 2018. Additionally, the utility was working with stakeholders at both the State and local level to obtain feedback on launching a Fiber to the Premise Project (FTTP) within Traverse City. The Board voted to add an FTTP project to the CIP and formed an ad-hoc to discuss the project further. A study session is expected to take place the beginning of 2018.

Energy Waste Reduction

Through customer engagement in the utility's Energy Waste Reduction programs, TCL&P saved an additional 2.9 million in kWh's. This, combined with the extra savings beyond the state mandated goal from 2016, put us over our goal once again! While a majority of the savings came from switching old inefficient lighting to LEDs, other avenues such as appliances, HVAC, and even refrigeration upgrades have become more popular. Our residential and commercial customers are becoming more educated in simple ways to cut back their electrical consumption, starting with the most basic idea of shutting the lights off. In 2016-2017, Venture North, in collaboration with TCL&P, gave out over $75,000 in 0% loan funds to local businesses for their participation in our Energy Waste Reduction program.

Going forward, TCL&P will continue to re-shape its programs to meet changing and new technologies as they emerge, including bringing the entire Energy Waste Reduction program in-house starting January 1, 2018.

Balance Sheet

Current assets	
Cash and cash equivalents	$ 5,574,4697
Receivables	
Customer, less allowances of $319,084	
for uncollectible accounts (Light and Power Fund)	3,403,100
Accrued interest	52,656
Taxes	4,806
Other	304,007
Inventories	1,600,534
Prepaid expenses	92,136
Total current assets	**11,031,708**
Non-current assets	
Investments	13,951,707
Accounts receivables	1,427,323
Other postemployment benefit asset	1,643,502
Long-term advances - due from primary government	285
Land and land improvements	1,079,419
Construction in progress	2,098,071
Capital assets being depreciated, net	56,453,337
Total non-current assets	**76,653,644**
Total assets	**87,685,352**
Deferred outflows	
Deferred outflows of resources - Pensions	3,021,899

Current liabilities	
Accounts payable	$ 2,035,637
Accrued expenses and other liabilities	617,893
Customer deposits	97,447
Unearned revenue	14,815
Due to primary government	243,138
Total current liabilities	**3,008,930**
Long-term liabilities	
Compensated absences	161,944
Net pension liability	12, 964,744
Total liabilities	**16,135,618**
Deferred inflows	
Deferred inflows of resources-Pensions	774,212
Net position	
Invested in capital assets	59,630,827
Unrestricted	14,166,594
Total net position	**$ 73,797,421**

Revenue and Expenses

Where Does it Go?

For every dollar paid to the utility, **63¢** is spent on purchased power and related transmission costs.

