

A REGULAR MEETING

Of The

TRAVERSE CITY LIGHT AND POWER BOARD

Will Be Held On

TUESDAY, December 9, 2014

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.

Stephanie Tvardek
Administrative Assistant
1131 Hastings Street
Traverse City, MI 49686
(231) 932-4543

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

Posting Date: 12-4-14
4:00 p.m.

AGENDA

Pledge of Allegiance

1. Roll Call

2. 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.

None.

3. Unfinished Business

None.

4. New Business

- a. Consideration of approving minutes of the Regular Meeting of November 25, 2014. (p. 3)
- b. Consideration of awarding bid for LED street lights. (Olney) (p. 6)

5. Appointments

None.

6. Reports and Communications

- a. From Legal Counsel.
- b. From Staff.
 1. Rate Study Board Goals discussion. (Arends/Myers-Beman/Utility Financial Solutions) (p. 9)
- c. From Board.
 1. Consideration of cancelation of December 23, 2014 Regular Meeting. (Taylor) (verbal)

7. Public Comment

/st

**TRAVERSE CITY
LIGHT AND POWER BOARD**

Minutes of Regular Meeting
Held at 5:15 p.m., County Training Rom, Governmental Center
Tuesday, November 25, 2014

Board Members -

Present: Pat McGuire, Bob Spence, Jan Geht, John Taylor

Absent: Barbara Budros, Jim Carruthers, Jeff Palisin

Ex Officio Member -

Absent: Jered Ottenwess, City Manager

Others: Tim Arends, Scott Menhart, Karla Myers-Beman, Tom Olney, Kelli Schroeder, Stephanie Tvardek, Blake Wilson

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

Item 2 on the Agenda being Consent Calendar

Tim Arends and Karla Myers-Beman requested both items be removed from the Consent Calendar for full discussion.

- a. *Removed from Consent Calendar.*
- b. *Removed from Consent Calendar.*

Items Removed from the Consent Calendar

- a. Consideration of approving minutes of the Regular Meeting of November 11, 2014.

Moved by McGuire, seconded by Geht, that the minutes of the Regular Meeting of November 11, 2014 be approved.

CARRIED unanimously. (Budros, Carruthers, Palisin absent)

- b. Consideration of adopting a Records Retention Policy.

The following individuals addressed the Board:

Karla Myers-Beman, Controller

Karla Myers-Beman explained additional state schedules would be added to the Policy per the recommendation from General Counsel.

Moved by Geht, seconded by McGuire, that the Board adopts the Record Retention Policy as amended with an immediate effective date.

CARRIED unanimously. (Budros, Carruthers, Palisin absent)

Item 3 on the Agenda being Unfinished Business

None.

Item 4 on the Agenda being New Business

- a. Consideration of adopting a Conflict of Interest Policy.

The following individuals addressed the Board:

Kelli Schroeder, Manager of Human Resources & Communications
Tim Arends, Executive Director
Karla Myers-Beman, Controller

Vice Chairman Geht requested section 2 of the Policy be amended to read:

“2. Gifts. Soliciting or accepting payments, gifts of value (defined as having a retail value of \$25 or more)...”

Moved by Geht, seconded by McGuire, that the Board adopts the Conflicts of Interest Policy as amended with an immediate effective date.

CARRIED unanimously. (Budros, Carruthers, Palisin absent)

- b. Consideration of declaring transformer surplus.

The following individuals addressed the Board:

Tom Olney, Operations Manager
Tim Arends, Executive Director

Moved by McGuire, seconded by Geht, that the Board declares the transformer, as described in Utility Transformer Brokers “Proposal to Market Transformer”, surplus.

CARRIED unanimously. (Budros, Carruthers, Palisin absent)

Item 5 on the Agenda being Appointments

None.

Item 6 on the Agenda being Reports and Communications

- a. From Legal Counsel:

None.

- b. From Staff.

