





Developments in Jamaica's Electricity Sector & Status



HISTORY OF THE ELECTRICITY SECTOR

- A mere 13 years after Thomas Edison invented the electric lamp, Jamaica became one of the first countries in the world to receive electricity in 1892.
- At that time, only two years earlier (1890), Jamaica had promulgated the Electric Lighting Act, 1890.
- The 1890 Act governed the electricity sector for One Hundred and Twenty Five (125) years until it was repealed in 2015.
- This brings into sharp focus that while Jamaica was among the pioneer jurisdictions in 1890, it has been relegated over the years and the new Electricity Act is intended to transform Jamaica's energy sector to ...*Fuel*



HISTORY OF THE ELECTRICITY SECTOR

- Electricity service was introduced in 1892 in Jamaica.
- The Jamaica Public Service Company Limited (“**JPS**”) was established in 1923.
- In 1966, the JPS became the holder of an all-island, twenty-five (25) year electricity licence.
- The JPS was owned by the Government of Jamaica and was engaged in the generation, transmission, distribution and supply of electricity.
- in 2001, the state relinquished its majority control in the JPS by selling 80% of its shareholding to Mirant Corporation.
- The current owners of JPS are Marubeni Corporation, Korea East West Power, GOJ and minority shareholders in the proportions 40%: 40%: 19%; 1% respectively.



National Energy Policy 2009-2030

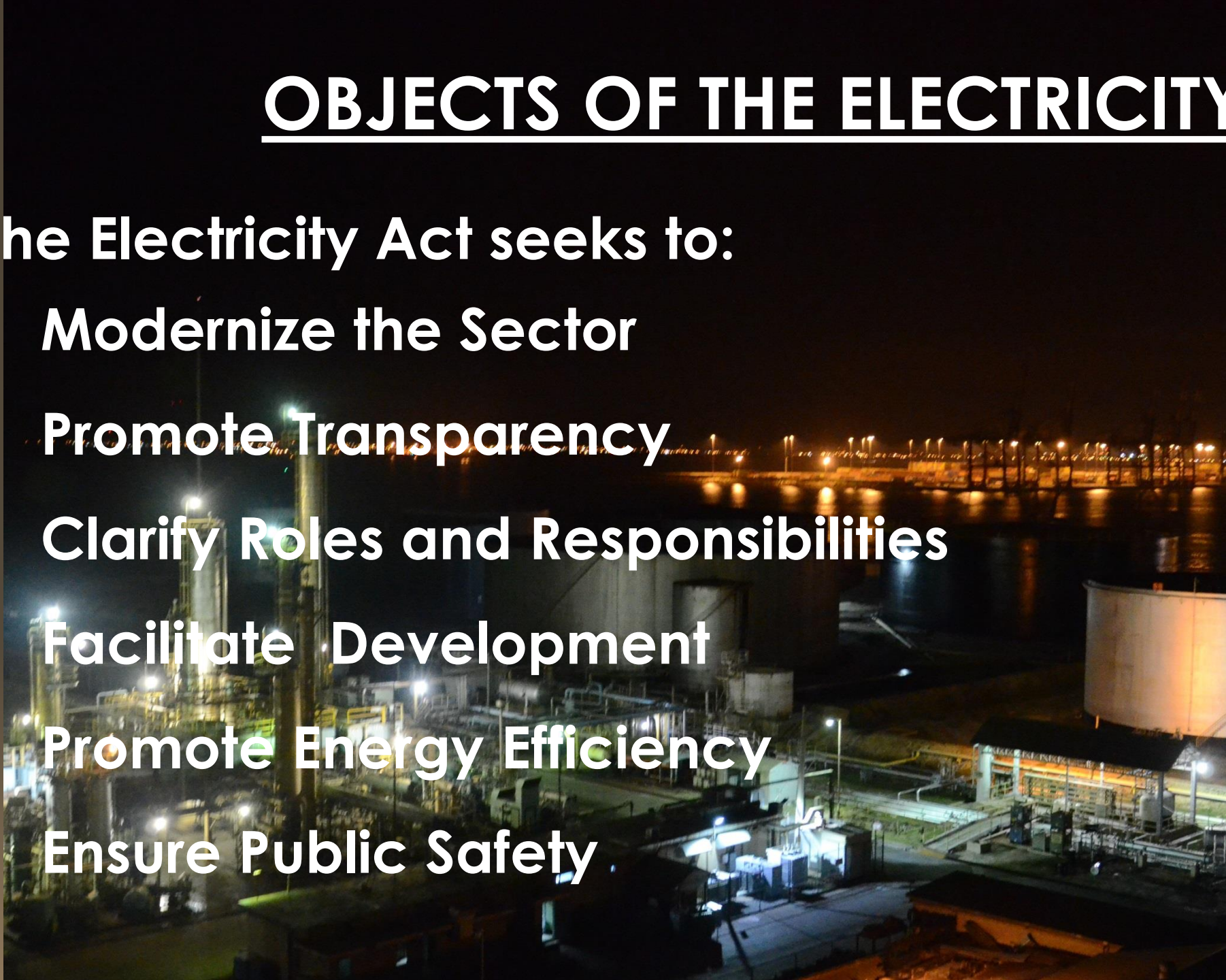
These key priority areas are:

