



## CARRIBBEAN SUSTAINABLE ENERGY INDEPENDENCE: MAKING IT HAPPEN



## Transitioning Strategies for Existing Utilities

November 11 2016

ELECTRICITY...POWERING OUR NATION'S PROGRESS SINCE 1911

# Electricity Sector Evolution

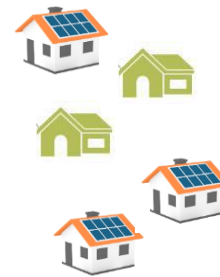
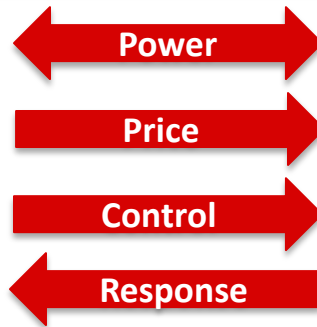
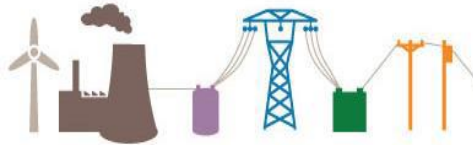


yesterday



**Centralized generation**  
**One-way power flow**  
**Simple fixed pricing**  
**Passive customers**

today

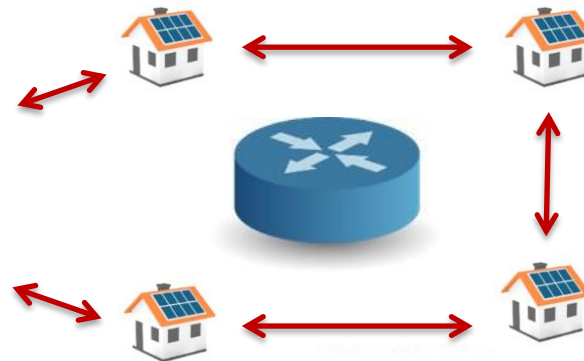


**Aging infrastructure**  
**Distributed generation**  
**Two-way power flow**  
**One-way utility control**  
**Time-of-use pricing**  
**Customers want information & control**

tomorrow



utility



**Energy internet**  
**Utility as energy service platform**  
**Multi-way power flow**  
**Negotiated controls**  
**Dynamic locational pricing**  
**Empowered customers**

# Transitioning Strategies



## Fuel to Assets

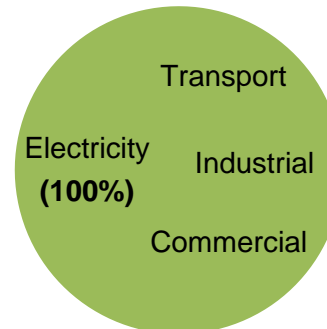
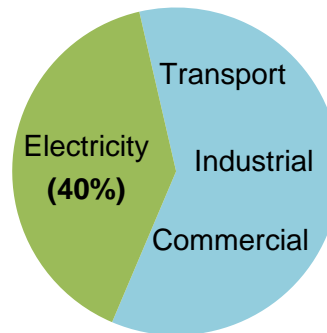
Fluctuating '**Fuel Charges**' collected on behalf of fuel suppliers.



Fixed '**Renewable Energy Charges**' that stay in the business.

## Electrification

The Barbados Energy 'Pie'



