

# Introduction of Demand Rates



Caribbean Utilities Company, Ltd.  
October 2017



# Topics for Discussion

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



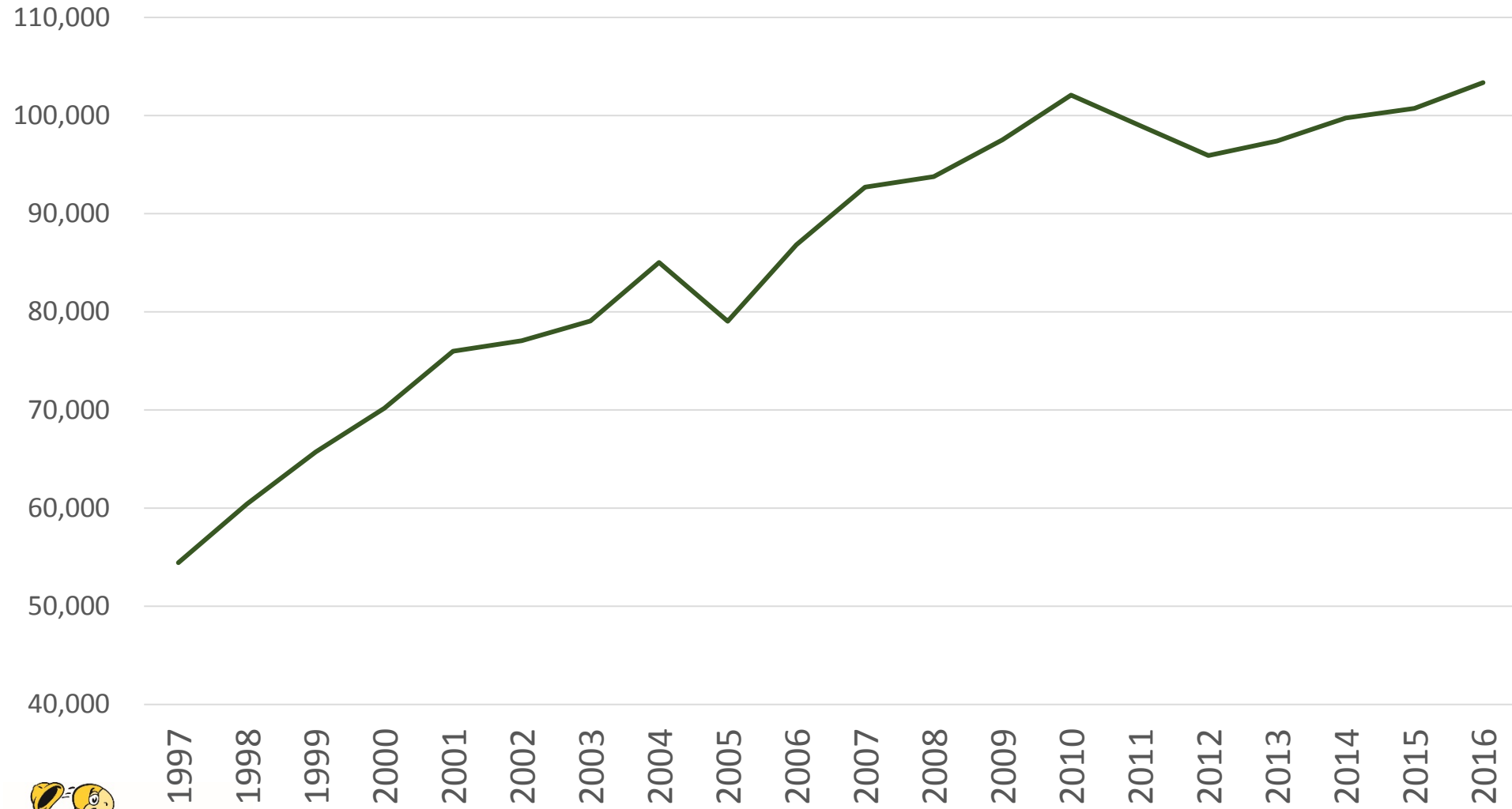
# Why Demand Rates

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



# New Rates

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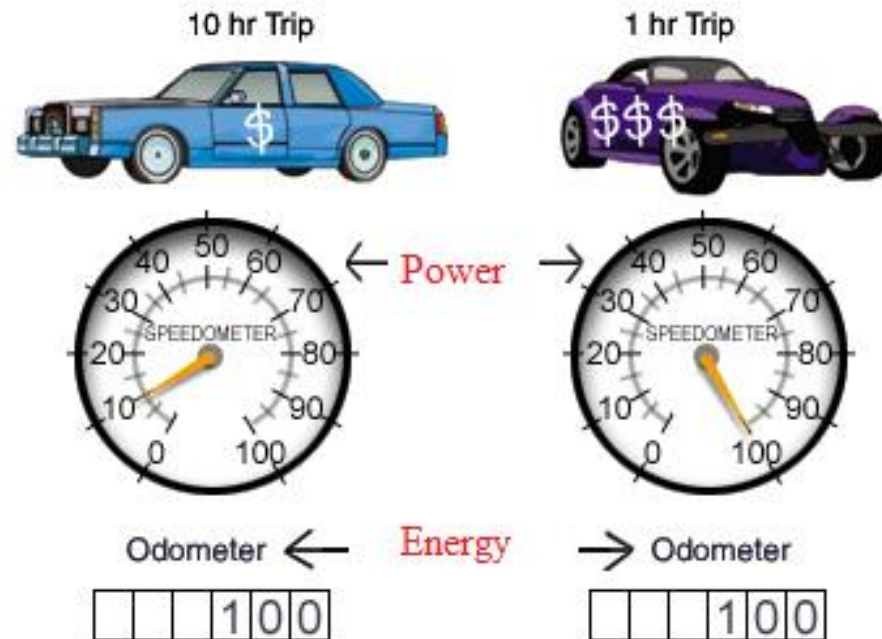
- Energy charge - lower rate
- New Demand charges
  - Monthly Billing Demand
  - Additional Capacity Charge
- All other components are not affected





# Rate of Usage

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



# New Demand Charges

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- 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