1. Energy Conservation and Efficiency
2. Modernizing the country's energy infrastructure
3. Development of renewable energy sources
4. Security of Energy Supply through diversification
5. Development of a comprehensive governance regulatory framework
6. Enabling government MDAs to be model/leader in energy management
7. Eco-efficiency in industries

OBJECTS OF THE ELECTRICITY

The Electricity Act seeks to:

- Modernize the Sector
- Promote Transparency
- Clarify Roles and Responsibilities
- Facilitate Development
- Promote Energy Efficiency
- Ensure Public Safety



ROLES AND RESPONSIBILITIES

- The Minister
- The Generation Procurement Entity
- The Government Electrical Regulator
- The OUR
- The JPS
- Others



Electricity Licenses



- A person is permitted to generate electricity for their own exclusive use.
- A licence is required if that person intends to connect to the grid to engage in net billing, power wheeling or connect to the grid for another purpose.
- A licensed Self Generator (RE) shall not be denied reasonable access.

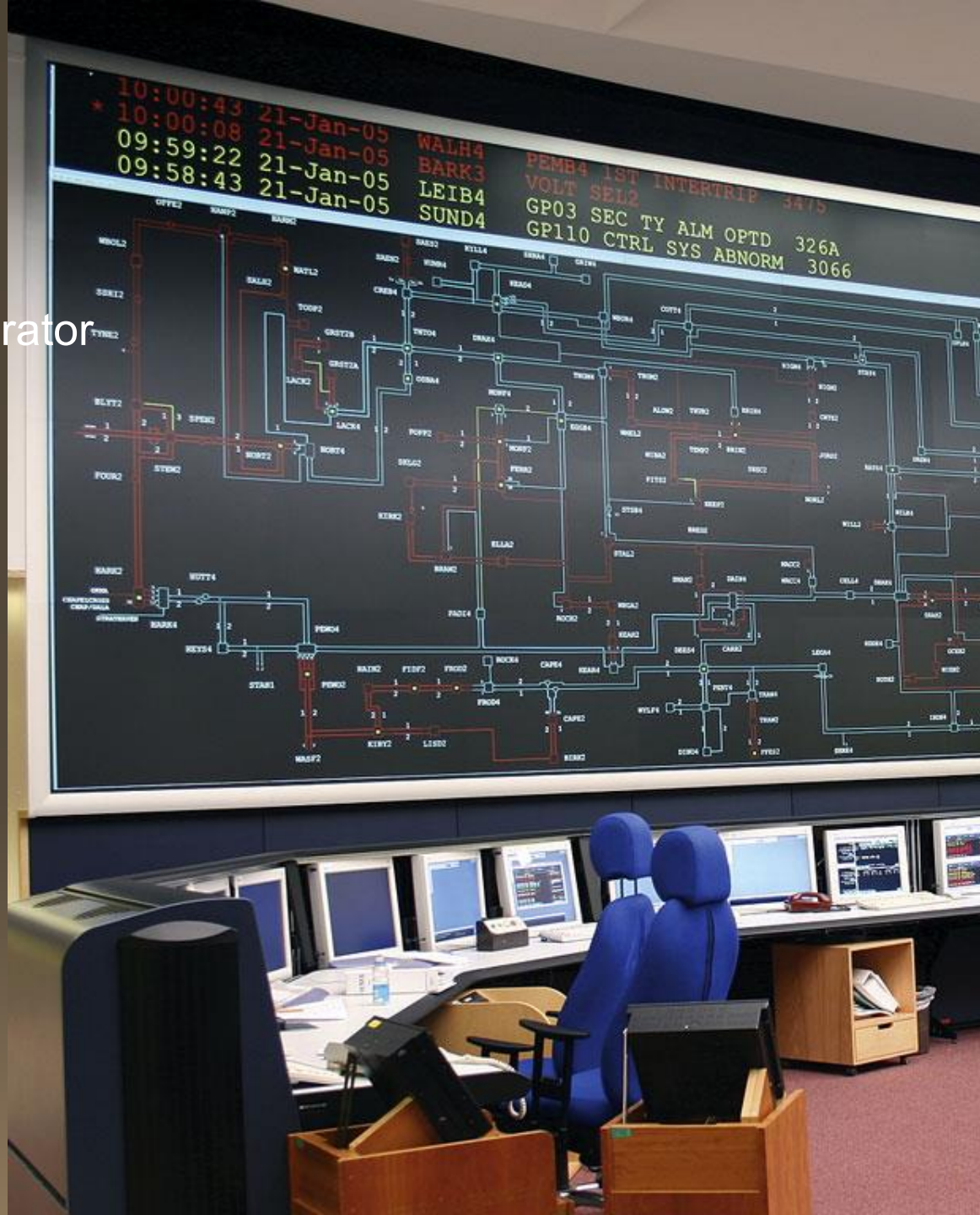
Procurement of New Generating Capacity

- **The Generation Procurement Entity**



The System Operator

- “Ring-Fenced” System Operator
- Real-time Information
- Compensation



Codes

- Generation
- Transmission
- Distribution
- Despatch
- Supply



Government Electrical Regulator



- The GER
- The Committee of Examiners
- Licensed Electrical Inspectors (Private Sector)

Electricity Fund



- System Benefit Fund

Micro Grids



JPS Licence Amendments



The Revenue Cap Principle



Extraordinary Rate Review



Smart Street Lighting Programme



Key Energy Sector Developments

▪ Incentives to encourage renewable energy development

- Policy Framework (NEP & NRESP) Establishes RE targets to 2030
