Strategies
for
Maximizing Energy Savings

By

Tolu Omotoso

Manager of Essential Services, Tipmont REMC

Bryce Brumm

President, Standard Industrial

Strategies for Maximizing Energy Savings

Tolu Omotoso
Manager of Essential Services
Tipmont REMC

Sponsors: Tipmont REMC & Wabash Valley Power Moves®

POWER MOVES®

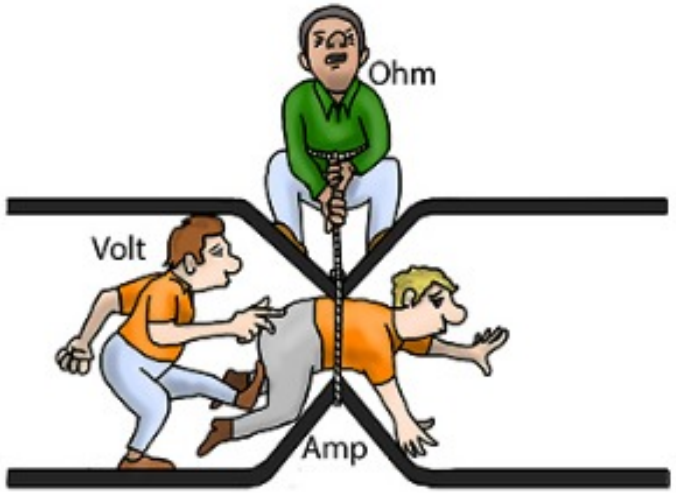
Outline

- Basic electricity units
- C&I Rate Structures & Tariffs
- Steps to achieving energy/cost savings
- Rebates & funding sources
- Questions

Basic electricity units

Basic electricity units

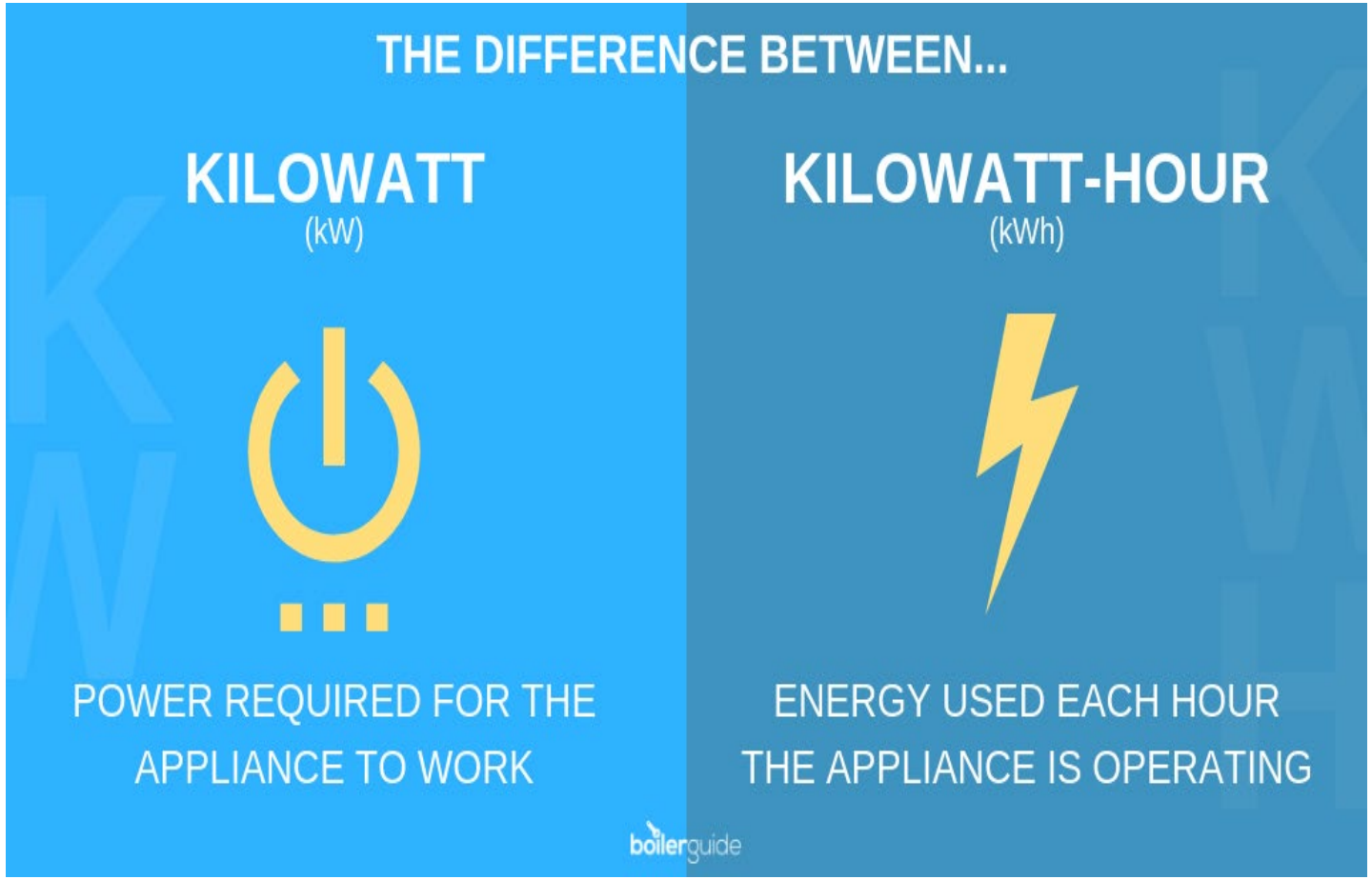
- Energy – ability to do work
- Power – How fast energy is made, moved or consumed
- Voltage (V) – the pressure of electricity
- Amperage (A) – the flow rate of electricity
- Resistance (R) – Opposition to the flow of electric current



