

#### Understanding & Managing Electric Demand Charges



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#### Who is E-Quantum Consulting ?



- one(1) of only three(3) independent energy consultants in IL
- we are <u>not</u> energy brokers
- no commission contracts
- unbiased information

Previous webinar (part 1 of 2) :

https://www.youtube.com/watch?v=7dOHUJ0Bs-4

#### Todays Goals (around demand charges)

#### • UNDERSTAND

- what are demand charges? How much are they?
- MOST misunderstood, yet almost half of your bill

#### • IDENTIFY

be able to identify all demand charges
 ....both supply and delivery (there are two kinds)

#### • MANAGE

- reduce cost, prevent overcharging
- "that which gets measured gets managed"

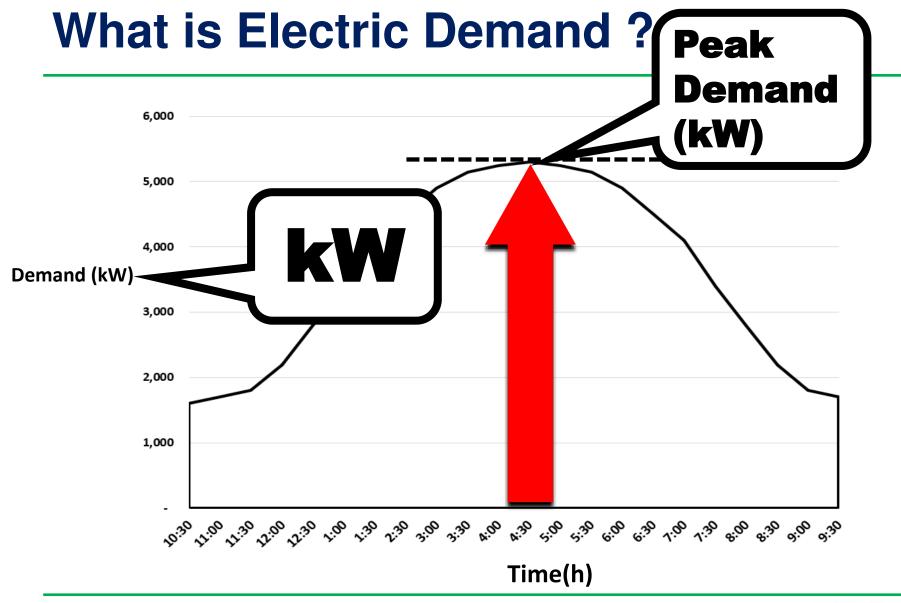


#### What is Electric Demand ?

• Electric Demand (kW) is a measurement of the amount of power consumed at a point in time

NOTE: Demand is <u>not</u> the same as usage (kWh)