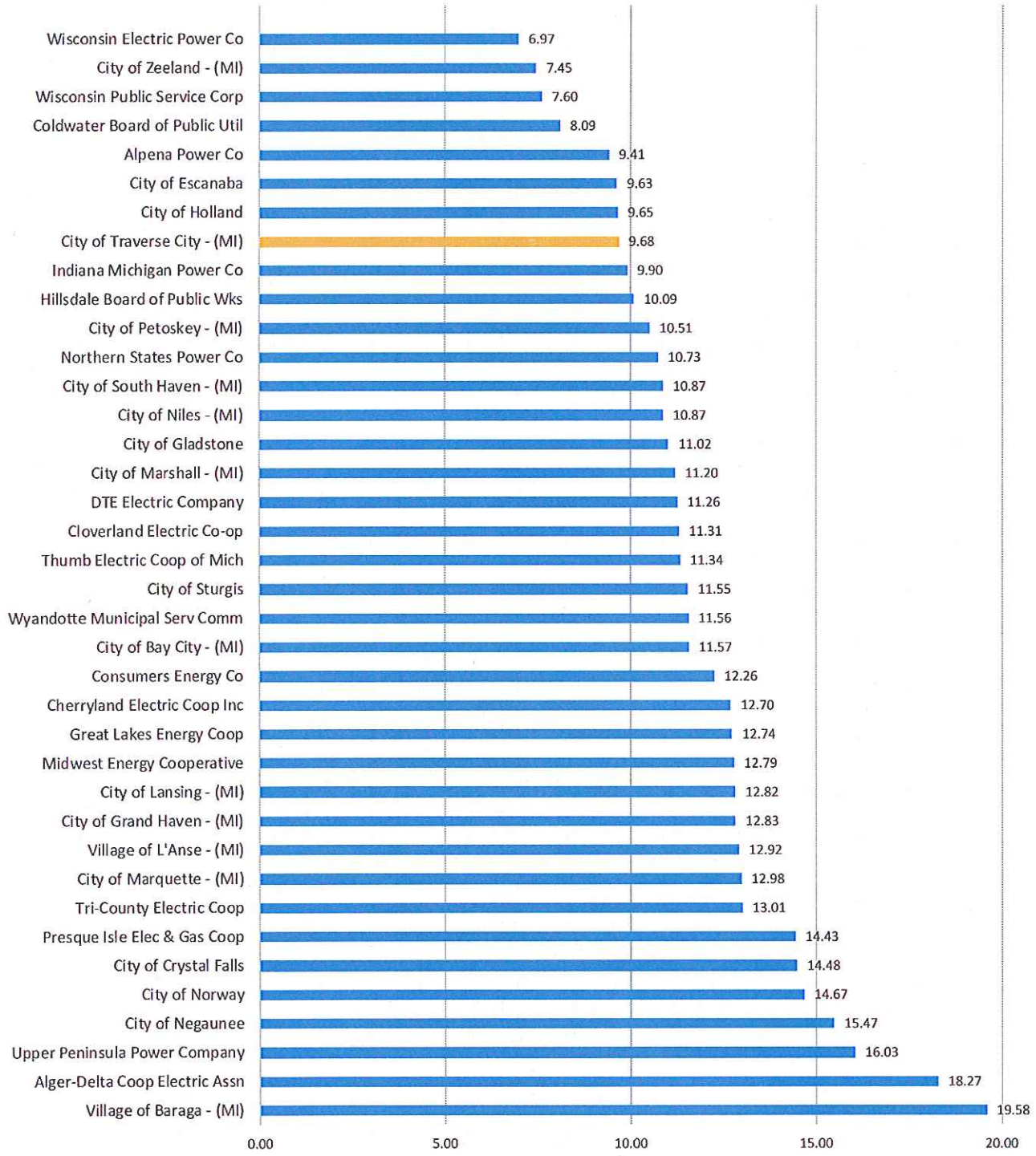
- 13¢ Capital Investment
- 12¢ Distribution & Transmission
- 5¢ City Fee
- 4¢ General Administration
- 1¢ Public Service
- 1¢ Customer Accounting
- 1¢ Fiber/WIFI

	FYE 2017	FYE 2016
Operating revenues		
Charges for services	$ 31,444,865	$ 31,944,489
MISO income	3,123,621	3,483,052
Other	224,791	381,008
Total operating revenues	**34,793,277**	**35,808,549**
Operating expenses		
Generation	22,132,569	23,070,005
Distribution	3,800,057	4,424,951
Transmission	444,502	421,135
Customer accounting	501,210	577,278
Public service	466,506	671,545
General administration	1,258,666	986,037
Fiber	150,932	105,858
WIFI	30,488	28,678
Other	73,965	62,001
City fee	1,743,138	1,798,832
Depreciation	2,656,157	2,397,571
Total operating expenses	**33,258,190**	**34,543,891**
Operating income	**1,535,087**	**1,264,658**
Nonoperating revenues (expenses)		
Rental income	104,746	93,247
Reimbursements	270,301	350,371
Interest income	204,246	289,116
Change in fair value of investments	(247,867)	59,202
Loss on sale of assets	(9,862)	(355,965)
Total nonoperating revenue	**321,564**	**435,971**
Income before transfers	1,856,651	1,700,629
Transfers		
Transfers in	125,000	175,000
Transfers out	(125,000)	(175,000)
Total transfers	-	-
Change in net position	1,856,651	1,700,629
Net position, beginning of year	71,940,770	70,240,141
Net position, end of year	**$ 73,797,421**	**$ 71,940,770**

Where Does it Come From?