- MSET with the Ministry of Finance and Planning (MOFP) developed a list of GCT exempted and CET suspended renewable energy and energy efficiency based items and technologies.
- Net Billing Incentive included in new Electricity Act, 2015 which will allow RE Developers to sell power to the Grid
- RE given preference to the Grid on the basis of “as available”
- Lines of Credit (LoC) to support RE solutions in MSMEs through DBJ
- New Electricity Act, 2015

▪ Biomass Development

- PCJ in collaboration with the Ministry of Agriculture and Fisheries (MoAF), conducted a 5 year biodiesel pilot project. The project indicated that castor can be produced at \$141,000 per hectare yielding an average 2000kg of seeds per hectare

▪ Hydro Power Development

- Magotty Hydroelectric Power Plant Expansion Commissioned an increase from 6.3MW to 13.5MW (23.7 - 30.0MW to the grid)
- Pre-feasibility studies for eight (8) hydroelectric sites with a combined capacity of 23.8MW



Key Energy Sector Developments

■ Wind and Solar Energy Development

- Wind Power Irrigation Project – Implemented by the National Irrigation Commission to evaluate the feasibility of utilizing wind technology to reduce the electricity cost for providing irrigation to the farmers
- IDB Wind and Solar Development Project - Wind resource assessment on 20 sites across Jamaica implemented by Wigton Wind Farm
- RE Training Facility - Wigton Wind Farm established a renewable energy training facility at its Rose Hill plant in Manchester



Key Energy Sector Developments

- **Wind and Solar Energy Development – 115MW Generation Procurement Process**
 - **Phase 1 – Wind Energy (60.8MW) & Solar (20MW)**
 - Blue Mountain Renewables (BMR), 36.8MW Wind in St. Elizabeth at a tariff rate of US\$0.129 and an investment of US\$89.7M. Part funding of US\$43M was provided by OPIC. Expected completion May 2016