1. Sarna Salzman, SEEDS, presented the TC Saves Program results.

The following individuals addressed the Board:

Tim Arends, Executive Director

2. Karla Myers-Beman presented the fiscal year end June 30, 2014 unaudited financials.

The following individuals addressed the Board:

Tim Arends, Executive Director

3. Board discussed the Six Year Capital Plan – 2015 priorities.

The following individuals addressed the Board:

Tim Arends, Executive Director

Blake Wilson, System Engineer

Scott Menhart, Manager of Telecom & Technology

4. Karla Myers-Beman reviewed the 2015-16 proposed budget schedule.

The following individuals addressed the Board:

Tim Arends, Executive Director

- C. From Board.

None.

Item 7 on the Agenda being Public Comment

Joe Evancho, 240 Washington St. #9, Ratepayer

There being no objection, Chairman Taylor declared the meeting adjourned at 6:18 p.m.

/st

Tim Arends, Secretary
LIGHT AND POWER BOARD



**TRAVERSE CITY
LIGHT & POWER**

To: Light & Power Board
From: Thomas Olney, Operations Manager *TO*
Date: December 1, 2014
Subject: LED Overhead Roadway Lighting Project

Traverse City Light & Power (TCL&P) currently has 2,328 overhead roadway streetlights on its system. To-date, a total of 752 streetlights have been converted from High Pressure Sodium (HPS) to GE LED Cobra Head type fixtures. The ultimate plan is to convert the remaining 1,576 lights at a rate of approximately 400 lights per year for the next 4 years, beginning in 2015 with the areas marked with red stripes on the attached map. The fixtures will be mounted on the existing mast arms at existing heights.

TCL&P sought bids for 400 GE Evolve LED Roadway Lights. Requests were sent out to 5 vendors and bids were received as follows:

Vendor	Price
RESCO	\$112,200
Champion, Inc.	\$113,850
ELUS Company	\$118,100
CTA Lighting Co.	No Bid
Energy Network Light	No Bid

The price per unit for LED's has decreased significantly since TCL&P began replacing HPS with LED streetlights in 2010 (\$632 per light in 2010 compared to \$281 per light in 2014). And though LED's are still slightly more expensive than the HPS streetlights, TCL&P will see major savings on its annual energy bills:

	<u>HPS</u>	<u>LED</u>
High Level Fixtures		
Energy Used	295 watts	112 watts
Low Level Fixtures		
Energy Used	130 watts	45 watts

The savings in energy equates to an estimated financial savings of \$80 per fixture per year for high level lighting, and \$37 per fixture per year for low level lighting.

FOR THE LIGHT & POWER BOARD MEETING OF DECEMBER 9, 2014

Staff recommends awarding a purchase order to the low bidder, RESCO, for GE Evolve LED Roadway Lights to replace 400 HPS streetlights in various locations throughout the City in 2015. If the Board concurs, the following motion is recommended:

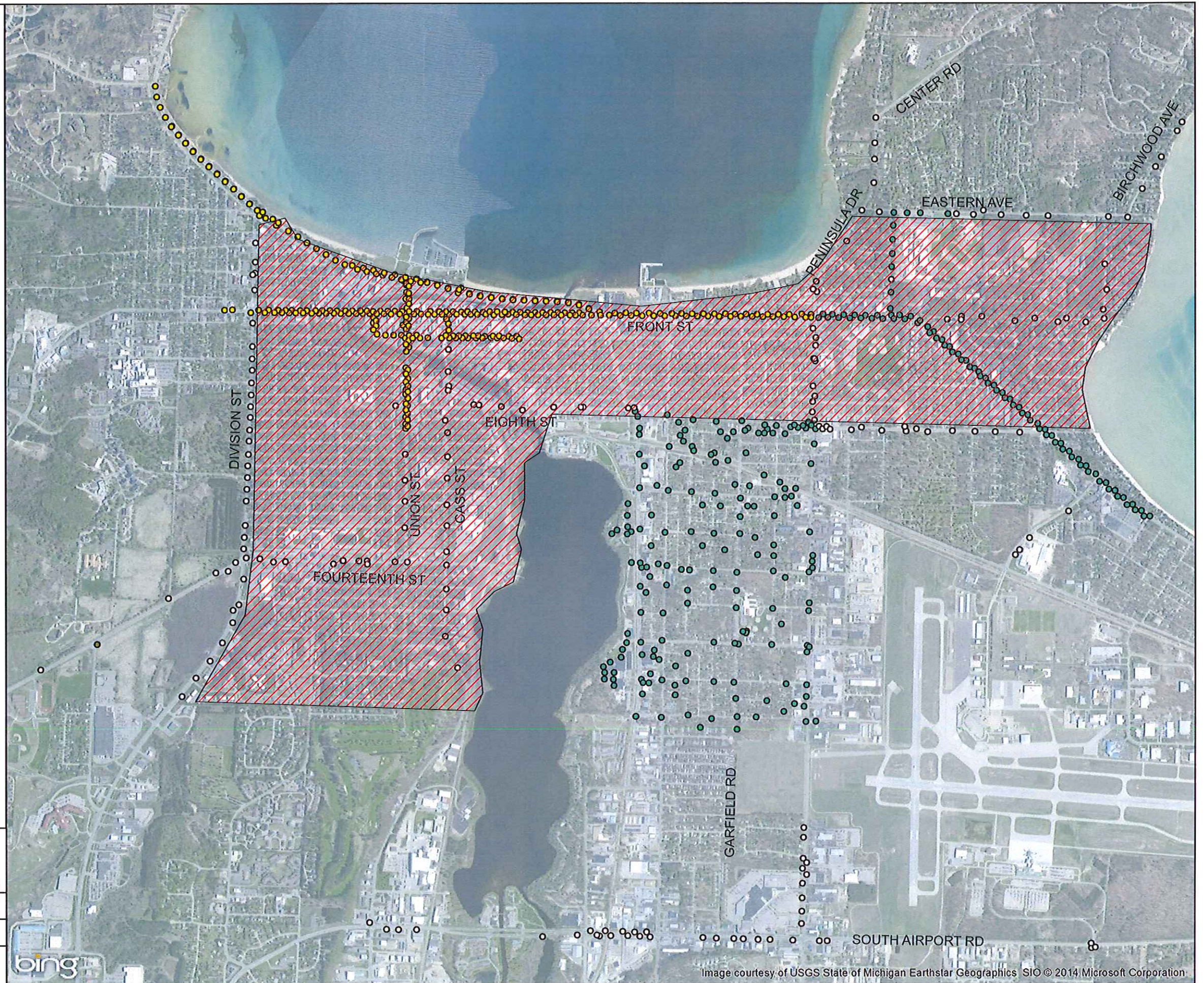
MOVED BY _____, SECONDED BY _____,

THAT THE BOARD AUTHORIZES A PURCHASE ORDER TO RESCO FOR THE PURCHASE OF 400 LED STREETLIGHT FIXTURES IN THE AMOUNT OF \$112,200.

N



- 325 Streetlights converted to LED in 2010 - 2011
- 225 Streetlights converted to LED in 2012
- 202 streetlights to be converted to LED in 2013
- 400 streetlights to be converted in this area 2014/15
- ROUTE



MK	REVISION	DRWN:	CHKD:	DATE		SHEET NO. 1
A					DRAWN BY: BWILSON CHECKED BY: 	ORIGIN DATE: 12/2/2014
B						TITLE: TCLP Streetlights
C						Streetlight Locations
D						SCALE: 1 inch = 1,762 feet
E						
F						
G						
H						
I						
J						

bing

Image courtesy of USGS State of Michigan Earthstar Geographics SIO © 2014 Microsoft Corporation