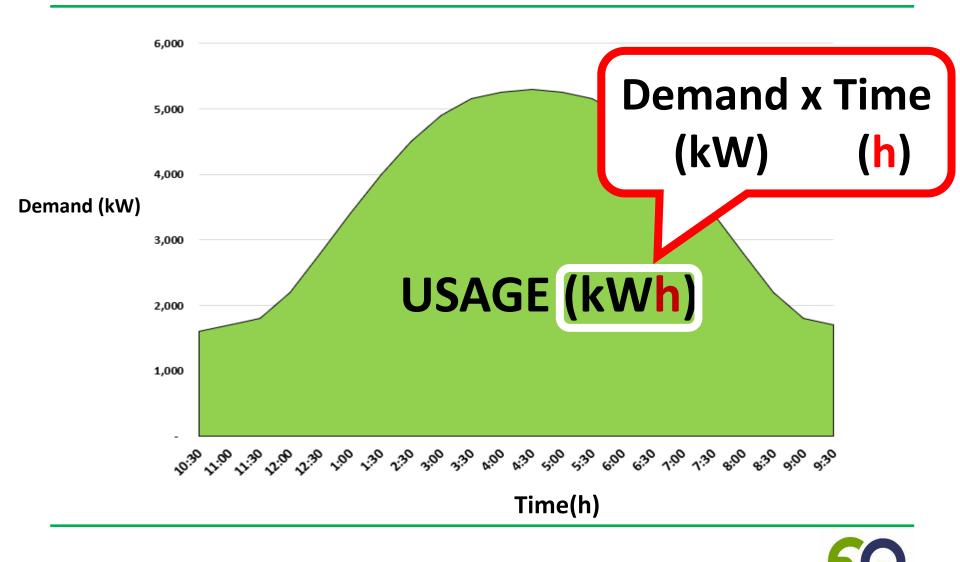








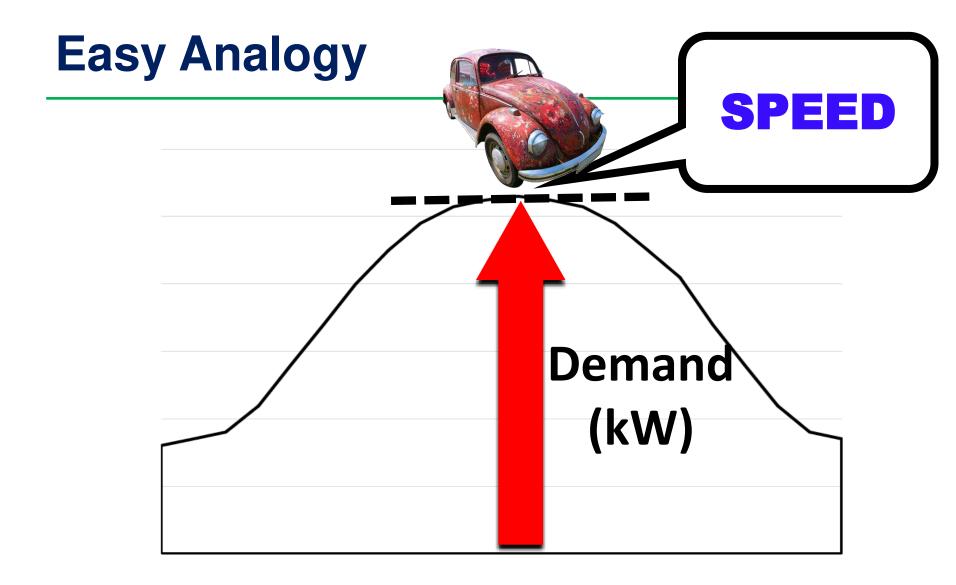
#### Usage (kWh) NOT same as Demand (kW)





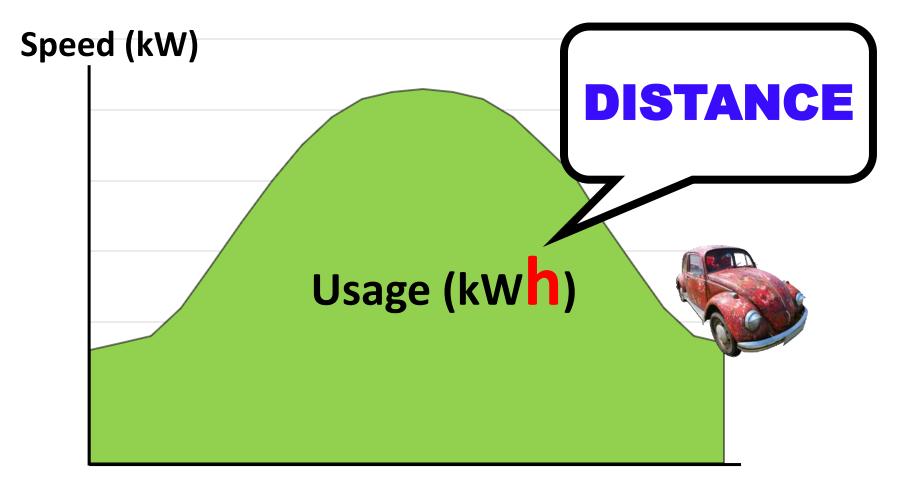
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#### **Easy Analogy**



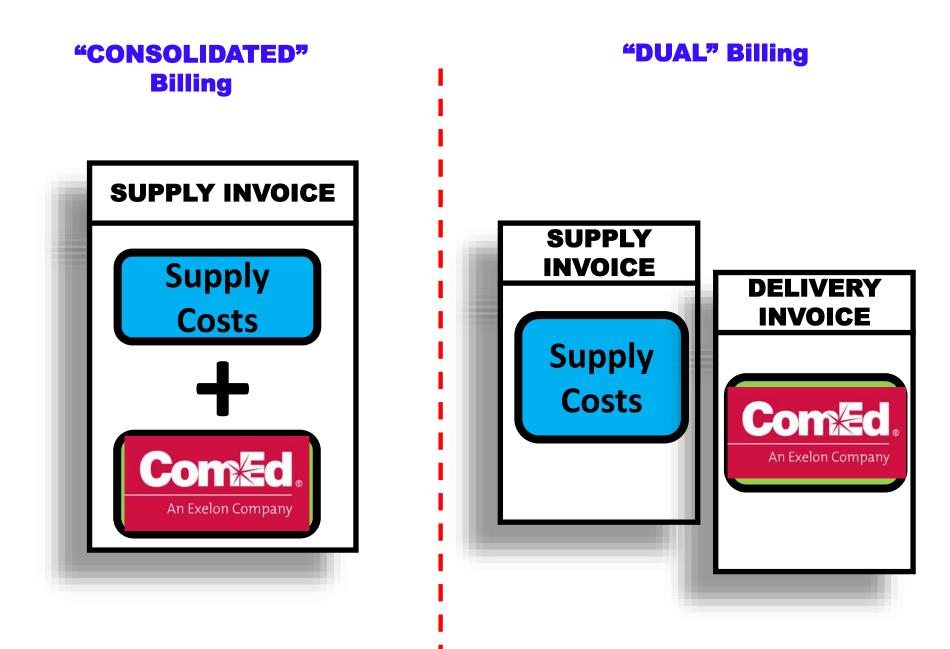


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# Where are the demand charges on my electric bills ?



