Introduction of Demand Rates

Caribbean Utilities Company, Ltd.
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Topics for Discussion

- Introduction to demand rates
- How demand rates were calculated
- Benefits to customers
- Effective date and transition plan
- Approved rates
- Example Bill





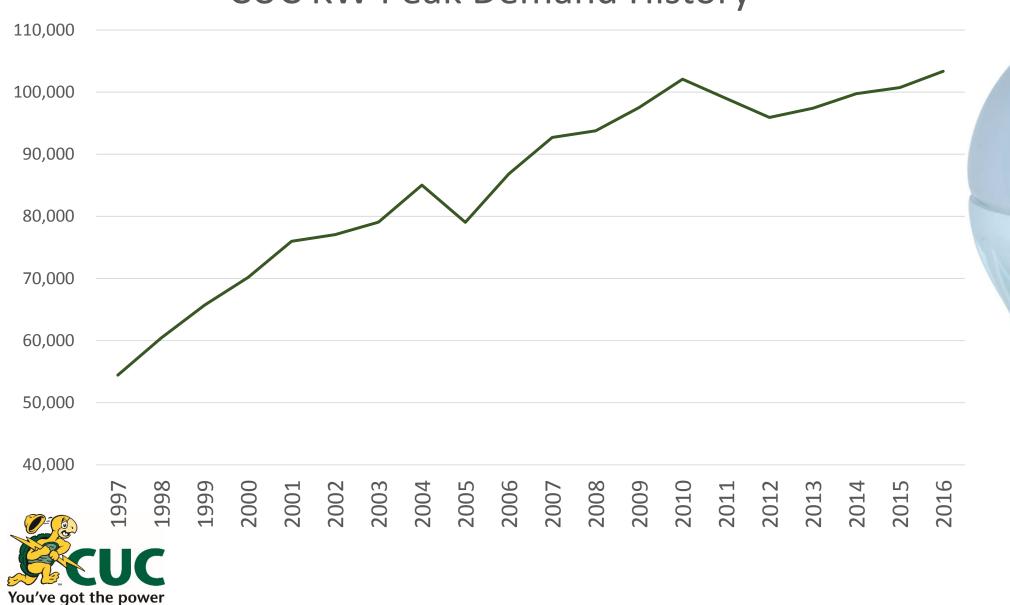
Why Demand Rates

The goal of demand rate billing is to allocate demand related costs into a separate component from energy costs and send the right price signal which will encourage demand management.

 Peak demand reduction does not necessarily decrease total energy consumption, but can be expected to reduce the need for investments in power plants and T&D infrastructure for meeting peak demands.



CUC KW Peak Demand History



Which customers are affected?

- All Large Commercial (Rate L) customers
- Without DER the new rates will be phased in over 3 years
- Future DER customers the new rates take effect at once





Which customers are affected?

- Residential (Rate R) and Commercial (Rate C) customers that operate on-site Distributed Energy Resources (DER) outside of CUC's CORE program.
- Distributed Energy Resources are small-scale renewable energy generation sources located on the same property where electricity is used (e.g. a home or business), to provide an alternative to or an enhancement of the traditional electric power grid.





Existing Bill Components

- Existing CUC rates consist of:
 - Facilities charge monthly flat fee
 - Energy charge based on kWh consumption
 - Fuel Cost charges based on kWh
 - License and Regulatory fees based on kWh
 - Renewable Energy based on kWh
 - Other miscellaneous charges

You've got the power

 Only Base Rates impacted. "Base Rates" consist of facilities charge and energy charge – other bill components are not affected



New Rates

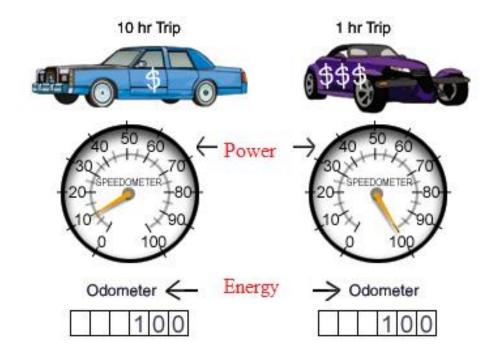
- Energy charge lower rate
- New Demand charges
 - Monthly Billing Demand
 - Additional Capacity Charge
- All other components are not affected





Rate of Usage

Peak kW measures rate of usage
 e.g. kW : speed :: kWh : miles travelled







New Demand Charges

- Monthly Billing Demand maximum on-peak kW during the billing month
 - Peak = 11 a.m. to 9 p.m.
 - Monday to Friday, excluding defined Holidays
- Additional Capacity Charge maximum of the Monthly Billing Demands for the last 24 billing months.