Rates Structures to Promote Financial Stability or Energy Conservation

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Discussion Areas



- Energy Efficiency Rate Structures
- Seasonal Customers/Senior Citizens/Outside city rates
- Rate Simplification
- Time of Use Rate Structures
- LED Lighting
- Net Metering



Customer (Facilities) Charges



- Many utilities customer charges reflect only billing and meter reading costs
- Adjusting charges to reflect a certain amount of infrastructure costs
 - Traditional theory uses minimum system analysis to determine the portion of the distribution system to include in the charge

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Cost of Service Customer Charges includes the following Components



- Distribution costs that do not vary with usage
 - Meter operation, maintenance and replacement costs
 - Meter reading costs or AMR installation costs
 - Billing Costs
 - Customer Service Department
 - Service into customers facilities
 - Portion of Distribution System

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Trends for Customer Charges

- MGE is proposing to increase the current \$10 “customer charge” on its monthly bill — a flat fee to pay for fixed costs — to \$49 by 2016. The utility has also indicated that the charge could go up to \$69 in 2017.

Read more:

http://host.madison.com/news/local/writers/steven_elbow/mge-rate-hike-proposal-raises-concerns-about-future-of-solar/article_66761fa2-eef1-558a-9027-8d2ef45087ae.html#ixzz3AnRylUVc

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Customer (Facilities) Charges

- For Residential customers approximately 35% - 50% of **distribution charges** recovered in customer charge
- Approximately 2% - 10% of distribution charges recovered in customer charges for large users

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Customer (Facilities) Charges

- Increasing customer charges helps stabilize revenues
- Reduces subsidy between year-round customers and seasonal customers
- Will impact low use customers
- Low income compared with low use

At most utilities, low income customers tend to be higher than average users. A higher customer charge may benefit low income

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Typical Residential Cost Based Customer Charge

- Density of the service territory affects the monthly customer charges
- Typical cost based residential customer charges:
 - Rural Utilities - \$20 - \$30/Month
 - Typical Municipal System - \$12 - \$21/Month

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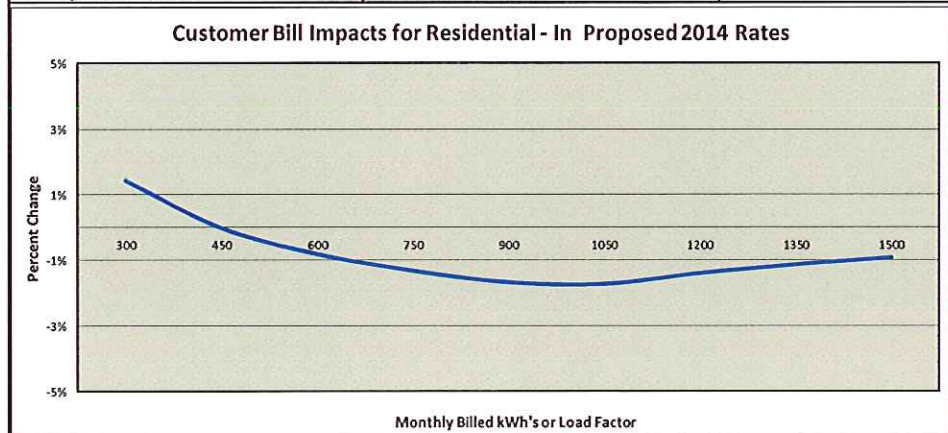
Correction of Customer Charges



- Set a plan to move up in increments over time
- Revenue neutral rate adjustment when increases are not required
 - Customer charge increased
 - Energy charge decreased