Quantity	Symbol	Unit of Measurement	Unit Abbreviation
Current	I	Ampere (Amp)	A
Voltage	V or E	Volt	V
Resistance	R	Ohm	Ω

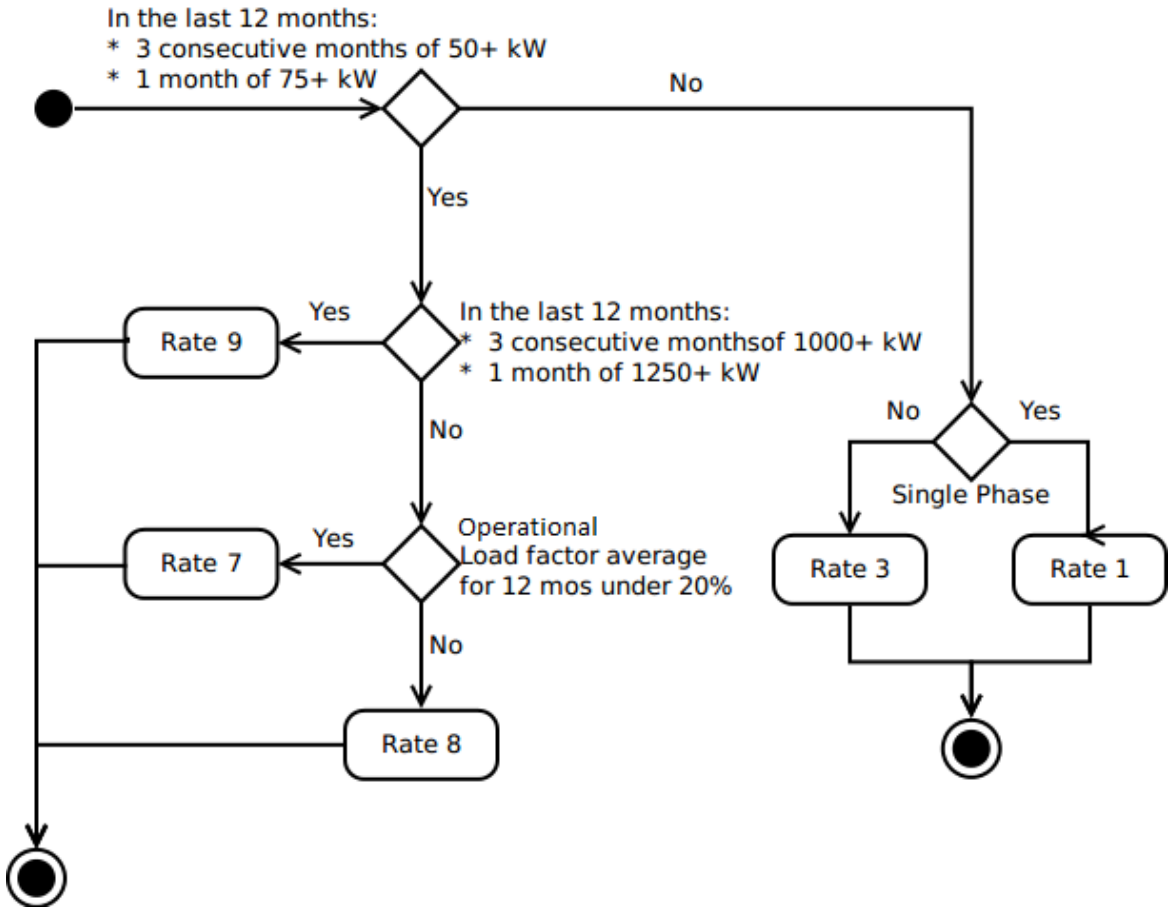
Basic electricity units

- Kilowatt (kW) - unit of power
- Kilowatt-hour (kWh) – unit of electric energy
- Power factor (PF) – phase shift between volt and amp wave forms (kW/kVA)