How Demand Rates were Calculated

- Cost of Service Study
 - Total cost to serve large commercial class
 - Categorized into Generation, Transmission & Distribution and other
- Revenue neutral new demand charges replace energy charges





How Demand Rates were Calculated

- Step 1: Demand charges calculated to recover generation and T&D costs
 - Monthly Billing Demand recovers
 - Base Generation
 - Additional Capacity Charge recovers
 - Reserve Generation
 - Transmission & Distribution costs





How Demand Rates were Calculated

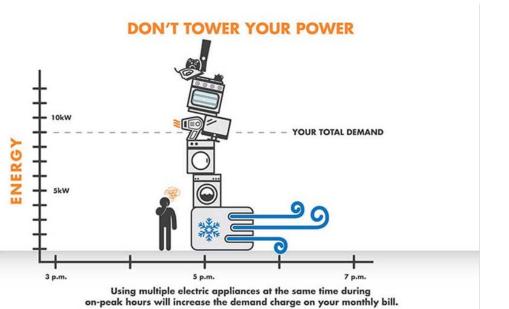
- Step 2: Increased cost recovery from demand charges used to lower the energy rate
 - New rates are revenue neutral to CUC compared to existing rates & ensure costs are allocated fairly to consumers.
- Step 3: Rates are adjusted annually utilizing the same CPI adjustment as is used for existing rates.
- Step 4: Rate L is adjusted to phase-in one-third of demand rates in first year

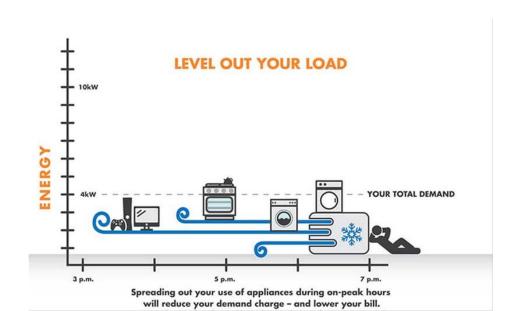




Benefits to Customers

- Customers are better able to reduce their bills by lowering their peak usage.
- Flatter load shapes from customers will:
 - Lower costs to the utility that are passed on to all customers over the long-term







Benefits to Customers

- Increased familiarity with consumption patterns.
- Increased forecasting accuracy.
- More ways to save. Energy and Peak Demand Management.





Effective Date and Transition Plan

- Effective Date: <u>January 2018</u>
- The demand rates for Large Commercial customers will be phased in over three years.
- The calculated rates will be CPI adjusted effective June 1 each year.
- Each year during the rollout period the regulator will review the rates to ensure revenue neutrality.
- As customers install DER in the future they will utilize the Demand Rates.



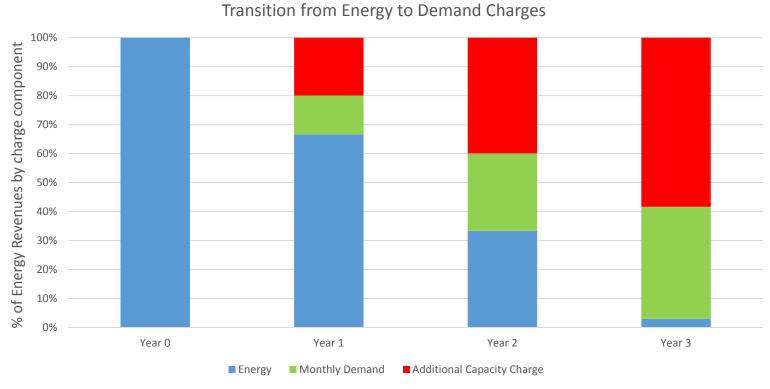
Transition Plan Rate L

YEAR 1	YEAR 2	YEAR 3
	Re-evaluate demand billing units based on experience	Re-evaluate demand billing units based on experience
Calculated demand rates (as adjusted by RCAM) x 1/3	Calculated demand rates (as adjusted by RCAM) x 2/3	Calculated demand rates (as adjusted by RCAM) x 100%
Balance of costs recovered from energy rate	Balance of costs recovered from energy rate	Balance of costs recovered from energy rate





Transition Plan Rate L







Approved Rates

	Residential W/DER	General Commercial W/DER	Large Commercial
EXISTING RATES			
Monthly Facilities Charge	\$5.31	\$29.35	\$153.92
All kWh per month	0.1058	0.1183	
First 30,000 kWh per month			0.1183
Over 30,000 kWh per month			0.0977
NEW RATES			
Monthly Facilities Charge	\$5.31	\$29.35	\$153.92
All kWh per month	0.00333	0.00323	0.00327
Monthly Billing Demand	8.63	10.60	9.75
Additional Capacity Charge	14.56	14.59	14.53



Sample Bills: Large Customers without onsite DER

This is an example for illustrative purposes only. The energy and demand rates will be recalculated each year. Please note the actual rates in year 3 will differ from the example.