#### **Supply Costs**

Coméd « An Exelon Company **Demand Charges (kW) :** 

- Capacity
- Transmission (NITS)
- Based on <u>ANNUAL</u> demand

**Demand Charges (kW) :** 

- Distribution Facilities Charges
- Based on MONTHLY demand

### How much are these Demand Charges ?

#### **How Much Are Demand Charges ?** \$/kW RATE **Cost Calculation DEMAND CHARGE** LOCATED 1 \$ Capacity 89 \$/kW RATE Capacity PLC SUPPLY invoice 2 Transmission \$ \$/kW RATE 34 Network Service PLC SUPPLY invoice 3 \$ **Dist. Facilities Charge** 7.45 \$/kW BAT Monthly Billing Demand **ComEd** invoice Gotta know your PLCs ... "that which gets measured gets managed"



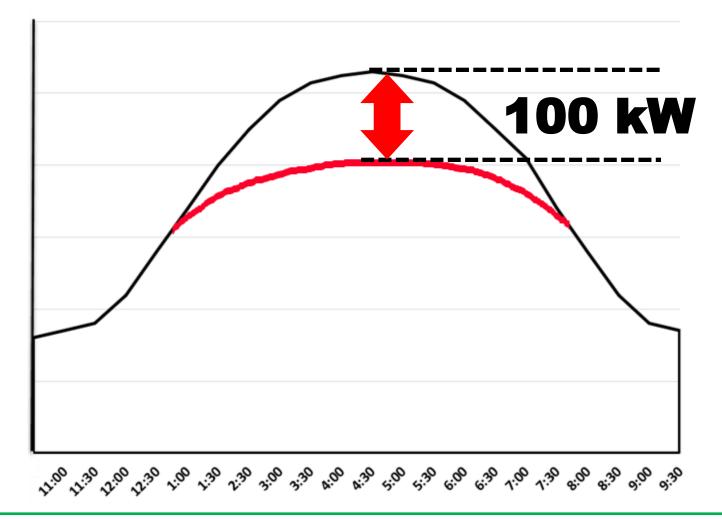
#### **EXAMPLE: Value of 100 kW Reduction**

	DEMAND CHARGE	AND CHARGE <b>100 kW</b> Reduction Value		
SUPPLY	Capacity	\$	8,900	annual
SUPPLY	Transmission	\$	3,400	annual
ComEd	Dist. Facilities Charge	\$	8,940	annual