Rate Comparison

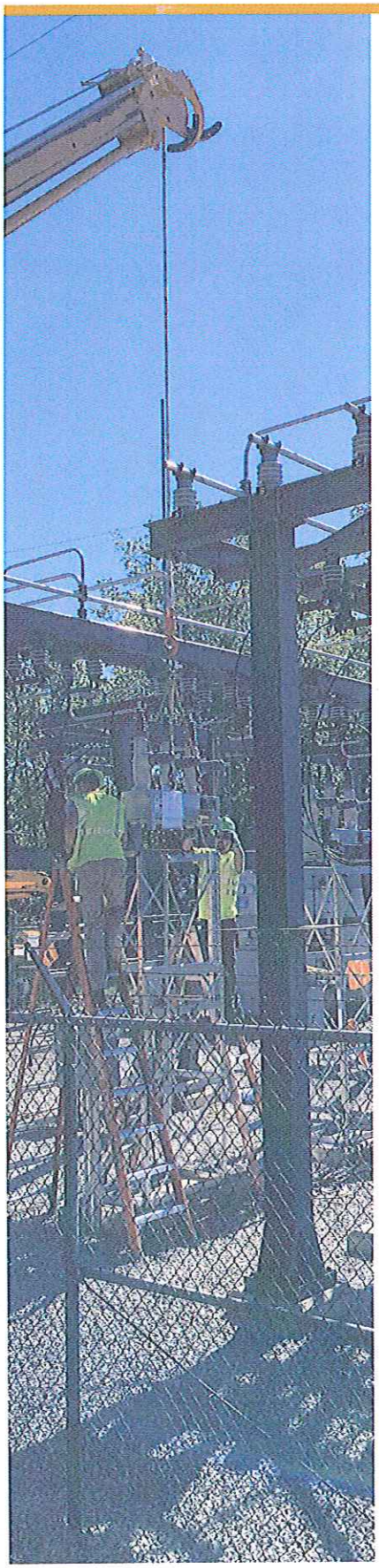
AVERAGE PRICE (CENTS/KWH)
INFORMATION OBTAINED FROM EIA - 2016 DATA



Financial, Operating & Other Ratios

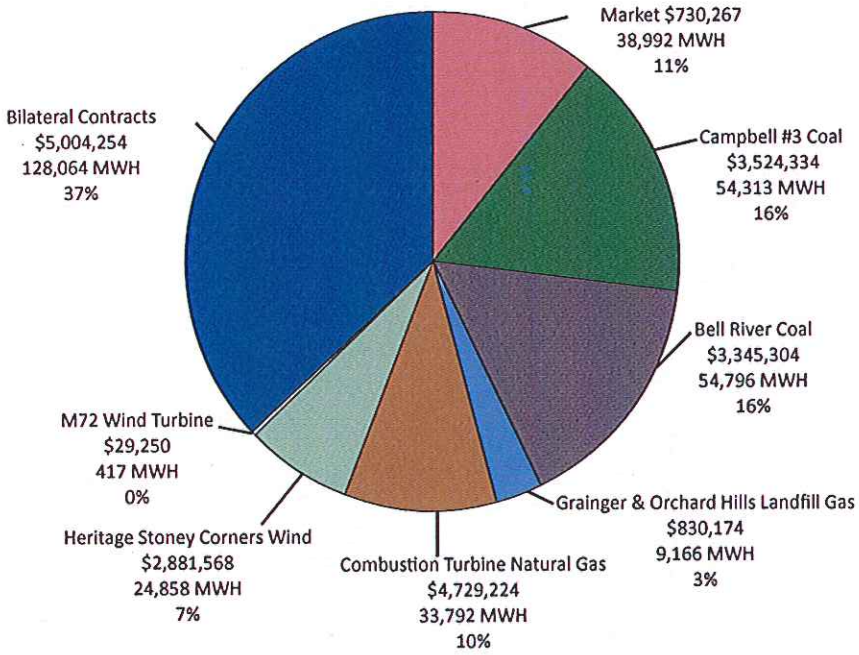
(Fiscal Years Ending June 30, 2017, 2016, 2015 and 2014)