Current Rates		Proposed 2014 Rates		Cost of Service Rates	
Monthly Customer Charge:		Monthly Customer Charge:		Monthly Customer Charge:	
All Customers	\$ 6.80	All Customers	\$ 8.30	All Customers	\$ 16.83
Energy Charge:		Energy Charge:		Energy Charge:	
Winter Block 1 (0 - 1000 kWh)	\$ 0.0744	Winter Block 1 (0 - 1000 kWh)	\$ 0.0380	Winter	\$ 0.0750
Winter Block 2 (1001 - Excess kWh)	\$ 0.0700	Winter Block 2 (1000 - Excess kWh)	\$ 0.0380	Summer	\$ 0.0890
Summer Block 1 (0 - 1000 kWh)	\$ 0.0744	Summer Block 1 (0 - 1000 kWh)	\$ 0.0330		
Summer Block 2 (1001 - Excess kWh)	\$ 0.0700	Summer Block 2 (1000 - Excess kWh)	\$ 0.0330		
Fuel Adjustment(PCA) (0 - 0 kWh)	\$ 0.01862	Fuel Adjustment(PCA) (0 - 0 kWh)	\$ -		
Revenues from Current Rates	\$ 4,597,848	Revenues from Proposed Rates	\$ 4,598,313	COS Revenues	\$ 4,915,075
Model Proof to Financial Statements	0.23%	Percentage Change from Current	0.01%		





Residential Bill Impacts

U1 Annual Bill Comparison				
Usage (kWh)	Current Bill (\$)	Proposed Bill (\$)	Dollar Change (\$)	Percent Change (%)
300	\$ 34.71	\$ 35.20	\$ 0.49	1.42%
450	\$ 48.66	\$ 48.65	\$ (0.01)	-0.02%
600	\$ 62.61	\$ 62.10	\$ (0.51)	-0.82%
750	\$ 76.57	\$ 75.55	\$ (1.02)	-1.33%
900	\$ 90.52	\$ 89.00	\$ (1.52)	-1.68%
1050	\$ 104.25	\$ 102.45	\$ (1.80)	-1.73%
1200	\$ 117.54	\$ 115.90	\$ (1.64)	-1.40%
1350	\$ 130.84	\$ 129.35	\$ (1.49)	-1.14%
1500	\$ 144.13	\$ 142.80	\$ (1.33)	-0.92%



Energy Efficiency and Rate Structures



Residential Rate Structures

	Monthly Customer Charge	First 500 kWh's	Over 500 kWh's
Inclining Block Rate Structure	10.00	0.070	0.090
Declining Block Rate Structure	10.00	0.090	0.070
Flat	10.00	0.080	0.080

Residential Rate Tiers

- Efforts to promote energy conservation sometimes results in price signals not reflective of utility costs
- Prior to 2009, many utilities have implemented inverted block price signals for residential customers
- May result in unstable revenue recovery
- Cross subsidization occurs between customers within the residential rate class

Cost of Service Study Traditional Methods



- Difficult to identify the Inverted Block Rate Structure using traditional cost of service studies
- Traditional Studies only identify the average energy cost for the residential class
- Use of long run marginal costs
- The cost based tiered rate structure is more related to each individual customers usage pattern than the usage pattern for the entire class



Two Customer Example




Month	Customer No. One	Customer No. Two
Jan	1,500	500
Feb	1,500	500
March	1,500	500
April	1,500	500
May	1,500	500
June	1,500	1,000
July	1,500	1,000
August	1,500	1,000
September	1,500	1,000
October	1,500	500
November	1,500	500
December	1,500	500
Total	18,000	8,000

- Customer One uses more electricity but has a more consistent monthly usage pattern than Customer Two
- Customer one most likely has a lower average cost per kWh to service
- Customer one uses distribution, Transmission and Generation facilities more efficiently than Customer Two
- Many inverted block rate structures are unfair to Customer One




Development of Inverted Block Rate Design Current Rates Revenue Neutral Rate Adjustments




Current Rate Rate Structure		Cost of Service Rate Structure	
Customer Charge	\$ 5.00	\$	15.00
First 750 kWh's	0.1192		0.110
Excess	0.1192		0.110