**ANNUAL VALUE** \$ 21,240



#### **100 kW Demand Reduction**



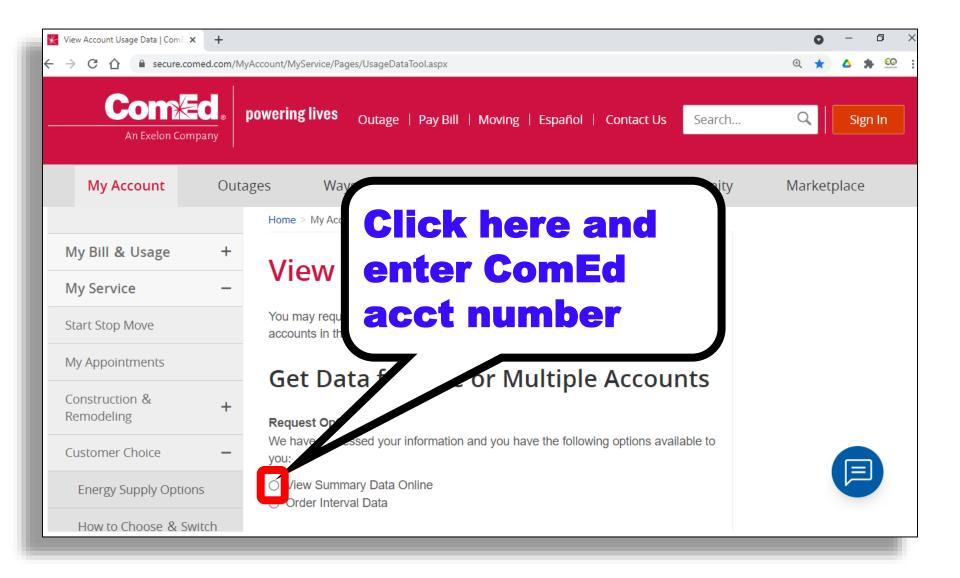


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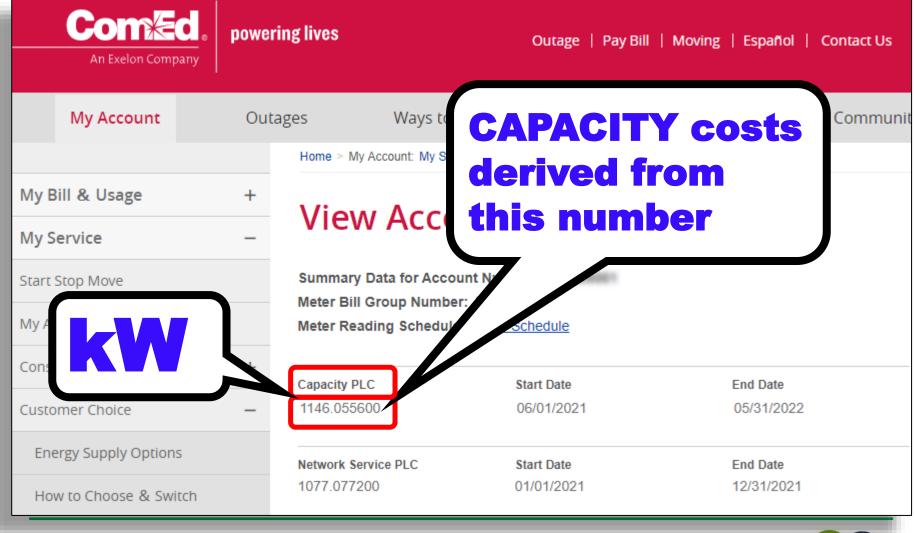
## Where do I find the PLC(s) for my building ?

**ComEd website:** 

https://secure.comed.com/MyAccount/MyService/Pages/UsageDataTool.aspx











#### **2 TRANSMISSION**

Comed An Exelon Company	powering lives	5	Outage   Pay Bill   Moving	;   Español   Contact Us
My Account	Outages	Ways to Save	Smart Energy	Safety & Commun
	Home	> My Account: My Service > Custom		
My Bill & Usage	+		TRANS	
My Service	_ Vie	ew Account I	derived	from
Start Stop Move		nary Data for Account Number	this num	nber
My Appointments		Bill Group Number: 7 Reading Schedule: <u>View Sch</u>	edule	
Con	+ Capaci	ity PLC		End Date
Cu:	- 1146.0	055600	1/2021	05/31/2022
E	Networ	rk Service PLC Sta	rt Date	End Date
How to Choose & Switch	1077.0	077200 01/	01/2021	12/31/2021
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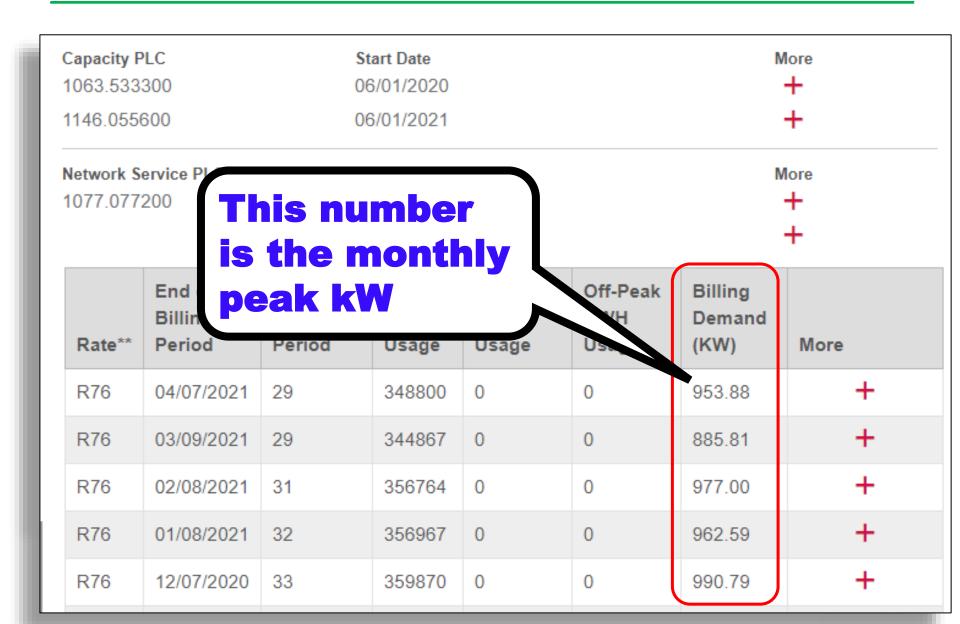
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#### **3 DIST. FACILITIES CHARGE**