SUMMARY:	
Existing Rates	
Demand Rates Only	
CURRENT BILL FORMAT	
EXISTING RATES:	
Facilities charge	\$ 153.9
First 30,000	0.118
Over 30,000	0.097
•	0.03
Fuel charge	
Regulatory fee	0.007
TOTAL EXISTING RATES	
NEW BILL FORMAT	
DEMAND RATES:	
Facilities charge	\$ 153.9
Demand Charges:	
Monthly Billing Demand	3.2
Additional Capacity Charge	4.8
, ,	0.0699
Energy charge	
Fuel charge	0.135
Regulatory fee	0.007

TOTAL DEMAND RATES

					28,461.53 28,382.32
				ear	1
			Billing		
			Units		Cost
\$	153.95			\$	153.95
	0.1183	kWh	30,000		3,549.00
	0.0977	kWh	84,975		8,302.06
	0.1353	kWh	114,975		15,556.12
	0.0079	kWh	113,975		900.40
				\$	28,461.53
\$	153.95			\$	153.95
7	133.33			Y	133.33
	3.25	kW	300		975.00
	4.84	kW	600		2,906.00
(0.06997	kWh	114,975		8,044.80
	0.1353	kWh	114,975		15,556.12
	0.0079	KWh	113,975		900.40
				\$	28,382.32

			V	ear	28,461.53 28,425.46
			Billing	ear	
			Units		Cost
	\$	153.95		\$	153.95
kWh	Ş	0.1183	30,000	Ą	3,549.00
kWh		0.0977	84,975		8,302.06
kWh		0.1353	114,975		15,556.12
kWh		0.0079	113,975		900.40
				\$	28,461.53
	\$	153.95		\$	153.95
kW		6.50	300		1,950.00
kW		9.69	600		5,812.00
kWh		0.03659	114,975		4,206.94
kWh		0.1353	114,975		15,556.12
KWh		0.0079	113,975		900.40
				\$	28,425.46

		١	'ear	28,461.53 28,475.49
	'	Billing		
		Units		Cost
kWh kWh kWh kWh	\$ 153.95 0.1183 0.0977 0.1353 0.0079	30,000 84,975 114,975 113,975	\$	153.95 3,549.00 8,302.06 15,556.12 900.40 28,461.53
	\$ 153.95		\$	153.95
kW	9.75	300		2,925.00
kW	14.53	600		8,718.00
kWh	0.00327	114,975		375.97
kWh	0.1353	114,975		15,556.12
KWh	0.0079	113,975		900.40
			\$	28,475.49

Sample Bills: Customers with onsite DER

		Generator w/o Storage		Generator WITH Storage	
		Billing		Billing	
		Units	Cost	Units	Cost
EXISTING RATES:					
Facilities charge	\$ 153.92		\$ 153.92	:	\$ 153.92
First 30,000 kWh	0.1183	30,000	3,549.00	30,000	3,549.00
Over 30,000 kWh	0.0977	60,975	5,957.26	66,975	6,543.46
Fuel charge	0.1353	90,975	12,308.92	92,775	12,552.46
Regulatory fee	0.0079	89,975	710.80	91,775	725.02
TOTAL EXISTING RATES			\$ 22,679.90		\$ 23,523.86
DEMAND RATES:					
Facilities charge	\$ 153.92		\$ 153.92	:	\$ 153.92
Demand Charges:					
Monthly Billing Demand	9.75	300	2,925.00	200	1,950.00
Additional Capacity Charge	14.53	600	8,718.00	500	7,265.00
Energy charge	0.00327	90,975	297.49	92,775	303.37
Fuel charge	0.1353	90,975	12,308.92	92,775	12,552.46
Regulatory fee	0.0079	89,975	710.80	91,775	725.02
TOTAL DEMAND RATES			\$ 24,960.21		\$ 22,795.85



Tools For Consumption Tracking