Rate Structure	Proposed Rate Structure - Year One	Proposed Rate Structure - Year Two
Customer Charge	\$ 15.00	\$ 20.00
First 750 kWh's	0.105	0.098
Excess	0.118	0.118




Example Results – Average Cost per kWh



	Customer No. One	Customer No. Two
Current Rate Structure	\$ 0.123	\$ 0.127
Cost of Service Average Costs	0.120	0.133
Proposed Year One Rate Design	\$ 0.122	\$ 0.129
Proposed Year Two Rate Design	\$ 0.121	\$ 0.130

- Created inverted block rate structure with a 2.0 cent increasing block rate differential between tier one and tier two
- Moved each customer closer to cost of service



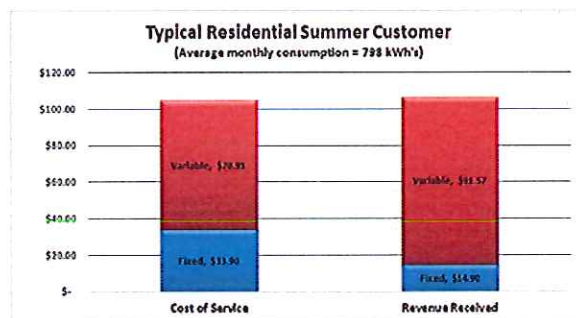
Distribution Cost Recovery and Net Metering



- Many states require distributed generation be credited using the current rate tariffs of utility
 - Example: Customer uses 1,000 kWh's from Utility
 - Provides 600 kWh's back to Utility
 - Billed for 400 kWh's
- Utility over credits on distribution usage and may under-credit on power supply
- Creating issues for many Utilities with significant concentration of customer installed PV