An Exelon Company	Page 1 of 2 Account Number 000000000 Name CUSTOMER NAME Service Location SERVICE ADDRESS CITY Phone Number 000-0000			000	Bill Summary				
					<ul> <li>Previous Balance</li> <li>Total Payments - Thank You</li> </ul>			\$503.36	
omed.com				SS CITY					\$503.3
ustomer Service / Power Outage nglish -877-4COMED1 (1-877-426-6331)				Amount Due on February 26, 2016				\$485.8	
spañol -800-95-LUCES (1-800-955-8237)	Issue Da	ite F	ebruary 11, 2016						
earing/Speech Impaired -800-572-5789 (TTY)	Meter	Informatio	n						
or Electric Supply Choices visit luginillinois.org	Read Date	Meter Number	Load Type	Reading Type	Previous	Meter Reading Present	Difference	Multiplier X	Usage
our Usage Profile 3-Month Usage (Total kWh)	1/12- 2/11	000000000	General Service	Total kWh	513 Actual	553 Actual	40	120	480
	1/12-	0.0000000000000000000000000000000000000							
	2/11	00000001		kW	1.11 Actual	1.19 Actual	80.0	120	
lin.i.i.i.	2/11		General Service		/5	Comm	ercial Dem	-	to 100 k \$310.9
lin.i.i.i.	2/11				<b>4,800 kW</b>	►Commo	ercial Dem 05857	-	to 100 k \$310.9 281.
40 F M A M J J A S O N D J F	2/11				/5	►Commo	ercial Dem	-	to 100 k \$310.9 281. 52.1
40 0 F M A M J J A S O N D J F Electric Usage Month	Servic	e from 1/1	2/2016 to 2/11/2		<b>4,800 kW</b>	►Commo	ercial Dem 05857	hand - 0	to 100 k \$310.9 281. 52. -22.
40 0 F M A M J J A S O N D J F Electric Usage Month kWh Feb-15 4680	Servic	e from 1/1			<b>4,800 kW</b>	►Commo	ercial Dem 05857	hand - 0	to 100 k \$310.9 281. 52. -22.
40 0 F M A M J J A S O N D J F Electric Usage Month kWh Feb-15 4680 Mar-15 4440	Servic	e from 1/1	2/2016 to 2/11/2		<b>4,800 kW</b>	►Commo	ercial Dem 05857	hand - 0	to 100 k \$310.9 281. 52. -22. \$13,666
40 0 F M A M J J A S O N D J F Electric Usage Month kWh Feb-15 4680	Servic	e from 1/1	2/2016 to 2/11/2		<b>4,800 kW</b>	►Commo	ercial Dem 05857	hand - 0	to 100 k \$310.9 281. 52. -22.0 \$13,666 60
A0 F M A M J J A S O N D J F Electric Usage Month kWh Feb-15 4680 Mar-15 3720	2/11 Servic	e from 1/1	2/2016 to 2/11/2 vices - Come		<b>4,800 kW</b>	► Comme h X ► 0. h X 0.	ercial Dem 05857	hand - 0	to 100 k \$310.9 281. 52. -22.0 \$13,666 60 <sup>-</sup> 15
Electric Usage           Month         kWh           Feb-15         4680           Mar-15         4440           Apr-15         3720           May-15         3960	2/11 Servic	e from 1/1	2/2016 to 2/11/2 vices - Come arge ering Charge	2016 - 30 Day	4,800 kW 4,800 kW	Comme h X 0. h X 0.	ercial Dem 05857 01095	hand - 0	9.60 to 100 kl \$310.9 281.1 52.9 -22.0 \$13,666.0 601 11,701 42

#### **3 DIST. FACILITIES CHARGE**



#### **3 DIST. FACILITIES CHARGE**

	Secondary Voltage Distribution Facilities Charge (DFC) (\$/kW unless noted) (4)(14)	Primary Voltage Distribution Facilities Charge (DFC) (\$/kW) (5)(14)	Primary Voltage Transformer Charge (\$/kW)
Small Load Delivery Class (0-100 kW)	\$8.38	\$3.51	\$0.28
Medium Load Delivery Class (>100-400 kW)	\$8.50	\$4.66	\$0.22
Large Load Delivery Class (>400-1000 kW)	\$8.37	\$6.45	\$0.30
Very Large Load Delivery Class (>1000 - 10,000 kW)	\$8.15	\$6.75	\$0.32
Extra Large Load Delivery Class (> 10,000 kW)	\$8.25	\$7.20	\$0.36

#### (953.88 kW) x (\$8.37) = \$7,983 just for one month!!





# How to manage Demand Charges ?

#### How to Manage Demand Charges ?

- 1. Electric Contract Structuring
- 2. PLC Management reduce on peak demand days
- **3.** Load shifting pre-cooling/heating
- 4. DR Programs ensure correct calculations
- 5. EE projects VFDs , pumps, fans etc.
  - RoI (payback) decreased if supply contract incorrectly structured
  - Need to understand project proposal assumptions on kW/kWh rates



#### 1. Electric Supply Contract Structuring

...this one's huge

Keep in mind that.....