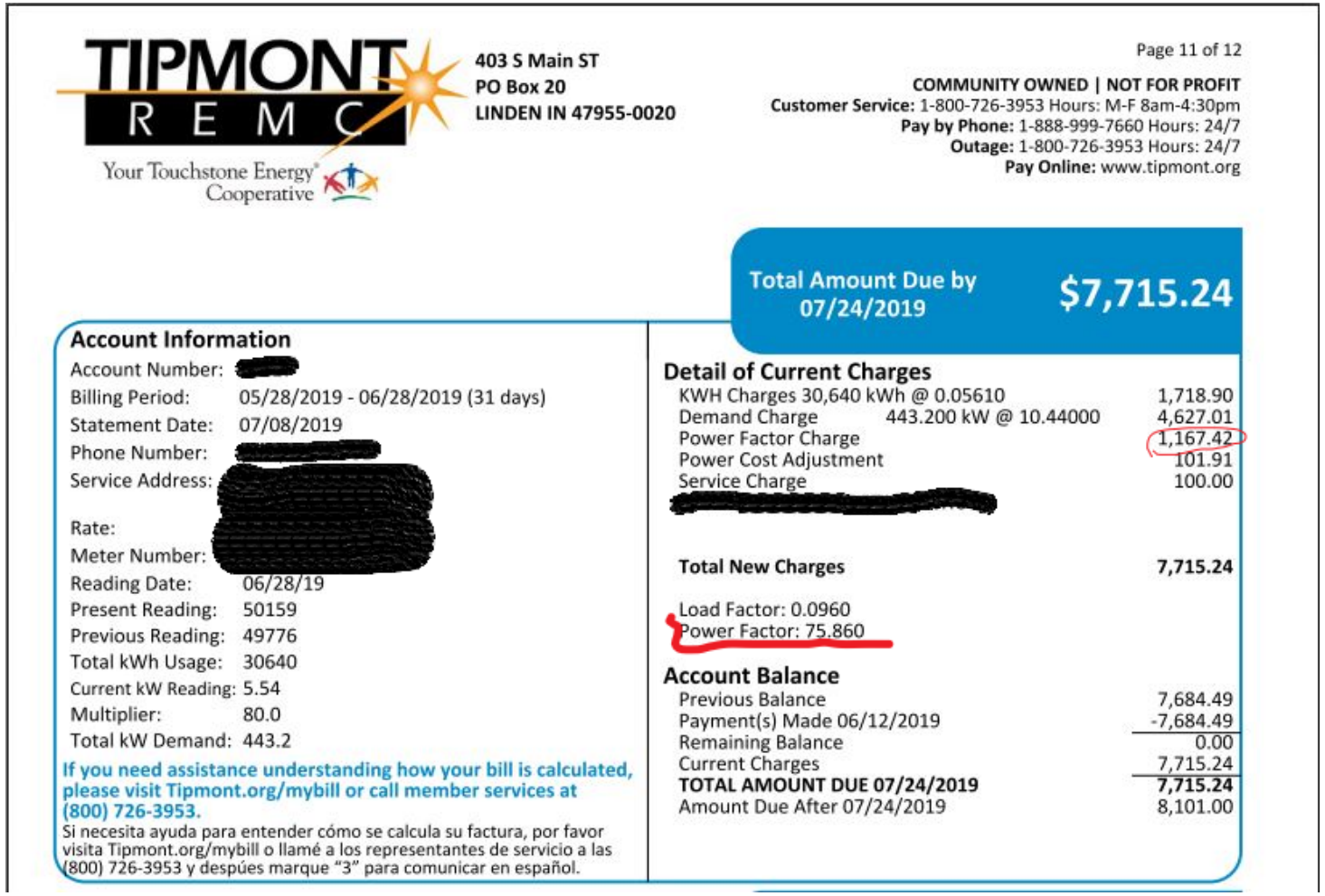
C&I Rate Structures & Tarriffs

Rate Class Structures & Selection



Bill Charges & Sample Rate 800 Bill

- Energy (KWh) Charge
  - Variable fee based on usage
- Demand charge
  - Based on the highest (averaged) usage in 15 minute window
- Power factor charge
  - Penalty for quality of energy usage
  - Power Cost Adjustment
- Service charge
  - Fixed fee paid regardless of usage. Varies by rate class



TIPMONT REMC
Your Touchstone Energy® Cooperative

403 S Main ST
PO Box 20
LINDEN IN 47955-0020

COMMUNITY OWNED | NOT FOR PROFIT
Customer Service: 1-800-726-3953 Hours: M-F 8am-4:30pm
Pay by Phone: 1-888-999-7660 Hours: 24/7
Outage: 1-800-726-3953 Hours: 24/7
Pay Online: www.tipmont.org

Total Amount Due by 07/24/2019 **$7,715.24**

Account Information

Account Number:	[redacted]
Billing Period:	05/28/2019 - 06/28/2019 (31 days)
Statement Date:	07/08/2019
Phone Number:	[redacted]
Service Address:	[redacted]
Rate:	
Meter Number:	
Reading Date:	06/28/19
Present Reading:	50159
Previous Reading:	49776
Total kWh Usage:	30640
Current kW Reading:	5.54
Multiplier:	80.0
Total kW Demand:	443.2

If you need assistance understanding how your bill is calculated, please visit Tipmont.org/mybill or call member services at (800) 726-3953.