Ratio Description	2017	2016	2015	2014	Industry Average APPA 10,000-20,000 Customers
FINANCIAL RATIOS					
Revenue per KWH*					
* All Retail Customers	$ 0.095	$ 0.098	$ 0.109	$ 0.101	$ 0.092
* Residential Customers	$ 0.106	$ 0.109	$ 0.118	$ 0.109	$ 0.104
* Commercial Customers	$ 0.104	$ 0.108	$ 0.118	$ 0.108	$ 0.095
* Industrial Customers	$ 0.077	$ 0.080	$ 0.092	$ 0.087	$ 0.071
Debt to Total Assets	N/A	N/A	N/A	N/A	0.234
Operating Ratio	1.043	1.082	0.953	0.997	0.863
Current Ratio	3.66	5.37	10.64	8.96	2.65
Net income per revenue dollar	$ 0.053	$ 0.052	$ 0.120	$ 0.114	$ 0.073
Uncollectible accounts per revenue dollar	$ 0.0002	$ 0.0001	$ 0.0011	$ 0.0009	$ 0.0017
OPERATING RATIOS					
Retail customers per employee	381	341	330	331	399
Total OM expense per KWH sold	$ 0.092	$ 0.099	$ 0.096	$ 0.093	$ 0.079
Total OM expense per retail customer	$ 658	$ 731	$ 652	$ 593	$ 400
Total power supply expense per kWH sold	$ 0.067	$ 0.070	$ 0.070	$ 0.070	$ 0.065
Purchased power cost per KWH	$ 0.065	$ 0.065	$ 0.070	$ 0.075	$ 0.061
Retail customers per meter reader	6,283	5,113	4,986	4,967	5,769
Distribution OM expense per retail customer	$ 302	$ 346	$ 283	$ 270	$ 155
Distribution expense per circuit mile	$ 10,857	$ 12,643	$ 10,088	$ 9,588	$ 4,840
Customer accounting, service and sales expense per retail customer	$ 40	$ 45	$ 46	$ 39	$ 48
Administrative and general expense per retail customer	$ 100	$ 77	$ 67	$ 61	$ 143
OTHER RATIOS					
OSHA Incidence Rate	0%	0%	0%	0%	2
Energy loss percentage	2.23%	6.93%	0.88%	-7.12%	3.66%
System Load Factor	59.72%	53.84%	49.75%	47.13%	56.10%

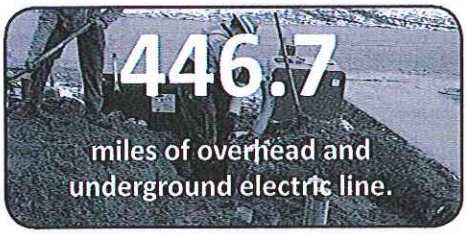


By The Numbers

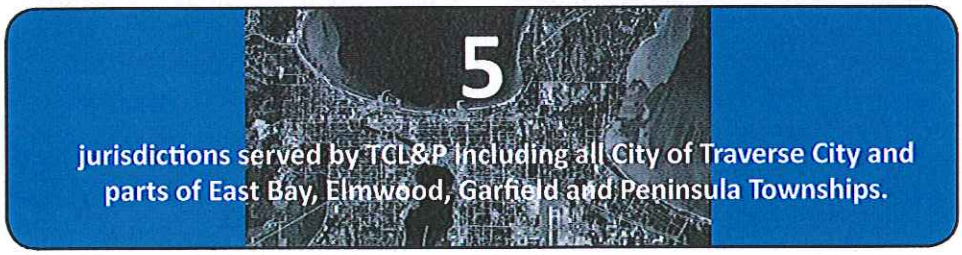
2016 Calendar Year Energy Consumption



12,566
residential and commercial customers.



104
years in operation.



Our Board (from left to right)

Jan Geht, Board Chairperson

Tim Werner, City Commissioner

Jeff Palisin, Board Vice-Chairperson

Amy Shamroe, City Commissioner

Ross Hammersley, Board Member

Patrick McGuire, Board Member

John Taylor, Board Member

Marty Colburn, City Manager (Ex-Officio)

Our Administrative Team

Timothy Arends, Executive Director

Jennifer St. Amour, Administrative Assistant

Karla Myers-Beman, Controller

Kelli Schroeder, Manager of Human Resources & Communications

Scott Menhart, Manager of Technology & Telecommunications

Gabe Talaga, Computer Systems Specialist

Daren Dixon, Operations Manager

Mark Watson, Field Engineering Supervisor

Tony Chartrand, System Engineer

Rodney Solak, Line Superintendent

Stephanie Tvardek, Scheduling & Operations Coordinator

Jacob Hardy, Energy Technician

TRAVERSE CITY
LIGHT & POWER

To: **Light and Power Board**
From: Karla Myers-Beman, Controller
Date: February 7, 2018
Subject: Quarterly Financial Report

Enclosed in your packet are the second quarter financial statements for the Electric and Fiber Funds.

Electric Utility Fund

As of December 31, 2017 (50% through the fiscal year), operating revenues - sales are 47.37% of budgeted operating revenues. Residential, commercial and industrial sales have declined over the prior year, attributed to the milder summer than last except for the warm-up at the end of September.