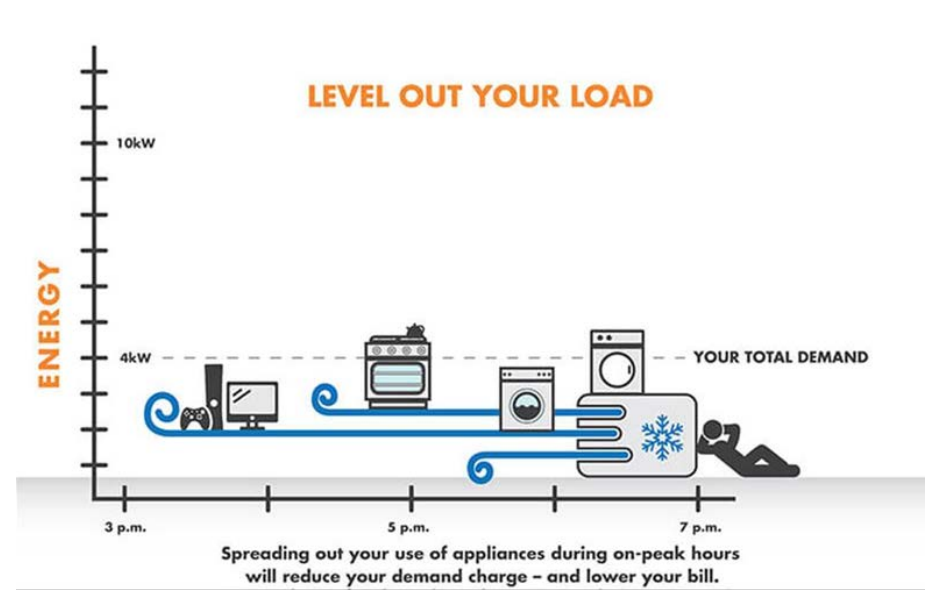
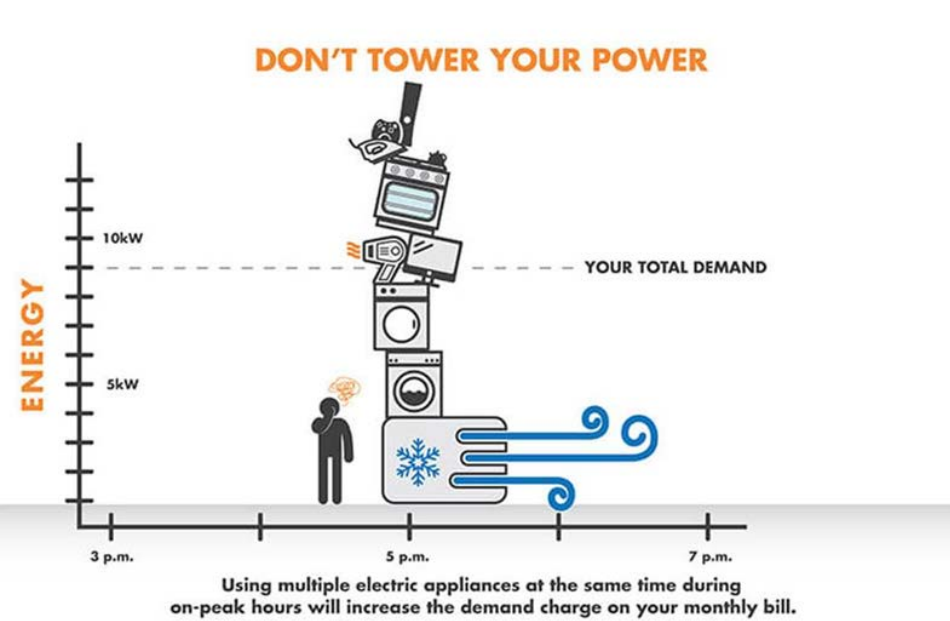
# How Demand Rates were Calculated

- **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

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



# Effective Date and Transition Plan

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- Effective Date: **January 2018**
- 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.