Si necesita ayuda para entender cómo se calcula su factura, por favor visita Tipmont.org/mybill o llamé a los representantes de servicio a las (800) 726-3953 y despúes marque "3" para comunicar en español.

Detail of Current Charges

KWH Charges 30,640 kWh @ 0.05610		1,718.90
Demand Charge	443.200 kW @ 10.44000	4,627.01
Power Factor Charge		1,167.42
Power Cost Adjustment		101.91
Service Charge		100.00
[redacted]		
Total New Charges		**7,715.24**

Load Factor: 0.0960
Power Factor: 75.860

Account Balance

Previous Balance	7,684.49
Payment(s) Made 06/12/2019	-7,684.49
Remaining Balance	0.00
Current Charges	7,715.24
TOTAL AMOUNT DUE 07/24/2019	**7,715.24**
Amount Due After 07/24/2019	8,101.00

Steps to Achieving Energy/Cost Savings

Steps to achieving energy/cost savings

1. Contact your energy company
2. Contact your energy company
3. Understand your bill and its components
4. Analyze your usage
5. Schedule an energy assessment if necessary
6. Develop cost effectiveness plan
7. Target low/no-cost projects first
8. Apply for rebates & or RE/EE financing

Steps to achieving energy/cost savings

1. Contact your energy company
2. Contact your energy company
3. Understand your bill and its components
4. Analyze your usage
5. Schedule an energy assessment if necessary
6. Develop cost effectiveness plan
7. Target low/no-cost projects first
8. Apply for rebates & or RE/EE financing

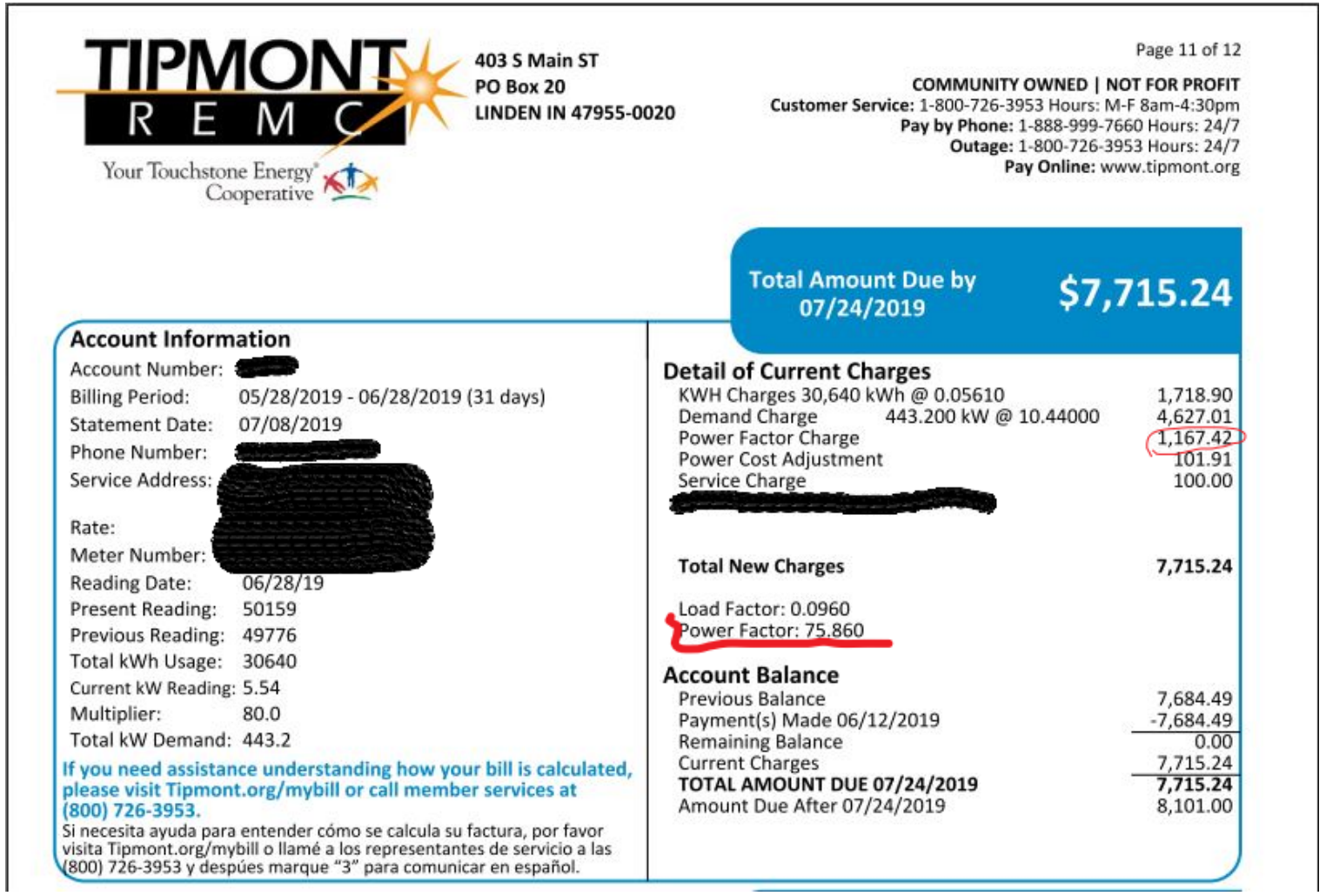
Good Afternoon.