Total operating expenses are at 46.72% of budget year-to-date, with purchase power costs at 46.77%. Other categories with lower than anticipated expenditures to date are transmission costs at 37.79% because of expenses not yet incurred such as the joint pole use agreement annual costs with Consumers Energy (occur in January). Along with public service costs are at 39.30% relating to funds not expended for the energy waste reduction program.

Net income through the second quarter is $837,741, which is approximately $8,320 decrease over the prior year.

Cash flow statement shows approximately $2,761,229 expended in capital assets, primarily for the Cherry Capital Runway Expansion Project ($400,000 of costs to be reimbursed by Cherry Capital Airport), BW-31 Circuit Rebuild, Critical and Large Customer Project, M-72 Solar Project (costs reimbursed by Heritage) and the Cherryland Exchange Project.

Fiber Fund

Revenues in the Fiber Fund are 52.66% of budgeted operating revenues while expenses are 44.65% of budget year-to-date. WIFI Operations and Maintenance is at 80.97% of budget relating to Merit Network expenses incurred the first quarter relating for the WIFI system internet feed, a primary expense of this line item. The Fund has a net loss or change in net position of $(7,428).

TRAVERSE CITY LIGHT AND POWER

(A Component Unit of the City of Traverse City, Michigan)

ELECTRIC FUND
STATEMENT OF NET POSITION
DECEMBER 31, 2017

ASSETS		LIABILITIES AND NET POSITION	
Current assets		**Current liabilities**	
Cash and cash equivalents	$ 4,737,251	Accounts payable	$ 1,437,536
Investments	14,452,153	Accrued expenses and other liabilities	642,143
Receivables		Customer deposits	98,910
Customer, less allowances of $320,423 for uncollectible accounts (Light and Power Fund)	2,825,040	Unearned revenue	520,000
Accrued interest	52,656	Compensated absences	-
Taxes	12,293	Due to primary government	116,026
Other	1,672,732		
Inventories	1,515,750	**Total current liabilities**	**2,814,615**
Prepaid expenses	64,877		
		Long-term liabilities	
Total current assets	**25,332,752**	Compensated absences	158,413
		Net pension liability	12,964,744
Non-current assets			
Other postemployment benefit asset	1,715,848	**Total long term liabilities**	**13,123,157**
Long-term advances - due from primary government	285		
Land and land improvements	1,079,419	**Total liabilities**	**15,937,772**
Construction in progress	4,844,356		
Capital assets being depreciated, net	53,778,797	Deferred inflow	774,212
Total non-current assets	**61,418,705**		
Total assets	**86,751,457**	**Net position**	
		Invested in capital assets	59,702,572
Deferred outflow	3,021,899	Unrestricted	13,358,799
Total cash and investments	**$ 19,189,404**	**Total net position**	**$ 73,061,371**

TRAVERSE CITY LIGHT AND POWER

(A Component Unit of the City of Traverse City, Michigan)