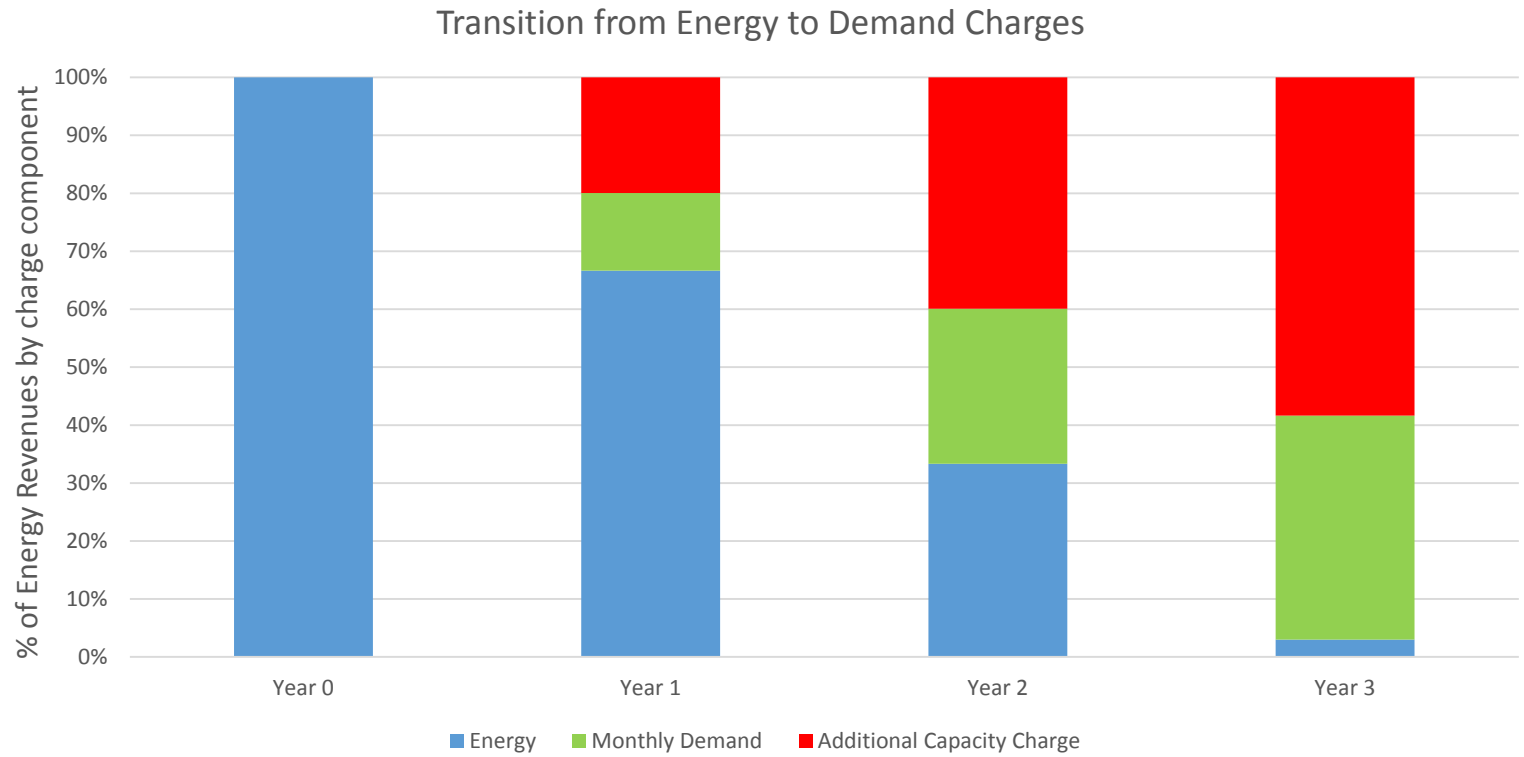


# Transition Plan Rate L

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
<b>EXISTING RATES</b>			
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
<b>NEW RATES</b>			
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	28,461.53
Demand Rates Only	28,382.32

28,461.53
28,425.46

28,461.53
28,475.49

**CURRENT BILL FORMAT**

EXISTING RATES:

Facilities charge	\$ 153.95		\$ 153.95
First 30,000	0.1183 kWh	30,000	3,549.00
Over 30,000	0.0977 kWh	84,975	8,302.06
Fuel charge	0.1353 kWh	114,975	15,556.12
Regulatory fee	0.0079 kWh	113,975	900.40
<b>TOTAL EXISTING RATES</b>			<b>\$ 28,461.53</b>

**NEW BILL FORMAT**

DEMAND RATES:

Facilities charge	\$ 153.95		\$ 153.95
Demand Charges:			
Monthly Billing Demand	3.25 kW	300	975.00
Additional Capacity Charge	4.84 kW	600	2,906.00
Energy charge	0.06997 kWh	114,975	8,044.80
Fuel charge	0.1353 kWh	114,975	15,556.12
Regulatory fee	0.0079 kWh	113,975	900.40
<b>TOTAL DEMAND RATES</b>			<b>\$ 28,382.32</b>

**Year 1**

Billing
Units      Cost

**Year 2**

Billing
Units      Cost

**Year 3**

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
		<b>\$ 28,461.53</b>

\$ 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
		<b>\$ 28,461.53</b>

\$ 153.95		\$ 153.95
6.50 kW	300	1,950.00
9.69 kW	600	5,812.00
0.03659 kWh	114,975	4,206.94
0.1353 kWh	114,975	15,556.12
0.0079 kWh	113,975	900.40
		<b>\$ 28,425.46</b>

\$ 153.95		\$ 153.95
9.75 kW	300	2,925.00
14.53 kW	600	8,718.00
0.00327 kWh	114,975	375.97
0.1353 kWh	114,975	15,556.12
0.0079 kWh	113,975	900.40
		<b>\$ 28,475.49</b>

# Sample Bills: Customers with onsite DER

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



# Tools For Consumption Tracking



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