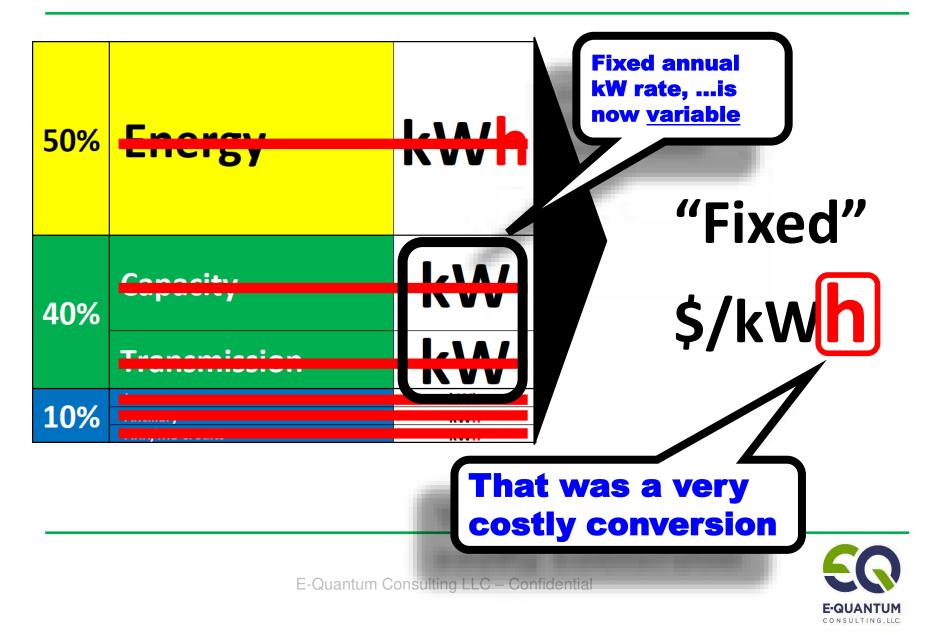








#### **Electric Supply Contract**



#### **Electric Supply Contract**

### Mismatching kW / kWh + Change in Law language

### **Contended Contended Contende Contended Contende Contende Contende Contende Contende Contende Contende C**



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#### kWh Spike Example - overcharging



#### MONTH



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#### **Construction Contract Analogy**



## **Electric Supply Contract**

- Structure to fairly charge kW
  - maintain control of managing demand charges
  - converting demand (kW) to usage (kWh) is very costly
  - poor structure opens door to significant overcharging

### • **CORRECTLY itemize** ... so few people do this

- beware of incorrect itemization
- again, everyone should pay same demand (kW) rates





Peak Load Contribution (kW) 2. PLC Management

### In a Nutshell

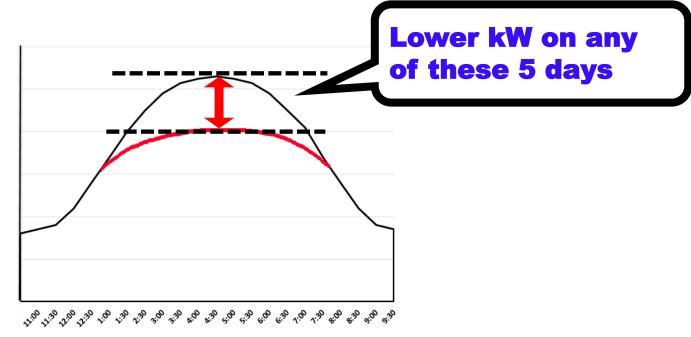
Com Ed An Exelon Company	powering	g lives	Outage   Pay Bill   Moving   Español   Contact Us				
My Account	Outage	es Ways to Save	Smart Energy	Safety & Communit			
		Home > My Account: My Service > Cus	tomer Choice				
My Bill & Usage	+						
My Service	-	View Account					
Start Stop Move		Summary Data for Account Num					
My Appointments		Meter Bill Group Number: 7 Meter Reading Schedule: <u>View</u> 9	THESE	2			
Construction & Remodeling	+	Capacity PLC		RS			
Customer Choice	-	1146.055600	06				
Energy Supply Options		Network Service PLC	Start Date	End Date			
How to Choose & Switch		1077.077200	01/01/2021	12/31/2021			
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#### **PLC Management can do that**