ELECTRIC FUND
SCHEDULE OF REVENUES AND EXPENSES - BUDGET AND ACTUAL (UNAUDITED)
FOR THE PERIOD ENDED DECEMBER 31, 2017

	Month to Month Comparison			Year to Year Comparison			Budget to Year to date Comparison			
	Month to date Actual	Month to date Prior Year	Month to date Difference	Year to date Actual	Year to date Prior Year	Year to date Difference	Amended Budget	Year to date Actual	Favorable (Unfavorable)	% of budget
Operating revenues - sales										
Residential	$ 632,884	$ 566,875	$ 66,009	$ 3,001,018	$ 3,067,149	$ (66,131)	$ 6,400,000	$ 3,001,018	$ (3,398,982)	46.89%
Commercial	1,298,782	1,221,336	77,446	7,509,494	7,261,093	248,401	15,560,000	7,509,494	(8,050,506)	48.26%
Industrial	678,902	774,390	(95,487)	4,645,101	4,959,694	(314,592)	10,050,000	4,645,101	(5,404,899)	46.22%
Public authority	11,809	10,734	1,074	157,093	165,296	(8,203)	300,000	157,093	(142,907)	52.36%
Street lighting	19,317	16,695	2,622	112,164	95,149	17,015	225,000	112,164	(112,836)	49.85%
Yard lights	12,753	7,998	4,755	60,240	45,838	14,402	155,000	60,240	(94,760)	38.86%
Total operating revenues - sales	**2,654,447**	**2,598,028**	**56,419**	**15,485,110**	**15,594,219**	**(109,109)**	**32,690,000**	**15,485,110**	**(17,204,890)**	47.37%
Other operating revenues										
Forfeited discounts	4,571	5,019	(449)	29,708	26,937	2,771	60,000	29,708	(30,292)	49.51%
Merchandise and jobbing	41,268	1,818	39,450	90,167	43,033	47,134	70,000	90,167	20,167	128.81%
Sale of scrap	7,553	5,061	2,493	49,282	13,118	36,164	35,000	49,282	14,282	140.81%
Recovery of bad debts	-	38	(38)	-	42	(42)	200	-	(200)	0.00%
MISO income	212,968	224,486	(11,517)	1,665,758	1,799,643	(133,884)	3,170,000	1,665,758	(1,504,242)	52.55%
Miscellaneous	2,516	3,128	(613)	18,394	18,905	(512)	40,000	18,394	(21,606)	45.98%
Total other operating revenues	**268,876**	**239,549**	**29,327**	**1,853,309**	**1,901,677**	**(48,369)**	**3,375,200**	**1,853,309**	**(1,521,891)**	54.91%
Nonoperating revenues										
Rental income	4,125	1,475	2,650	35,008	31,820	3,188	46,500	35,008	(11,493)	75.28%
Pole rental income	-	-	-	17,169	4,420	12,749	68,000	17,169	(50,831)	25.25%
Reimbursements	1,840	18,352	(16,511)	86,137	94,895	(8,759)	91,300	86,137	(5,163)	94.34%
Interest income	176	242	(66)	91,368	50,153	41,214	350,000	91,368	(258,632)	26.11%
Gain/loss on sale of assets	-	-	-	355	11,051	(10,696)	-	355	355	#DIV/0!
Total nonoperating revenues	**6,141**	**20,068**	**(13,927)**	**230,036**	**192,340**	**37,696**	**555,800**	**230,036**	**(325,764)**	41.39%
Total revenues	**2,929,464**	**2,857,646**	**71,818**	**17,568,455**	**17,688,236**	**(119,782)**	**36,621,000**	**17,568,455**	**(19,052,545)**	47.97%
Purchase power expense										
Non wholesale purchase power exp	26,131	33,708	(7,577)	84,624	226,646	(142,022)	329,050	84,624	244,426	25.72%
Capacity costs	71,780	70,520	1,260	430,564	423,120	7,444	810,000	430,564	379,436	53.16%
MISO	222,676	(187,402)	410,078	190,010	191,957	(1,947)	2,640,000	190,010	2,449,990	7.20%
Stoney Corners	256,094	378,309	(122,215)	1,326,087	1,492,926	(166,839)	3,170,000	1,326,087	1,843,913	41.83%
M-72 Wind Turbine	3,103	3,637	(535)	15,300	12,930	2,370	48,000	15,300	32,700	31.88%
M-72 Solar	13,292	-	13,292	13,292	-	13,292	-	13,292	(13,292)	#DIV/0!
Combustion Turbine	269,147	345,943	(76,796)	2,187,248	2,356,917	(169,669)	4,500,000	2,187,248	2,312,752	48.61%
Campbell Coal Plant	334,918	338,978	(4,060)	2,235,195	1,957,116	278,079	4,522,500	2,235,195	2,287,305	49.42%
Belle River Coal Plant	288,658	322,396	(33,738)	1,852,797	2,123,390	(270,593)	3,800,000	1,852,797	1,947,203	48.76%
Landfill Gas	84,352	75,691	8,661	476,769	417,850	58,919	980,000	476,769	503,231	48.65%
Bilateral contracts	291,090	361,958	(70,868)	2,389,504	2,366,986	22,518	3,300,000	2,389,504	910,496	72.41%
Purchase power expenses	1,835,109	1,710,030	125,079	11,116,765	11,343,191	(226,427)	23,770,500	11,116,765	12,653,735	46.77%

TRAVERSE CITY LIGHT AND POWER

(A Component Unit of the City of Traverse City, Michigan)