## Grid Modernisation

Grid Operator

**'Obligation to Serve'**

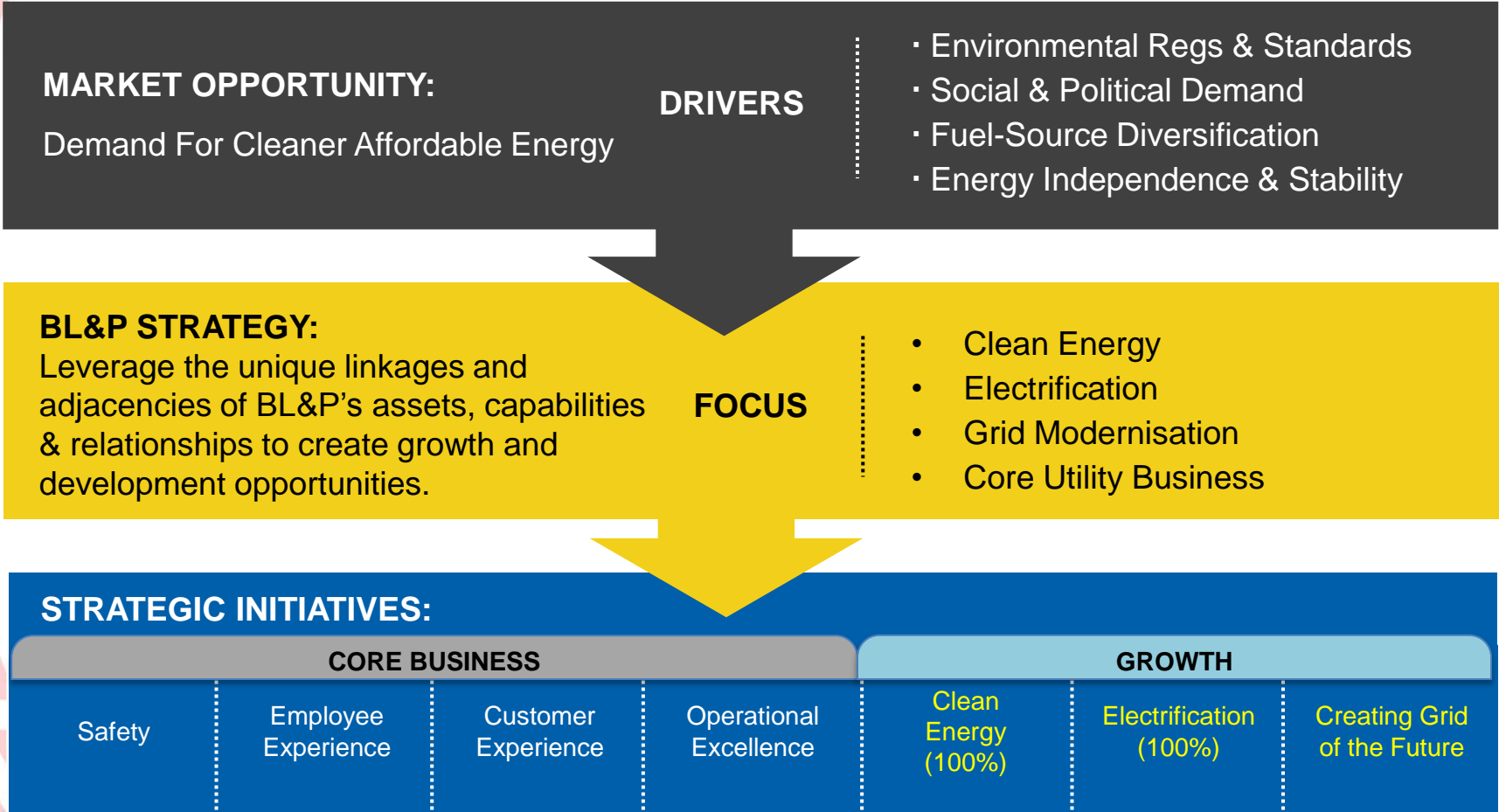


Distribution Platform Optimiser

- real-time controls
- distribution automation
- integration of smart devices and energy solutions

**'Commitment to Optimise'**

# Our Strategy



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# Transformation is underway

Investments in solar, wind and grid modernisation are in progress...



## Clean Energy



- 10 MW grid-scale solar ✓
- 13 MW residential solar ✓
- New grid-scale solar & wind builds for 2017-18 ✓
- More residential solar in 2017-18 ✓

## Electrification



- 200 fully electric vehicles on the road ✓
- Vehicle to Grid and Home technology unlocks renewable storage potential
- EV's are a key part of the 100% clean energy and electrification strategy

## Grid Modernisation



- Advanced meters & communications system in deployment ✓
- Customer Engagement ✓
- Distribution Automation in development ✓

# Transition Approach

Aspirational Goal of 100% RE / 100% Electrification by 2045...



2016 - 2018	2019 - 2022	2023 - 2029	2030 - 2045
<b>CLEAN GENERATION</b> → Phase In			
60 MW of Clean Energy	138 MW of Clean Energy Economic Energy Storage	250 MW of Clean Energy Economic Energy Storage	100% Clean Energy Large Scale Storage
<b>ELECTRIFICATION</b> → Phase In			
500 Electric Vehicles EV Charging Network Smart Meter Deployment DSM	2,000 Electric Vehicles Flexible Rate Structures Plug in Cruise ships Water Assets	10,000 Electric Vehicles Vehicle-to-Grid Fully Integrated Smart Grid	100,000 Electric Vehicles EV Public Trans. System
<b>LEGACY GENERATION</b> → Phase Out			
239 MW	187 MW	159 MW	60 MW *

\*Could convert to Gas or biodiesel if available and economic

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Thank You

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