Who do I contact about an abnormal invoice, account number xxxxx.

the unit cost is almost twice as much as what it is normally for a variance of 95%.

Steps to achieving energy/cost savings

1. Contact your energy company
2. Contact your energy company
3. Understand your bill and its components
4. Analyze your usage
5. ~~Schedule an energy assessment if necessary~~
6. Develop cost effectiveness plan
7. Target low/no-cost projects first
8. ~~Apply for rebates & or RE/EE financing~~



TIPMONT REMC
Your Touchstone Energy® Cooperative

403 S Main ST
PO Box 20
LINDEN IN 47955-0020

Page 11 of 12

COMMUNITY OWNED | NOT FOR PROFIT
Customer Service: 1-800-726-3953 Hours: M-F 8am-4:30pm
Pay by Phone: 1-888-999-7660 Hours: 24/7
Outage: 1-800-726-3953 Hours: 24/7
Pay Online: www.tipmont.org

Total Amount Due by 07/24/2019 **$7,715.24**

Account Information

Account Number: [redacted]
Billing Period: 05/28/2019 - 06/28/2019 (31 days)
Statement Date: 07/08/2019
Phone Number: [redacted]
Service Address: [redacted]
Rate:
Meter Number: [redacted]
Reading Date: 06/28/19
Present Reading: 50159
Previous Reading: 49776
Total kWh Usage: 30640
Current kW Reading: 5.54
Multiplier: 80.0
Total kW Demand: 443.2

If you need assistance understanding how your bill is calculated, please visit Tipmont.org/mybill or call member services at (800) 726-3953.
Si necesita ayuda para entender cómo se calcula su factura, por favor visita Tipmont.org/mybill o llamé a los representantes de servicio a las (800) 726-3953 y despúes marque "3" para comunicar en español.

Detail of Current Charges

KWH Charges 30,640 kWh @ 0.05610		1,718.90
Demand Charge	443.200 kW @ 10.44000	4,627.01
Power Factor Charge		1,167.42
Power Cost Adjustment		101.91
Service Charge		100.00
[redacted]		
Total New Charges		**7,715.24**

Load Factor: 0.0960
Power Factor: 75.860

Account Balance

Previous Balance	7,684.49
Payment(s) Made 06/12/2019	-7,684.49
Remaining Balance	0.00
Current Charges	7,715.24
TOTAL AMOUNT DUE 07/24/2019	**7,715.24**
Amount Due After 07/24/2019	8,101.00