ELECTRIC FUND
SCHEDULE OF REVENUES AND EXPENSES - BUDGET AND ACTUAL (UNAUDITED)
FOR THE PERIOD ENDED DECEMBER 31, 2017

	Month to Month Comparison			Year to Year Comparison			Budget to Year to date Comparison			
	Month to date Actual	Month to date Prior Year	Month to date Difference	Year to date Actual	Year to date Prior Year	Year to date Difference	Amended Budget	Year to date Actual	Favorable (Unfavorable)	% of budget
Distribution	$ 423,059	$ 427,143	$ (4,084)	$ 2,106,633	$ 1,911,542	$ 195,091	$ 4,261,500	$ 2,106,633	$ 2,154,867	49.43%
Transmission	27,021	48,045	(21,024)	198,433	212,546	(14,113)	525,100	198,433	326,667	37.79%
Customer accounting	44,417	55,098	(10,680)	262,575	254,413	8,162	561,550	262,575	298,975	46.76%
Public service	83,298	72,185	11,114	233,054	238,000	(4,946)	593,000	233,054	359,946	39.30%
General administration expense	125,534	140,563	(15,030)	573,200	596,203	(23,003)	1,276,100	573,200	702,900	44.92%
Other expenses										
Insurance	5,494	5,176	319	33,903	33,328	574	70,720	33,903	36,817	47.94%
City fee	125,000	125,000	-	866,026	873,699	(7,673)	1,820,000	866,026	953,974	47.58%
Depreciation	209,250	192,101	17,149	1,255,500	1,152,605	102,896	2,605,000	1,255,500	1,349,500	48.20%
Total expenses	**2,904,314**	**2,809,049**	**95,266**	**16,730,713**	**16,842,175**	**(111,461)**	**35,812,520**	**16,730,713**	**19,081,807**	46.72%
Income before transfers	25,150	48,597	(23,447)	837,741	846,062	(8,320)	808,480	837,741	29,261	0
Transfers in	-	-	-	-	-	-	125,000	-	(125,000)	#DIV/0!
Change in net position	**$ 25,150**	**$ 48,597**	**$ (23,447)**	**$ 837,741**	**$ 846,062**	**$ (8,320)**	**$ 933,480**	**$ 837,741**	**$ (95,739)**	

TRAVERSE CITY LIGHT AND POWER

(A Component Unit of the City of Traverse City, Michigan)

ELECTRIC FUND
STATEMENT OF CASH FLOWS
FOR THE PERIOD ENDED DECEMBER 31, 2017

Cash flows from operating activities		
Cash received from customers	$	18,377,834
Cash payments to employees		(2,704,769)
Cash payments to suppliers for goods and services		(12,390,743)
Cash payments of City fee		(979,139)
Net cash provided by operating activities		**2,303,183**
Cash flows from noncapital financing activities		
Customer deposits received		1,463
Rental income received		52,177
Reimbursements received		86,137
Net cash provided by noncapital financing activities		**139,776**
Cash flows from capital and related financing activities		
Purchase of capital assets		(2,761,229)
Sale of capital assets		355
Net cash used by capital and related financing activities		**(2,760,874)**
Cash flows from investing activities		
Purchase of investments		(500,444)
Interest and dividends		91,368
Net cash used by investing activities		**(409,076)**
Net decrease in cash and cash equivalents		(726,990)
Cash and cash equivalents, beginning of year		5,464,241
Cash and cash equivalents, end of year	$	**4,737,251**

TRAVERSE CITY LIGHT AND POWER

(A Component Unit of the City of Traverse City, Michigan)

ELECTRIC FUND
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED DECEMBER 31, 2017

SALES	KWH month	KWH year to date	Monthly revenue	Year to date revenue	Current month	Prior year month	Revenue/Sales monthly variance	Year to date	Prior year to date	Revenue/Sales year to date variance
Residential Sales	3,841,188	27,387,708	$ 411,827	$ 2,949,300	$ 0.1072	$ 0.1060	$ 0.0012	$ 0.1077	$ 0.1057	$ 0.0020
Commercial Sales	7,463,019	70,501,472	786,690	7,464,471	0.1054	0.1045	0.0009	0.1059	0.1039	0.0020
Industrial Sales	8,365,700	61,290,180	678,902	4,811,420	0.0812	0.0752	0.0060	0.0785	0.0777	0.0008
Yard and Street Lights	22,415	530,936	6,970	154,833	0.3110	0.1974	0.1136	0.2916	0.1975	0.0941
Total Sales	**19,692,322**	**159,710,296**	**$ 1,884,389**	**$ 15,380,024**						

Note: Revenues do not agree to income statement because of monthly accruals.