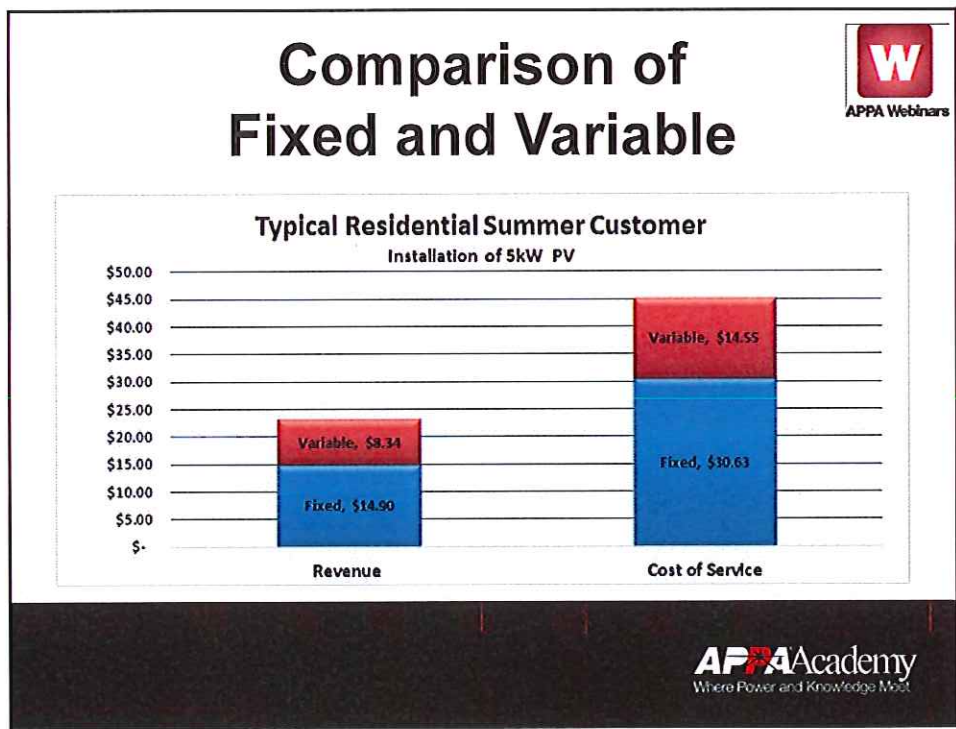
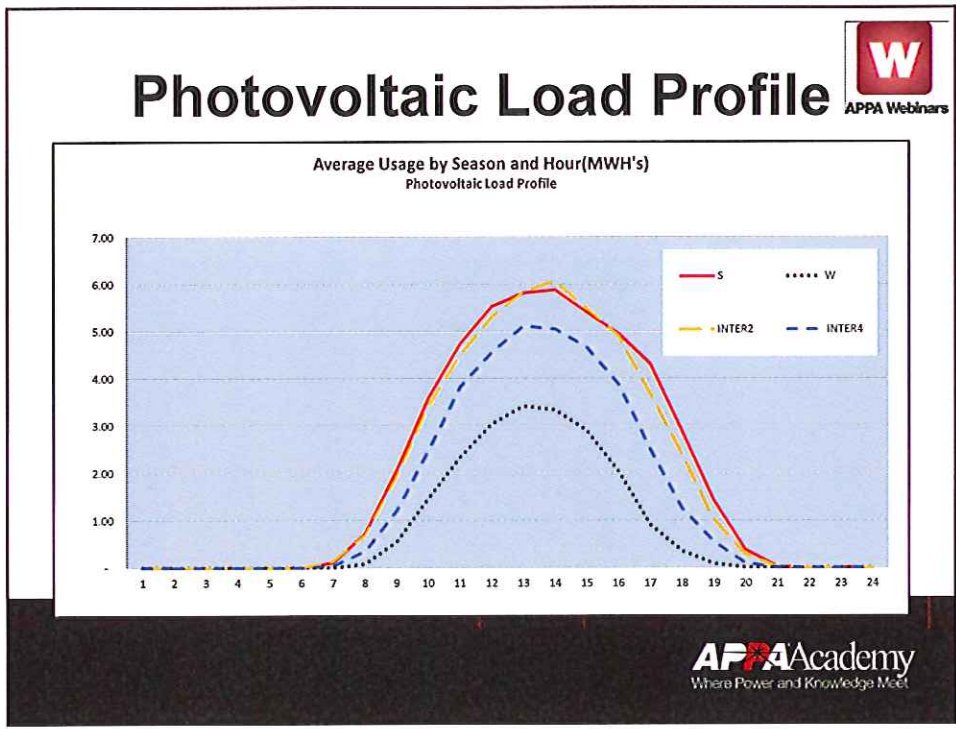
Comparison of Fixed and Variable



• Comparison with Utility that Purchases Power Supply

- PV unit installation – 5kW
- Midwest PV Unit – 2013 data
- Customers Usage – 798 kWh





Distribution Usage Charges



- Most inaccurate method of distribution cost recovery is through a kWh charge
- Distribution system is constructed to handle a customer's peak demand or a class's peak demands and are not constructed to handle kWh's

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Residential Demand Charge



- Many utilities are moving toward or considering demand charges for distribution cost recovery for Residential customers:
 - Send better price signals to customers
 - Promote electric vehicles
 - Reduce distribution subsidies for customers with solar or wind installations

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Cost-Based Residential Rate Structure (Not Recommended)



Cost Based Rate Design	Customer Rates
Power Supply Customers Demand Coincident with System Peak	12.72
Distribution Recovery Based on Customers Maximum Demand	2.19
Energy Charge	0.0442
Customer Charge	21.44
PILOT	9.28%

- Once cost based rates are identified, practical rate designs can be developed



Net Metering



- Many states require any usage from renewables to be netted against the customers usage resulting in under-recovery of distribution costs from customer
- Solar installations have expanded in many areas causing increased costs to other customers