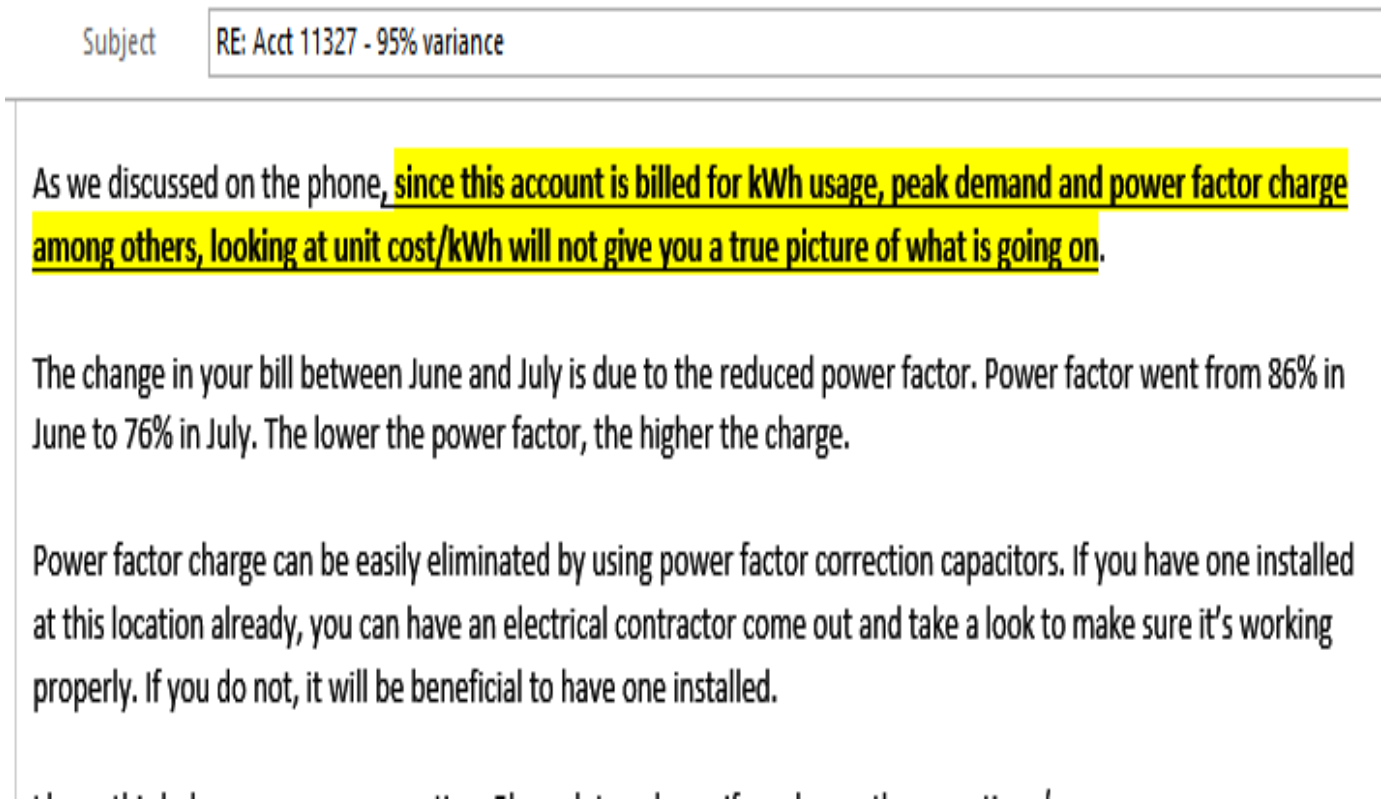
Steps to achieving energy/cost savings

1. Contact your energy company
2. Contact your energy company
3. Understand your bill and its components
4. Analyze your usage
5. ~~Schedule an energy assessment if necessary~~
6. Develop cost effectiveness plan
7. Target low/no-cost projects first
8. ~~Apply for rebates & or RE/EE financing~~

Month/yr	Days Use	Power fac	Power Factor Charge	Bill Total	% of Bill
Jun-19	31	76%	$ 1,167.42	$ 7,715.24	15%
May-19	30	86%	$ 400.78	$ 7,684.49	5%
Apr-19	31	89%	$ 266.60	$ 7,144.88	4%
Mar-19	28	90%	$ 114.09	$ 4,825.77	2%
Feb-19	31	90%	$ 101.97	$ 5,493.30	2%
Jan-19	31	88%	$ 152.64	$ 4,968.37	3%
Dec-18	30	89%	$ 154.30	$ 5,202.44	3%
Nov-18	31	88%	$ 180.72	$ 5,099.13	4%
Oct-18	30	86%	$ 493.68	$ 8,904.28	6%
Sep-18	31	84%	$ 743.76	$ 14,298.92	5%
Aug-18	31	87%	$ 478.90	$ 13,019.70	4%
Jul-18	30	93%	$ 93.04	$ 8,415.82	1%
Jun-18	31	93%	$ 91.79	$ 8,834.84	1%
May-18	30	95%	$ -	$ 7,203.10	0%

Steps to achieving energy/cost savings

1. Contact your energy company
2. Contact your energy company
3. Understand your bill and its components
4. Analyze your usage
5. ~~Schedule an energy assessment if necessary~~
6. Develop cost effectiveness plan
7. Target low/no-cost projects first
8. ~~Apply for rebates & or RE/EE financing~~