PURCHASED POWER	KWH month	KWH year to date	Monthly cost	Year to date cost	Cost per kWh for the month	Cost per kWh for the year to date
MISO Account						
MISO	9,073,481	21,726,838	245,858.73	414,765.35	0.027	0.019
Wolverine	not applicable	not applicable	1,500.05	11,846.21	not applicable	not applicable
Transmission	not applicable	not applicable	(24,682.67)	(233,332.05)	not applicable	not applicable
Subtotal	9,073,481	21,726,838	222,676.11	193,279.51	0.025	0.009
Bilateral Contract	7,872,000	60,460,700	291,089.60	2,389,503.93	0.037	0.040
Campbell #3	6,688,698	44,374,930	334,917.87	2,235,194.77	0.050	0.050
Belle River	3,022,325	26,333,880	288,657.51	1,852,796.71	0.096	0.070
Combustion Turbine	371,604	8,183,142	269,147.30	2,187,247.71	0.724	0.267
Landfill Gas	869,667	5,138,175	84,352.20	476,769.39	0.097	0.093
Stoney Corners	2,165,883	11,215,213	256,094.01	1,326,086.80	0.118	0.118
M-72 Wind Turbine	44,323	218,574	3,102.61	15,300.18	0.070	0.070
M-72 Solar	118,150	118,150	13,291.88	13,291.88	0.113	0.113
MPPA Capacity Costs (market)	not applicable	not applicable	71,780.00	430,680.00	not applicable	not applicable
Total	**30,226,131**	**177,769,602**	**$ 1,835,109.09**	**$ 11,120,150.88**	**$ 0.061**	**$ 0.063**

TRAVERSE CITY LIGHT AND POWER

(A Component Unit of the City of Traverse City, Michigan)

FIBER FUND
STATEMENT OF NET POSITION
DECEMBER 31, 2017

ASSETS		LIABILITIES AND NET POSITION	
Current assets		**Current liabilities**	
Cash and cash equivalents	$ 202,533	Accounts payable	$ 7,046
Accounts receivable	21,186	Accrued expenses and other liabilities	9,980
Inventory	5,956	Unearned revenue	14,815
Prepaid expenses	811	Due to primary government	-
Total current assets	**230,486**	**Total current liabilities**	**31,841**
Non-current assets		**Long term liabilities**	
Construction in progress	8,761	Compensated absences	3,531
Capital assets being depreciated, net	1,362,488		
		Invested in capital assets	1,371,249
Total non-current assets	**1,371,249**	Unrestricted	195,114
Total assets	**1,601,735**	**Total net position**	**$ 1,566,363**

TRAVERSE CITY LIGHT AND POWER

(A Component Unit of the City of Traverse City, Michigan)

FIBER FUND
STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
FOR THE PERIOD ENDED DECEMBER 31, 2017

	Amended Budget	Year to date Actual	Favorable (Unfavorable)	Percentage of Budget
Operating revenues				
Charges for services	$ 319,000	$ 167,998	$ (151,002)	52.66%
Merchandising and jobbing	-	-	-	#DIV/0!
Total operating revenues	**319,000**	**167,998**	**(151,002)**	**#DIV/0!**
Operating expenses				
Salaries and wages	80,800	26,236	54,564	32.47%
Fringe benefits	94,600	41,571	53,029	43.94%
Supplies	6,400	2,594	3,806	40.53%
Pole attachments	-	(1)	1	#DIV/0!
WIFI Operations and maintenance	29,800	24,128	5,672	80.97%
Professional and contractual	1,500	375	1,125	25.00%
Professional development	2,500	932	1,568	37.26%
Insurance	1,000	233	767	23.35%
Repairs and maintenance	20,000	11,317	8,683	56.58%
Vehicle Rental	13,000	4,450	8,550	34.23%
City fee	15,975	-	15,975	0.00%
Depreciation	145,000	71,496	73,504	49.31%
Total operating expenses	**410,575**	**183,331**	**227,244**	44.65%
Operating income	(91,575)	(15,333)	76,242	
Nonoperating revenues				
Reimbursements	53,400	7,905	(45,495)	14.80%
Interest income	500	-	(375)	25.00%
Total nonoperating revenues	53,900	7,905	(45,870)	0
Income before transfers	(37,675)	(7,428)	(30,247)	
Transfers out	(125,000)	-	(125,000)	#DIV/0!
Change in net position	(162,675)	(7,428)	(155,247)	
Net position, beginning of year	1,573,791	1,573,791	-	
Net position, end of year	**$ 1,411,116**	**$ 1,566,363**	**$ (155,247)**	