Residential Demand Charge



- Many utilities are moving toward or considering demand charges for distribution cost recovery for Residential customers:
 - Send better price signals to customers
 - Promote electric vehicles
 - Reduce distribution subsidies for customers with solar or wind installations

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Issues with Net Metering



- When you unbundle the cost components to deliver electricity to a customer:
 - Net Metered customers are undercharged for use of the distribution
 - Net metered customers may be under charged or under-credited for power supply

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Issues with Net Metering



- Whenever subsidies occur, it will cause problems in the future.
 - Customer has relied on the price signal to install the solar unit
 - At some point the subsidy will need to be removed and the customer may not recover the full savings from the installation of the solar unit




Net Metering vs Avoided Costs



- Avoided cost for customer installed generation is required by all PURPA qualifying utilities since 1978
- When initially offered Utilities only gave them short-run avoided costs (Fuel)
- This did not properly value the capacity provided by the distributed generation







 APPA Webinars

Renewable Generation Value Long Run Marginal Valuation

Time Period	PV Credit (\$/kWh)	Wind Credit (\$/kWh)	Baseload Credit (\$/kWh)
Summer On-Peak	\$ 0.08631	\$ 0.11776	\$ 0.09767
Summer Off-Peak	\$ 0.05295	\$ 0.05295	\$ 0.05295
Winter On-Peak	\$ 0.07347	\$ 0.08467	\$ 0.09125
Winter Off-Peak	\$ 0.05295	\$ 0.05295	\$ 0.05295
Summer Average	\$ 0.07964	\$ 0.06483	\$ 0.07164
Winter Average	\$ 0.06937	\$ 0.06750	\$ 0.07187
Annual Average	\$ 0.07414	\$ 0.06688	\$ 0.07179




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 APPA Webinars

Community Solar

- Utility installed solar installations
- Used to prevent customer from installing their own solar generators
- The utility passes on the cost of the solar production
 - Due to subsidies this is often less than the some utilities power supply costs
- The utilities adds-on the distribution rates to the solar charges



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Community Solar Charges to Customers



Customer Purchase	Solar production costs	Distribution Adder	Total Charge
100 kWh	9.00	3.50	12.50
50 kWh's	4.50	1.75	6.25
25 kWh's	2.25	0.88	3.13
Solar Production Rate	0.0900 kWh		
Distribution Adder	0.0350 kWh		

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Time of Use Rate Considerations



- Should the price have a demand charge during the On-Peak time period?
- Should demand costs be rolled into the On-Peak energy charges?
- How should on peak period be determined?
- Should we implement a number of Variable Peak Pricing Periods?
- Should a critical peak pricing overlay be used?
- What is the most appropriate pricing theory for Utility?

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Time of Use Pricing



- Relates to power supply and transmission costs
- Most of the local distribution costs are not time differentiated
- Power Supply and transmission costs do not vary based on customer class but when energy is used
 - Exception are losses attributed to customer

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Power Supply Cost can Vary substantially between Utilities



- On Peak Cost are largely dependent on how utility obtains power
 - Purchase Power Supply
 - Purchase Power Supply with some owned generation
 - Generate all power supply requirements

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TOU Examples of Pricing and Rates

Period	TOU w/CPP
Off-Peak	4.0
Shoulder	7.0
Peak	12.0
Critical Event	100.0

Table 10. DECo rate levels (¢/kWh)

Period	Flat w/CPP
Base	9.0
Critical Event	105.0

Table 4. MMLD rate levels (¢/kWh)

Period	TOU
Off-Peak	2.435
Shoulder	7.420
Peak	11.130

Table 19. LE rate levels (¢/kWh)

Period	TOU w/CPP	VPP
Off-Peak	4.2	4.5
Low Peak	23.0	4.5
Standard Peak	23.0	11.3
High Peak	23.0	23.0
Critical Event	46.0	46.0

Table 1. OG&E rate levels (¢/kWh)