PLC's are based on <u>YOUR</u> Peak kW on

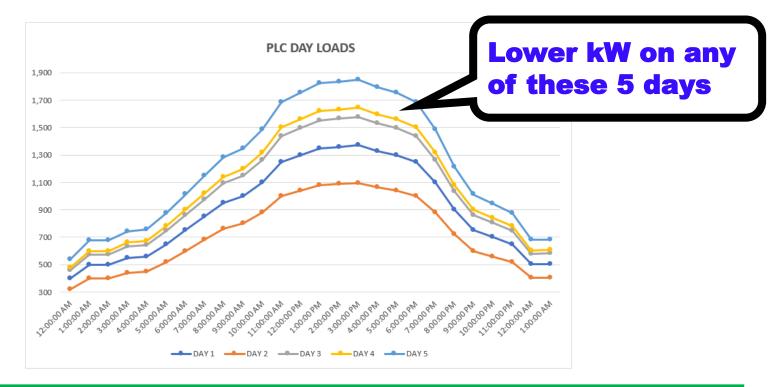






### **Simple PLC Calculation**

- Take GRID's five(5) highest load HOURS of the year (typically summer)
- PLC is your average <u>DEMAND</u> (kW) during those 5 hours





# Q. How do we know what days are Peak Days ?



## **Historical PLC Days in ComEd**

YEAR	MONTH	DATE		OUR DING			AVERAGE PEAK DAY LOAD	
2020	Aug	Aug-27-2020		17:00	20,220			
	Aug	Aug-28-2020	1	15:00	20,180			
	Jul	Jul-09-2020	1	17:00	20,136		20,140	
	Aug	Aug-24-2020	1	16:00	20,112			
	Jul	Jul-07-2020	1	16:00	20,054			
2019	Jul	Jul-20-2019	1	15:00	20,204			
	Jul	Jul-19-2019	1	15:00	20,949			
	Jul	Jul-15-2019	1	17:00	19,716		20,261	
	Jul	Jul-10-2019	1	16:00	20,617			
	Jul	Jul-02-2019	1	17:00	19,820			
2018	Sep	Sep-04-2018	1	17:00	19,840			
	Aug	Aug-27-2018	1	16:00	20,374			
	Jun	Jun-30-2018	1	17:00	19,954		20,503	
	Jun	Jun-29-2018	1	17:00	20,996		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	Jun	Jun-18-2018	1	16:00	21,349			

#### NOTE: These days also set the monthly peak for ComEd demand charges



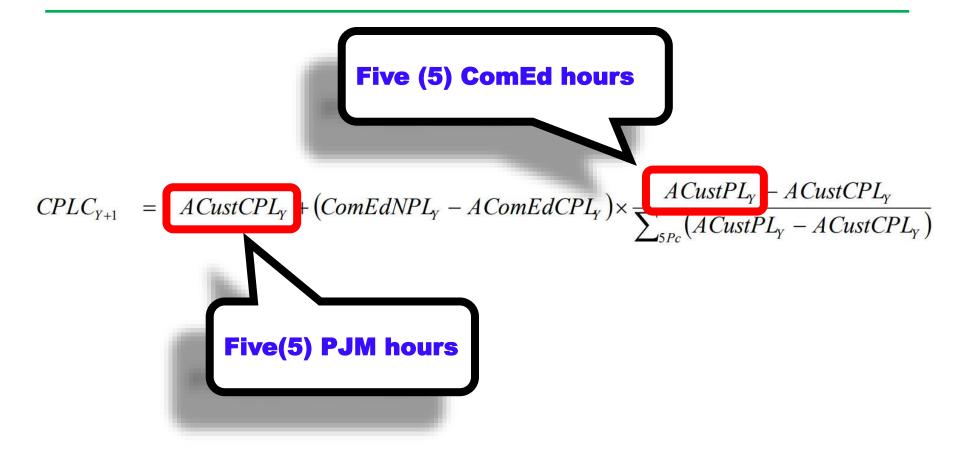
#### **PLC Day Prediction**

- PLC days can be predicted with reasonable consistency
- **SIGN UP to receive PLC day notifications** (many sources)
- **DO NOT PAY for PLC management services**
- USELESS if your supply contract is poorly structured

<u>Note</u>: your supplier/broker may not want you to manage your PLC If your PLC decreases ...they keep the money!!!!