Subject RE: Acct 11327 - 95% variance

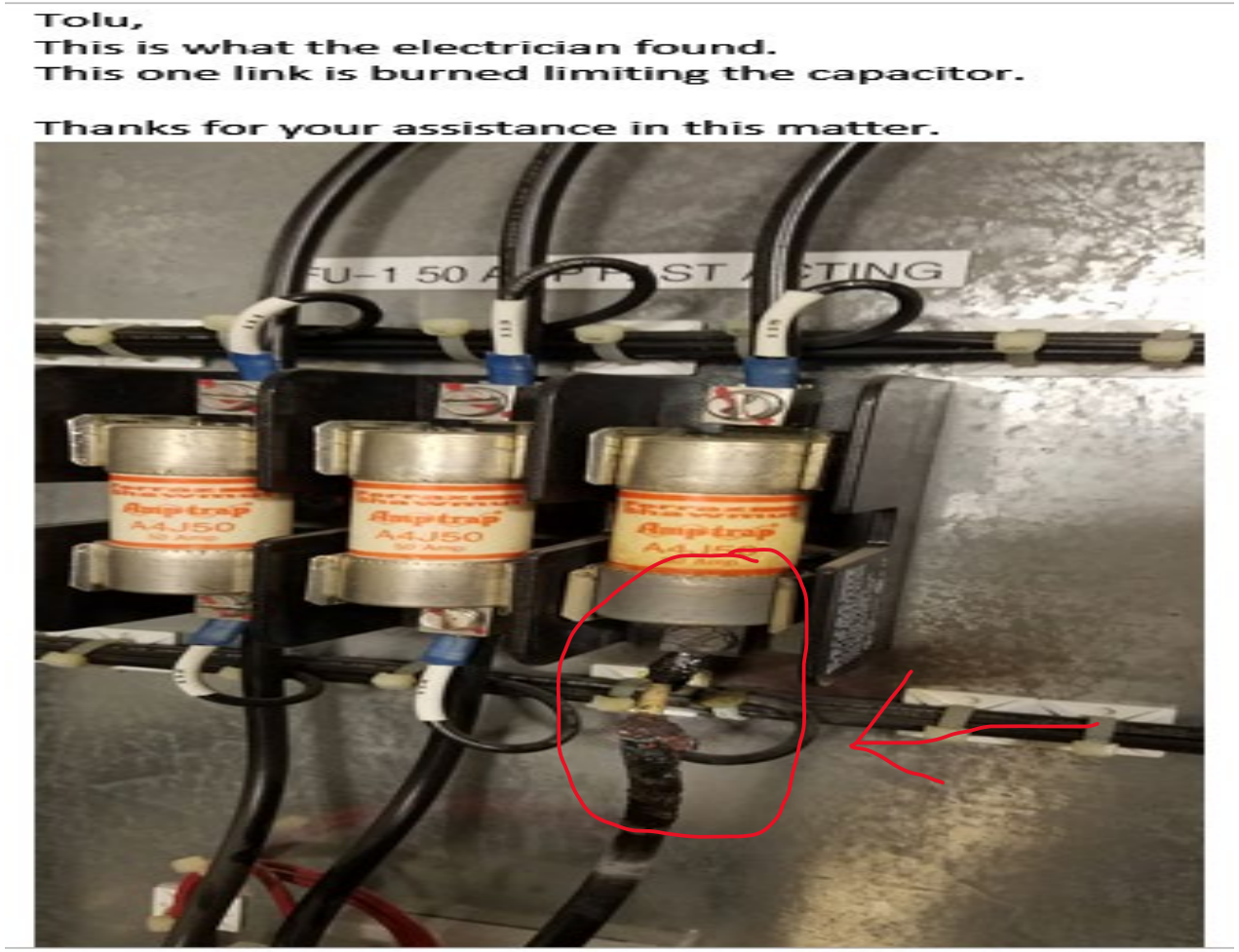
As we discussed on the phone, since this account is billed for kWh usage, peak demand and power factor charge among others, looking at unit cost/kWh will not give you a true picture of what is going on.

The change in your bill between June and July is due to the reduced power factor. Power factor went from 86% in June to 76% in July. The lower the power factor, the higher the charge.

Power factor charge can be easily eliminated by using power factor correction capacitors. If you have one installed at this location already, you can have an electrical contractor come out and take a look to make sure it's working properly. If you do not, it will be beneficial to have one installed.

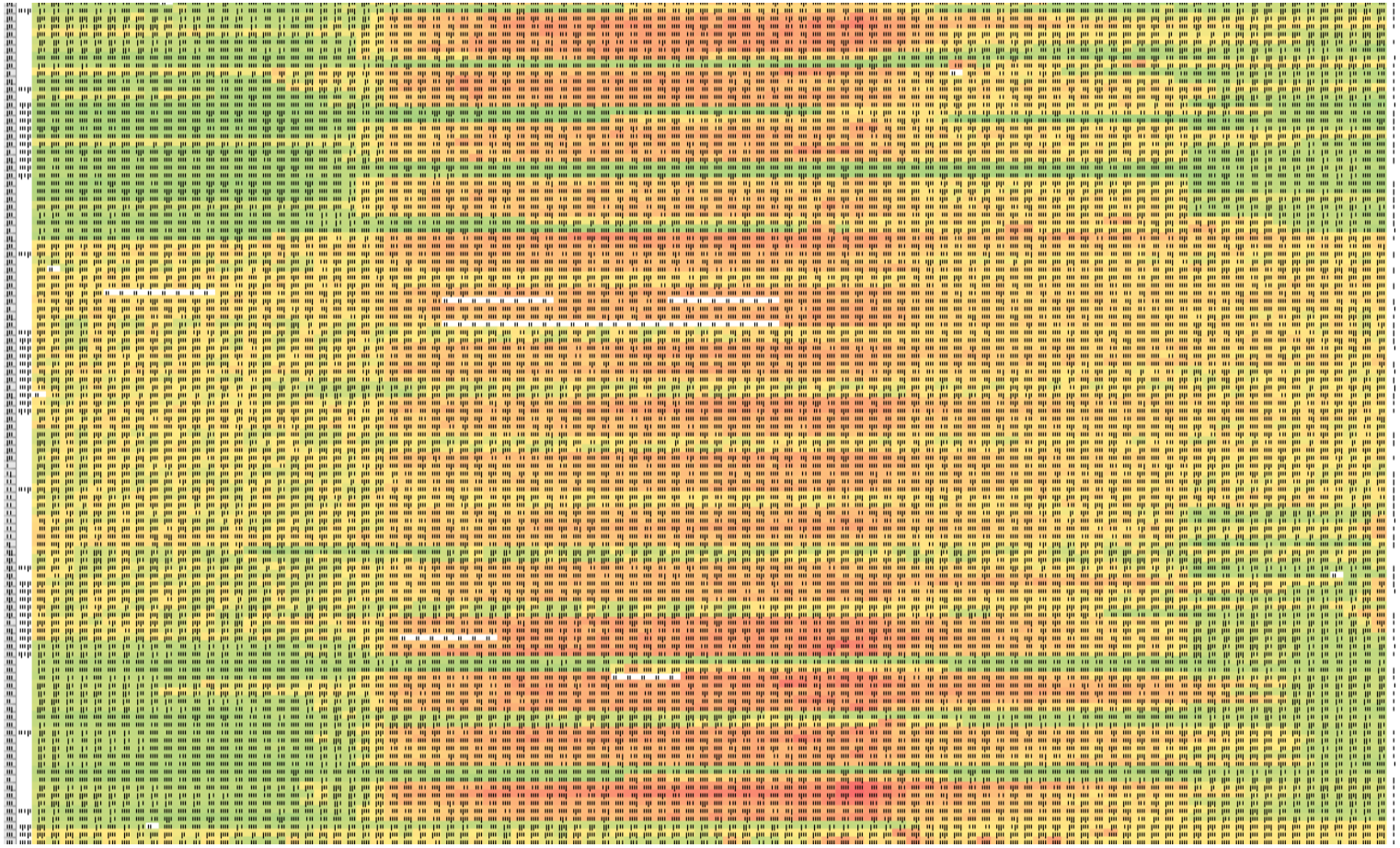
Steps to achieving energy/cost savings

1. Contact your energy company
2. Contact your energy company
3. Understand your bill and its components
4. Analyze your usage
5. ~~Schedule an energy assessment if necessary~~
6. Develop cost effectiveness plan
7. Target low/no-cost projects first
8. ~~Apply for rebates & or RE/EE financing~~



Steps to achieving energy/cost savings

1. Contact your energy company
2. Contact your energy company
3. Understand your bill and its components
4. Analyze your usage – 15 min interval data
5. ~~Schedule an energy assessment if necessary~~
6. Develop cost effectiveness plan
7. Target low/no-cost projects first
8. ~~Apply for rebates & or RE/EE financing~~



Rebates & Funding Sources

C&I Rebates

- Wabash Valley Power Moves®
  - Prescriptive – Lighting & Non-Lighting
  - New Construction
  - Custom
- Limited to $25,000/member/yr
  - Custom projects go up to $50,000
- More information on www.powermoves.com

C&I RE & EE Funding

- Rural Energy for America Program (REAP)
  - Categories
    - Guaranteed loans
    - Unrestricted grants
    - Grants of $20,000 or less
  - Eligibility
    - Agricultural producers with at least 50% of gross income coming from Ag Ops
    - Small businesses in eligible rural areas
  - Available funding
    - Loan guarantees on loans up to 75% of total eligible project costs
    - Grants for up to 25% of total eligible project costs
    - Combined grant & guaranteed loan funding up to 75% of total eligible project costs

C&I RE & EE Funding

- Rural Energy for America Program (REAP)
  - Use of funds
    - Renewable energy systems – Biomass, Geothermal, hydropower, wind & solar
    - Energy efficiency improvements – HE HVAC, insulation, lighting etc.
  - Further questions –
    - Contact State Rural Development Energy Coordinator
    - Curtis Johnson. Tel: 765-216-4063. Email: Curtis.johnson@in.usda.gov/in

Thank You!

Questions?

Appendix

Sample calculations

- Question:
  - Amy left her 1.5kW space heater on and came to work for 8 hours. How much did this mistake cost Amy that day?
- Solution
  - What do we need?
    - Appliance rating
    - Hours used
    - Amy’s electric rate

Sample calculations – Load Factor

- Load Factor = average demand (kw)/ (max demand (kw)
  - Average demand = kWh usage/(24)* (number of days)
- Question:
  - In June, an office complex used 172,500 kWh of energy and set a max demand of 600 kW. Calculate its LF.
- Solution
  - Average Demand = 172,500 kWh/(24)*(31) = 231.9 kW
  - Load Factor = 231.9 kW/600 kW = 0.39

Strategies
for
Maximizing Energy Savings

Questions and Answers