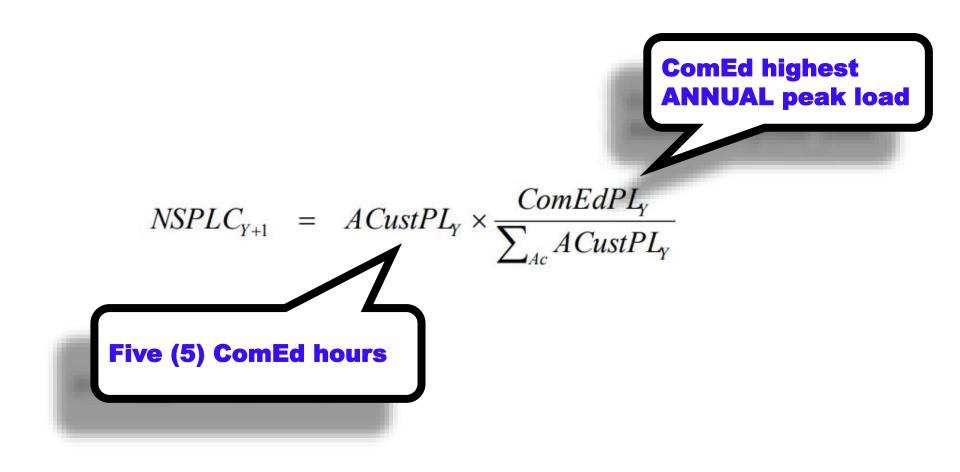


### **Capacity PLC Calculation**





#### **Transmission PLC Calculation**



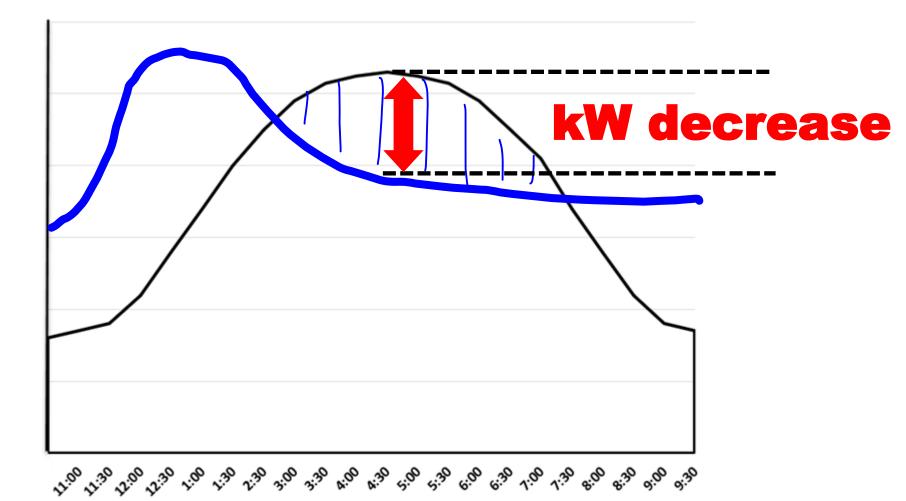




# 3. Load Shifting

a.k.a demand (kW) shifting

#### In a Nutshell



#### ComEd peak is between 9:00am – 6:00pm

# **Load Shifting**

- We do not use LESS energy
- We just change WHEN we use it





# Load (kW) Shifting impacts



**Demand Charges (kW) :** 

- Capacity
- Transmission (NITS)
- Based on <u>ANNUAL</u> demand



**Demand Charges (kW) :** 

- Distribution Facilities Charges
- Based on MONTHLY demand





#### **Demand (kW) charges - summary**

# 1. UNDERSTAND

# 2. IDENTIFY

# 3. MANAGE



# ENERGY Contract

Have you really read and understood language in the Fine Print ? Have you really read and understood language in the Fine Print ? Have you really read and understood language in the Fine Print ?

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Sign

Anyway :

I Agree this

is confusing

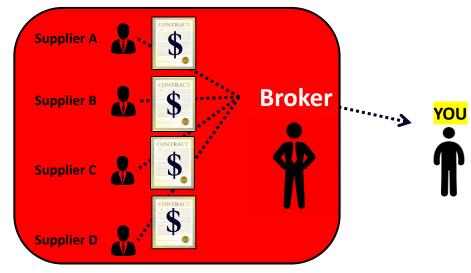
#### 1. UNDERSTAND

# 2. IDENTIFY

# 3. MANAGE



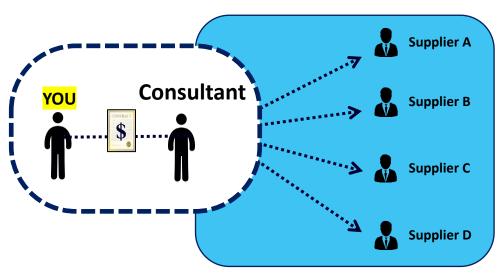
#### **NON-INDEPENDENT**





- **1.** Conflict of interest
- 2. Commission Unknown
- **3. Higher Rates**
- 4. Double dipping risk

#### INDEPENDENT





Unbiased advice
 No contract with suppliers
 Flat known fee

#### **Final Useful Exercise**

- Lookup your PLCs (ComEd website)
- Lookup your monthly peak demands (ComEd website)
- Pull up an electric bill
- Can you identify the three(3) demand(kW) charges ?
- **if you hit trouble, call me** (*identify/quantify*)
- WATCH the previous webinar Part 1 of 2
- cliff note videos on E-Quantum.org





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"Honesty is the best policy" ~ Ben Franklin