Key Energy Sector Developments

- **Wind and Solar Energy Development – 115MW Generation Procurement Process**
 - **Phase 1 – Wind Energy (60.8MW) & Solar (20MW)**
 - Wigton Wind Farm– 24MW Wind in St. Elizabeth at tariff rate of US\$0.133 and an investment of US\$45M. This would increase Wigton's capacity to 62.7MW. The project will be implemented by Spanish firm Gamesa which involve 12 – 2MW Wind Turbines. Expected completion April 2016



Key Energy Sector Developments

- **Wind and Solar Energy Development – 115MW Generation Procurement Process**
 - **Phase 1 – Wind Energy (60.8MW) & Solar (20MW)**
 - WRB Enterprises/Content Solar– 20MW Solar in Clarendon at tariff rate of US\$0.188 and an investment of US\$65M. The plant will use 98,000 solar panels. Expected completion May 2016



Key Energy Sector Developments

- **Wind and Solar Energy Development – 115MW Generation Procurement Process**
 - **Phase 2 – RE Generation Procurement of an additional 37MW**
 - On January 27, 2016, the OUR received seventeen (17) bids from ten (10) entities wanting to set up electricity generation projects from renewable energy sources to contribute up to 37 megawatts (MW) to the national grid.
 - Currently in the Evaluation Phase which is to be completed by April 26, 2016



Key Energy Sector Developments

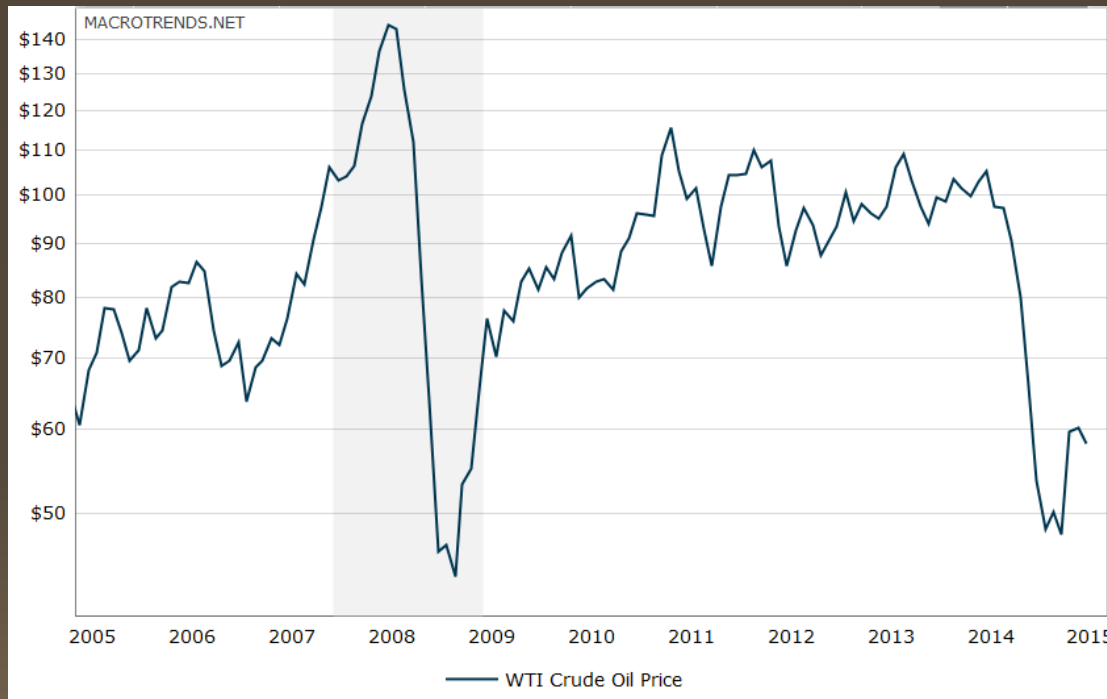
■ World Bank – Energy Security, Efficiency and Enhancement Project

- Strengthening the regulatory and institutional framework to improve the energy sector performance, increase private sector investment and support the transition to cleaner fuels.
- Developing Jamaica's energy efficiency potential and Renewable Energy (RE) potential through private sector investment and consumer education/information.
- Development Bank of Jamaica Line of Credit facility is available for companies that wish to install energy efficient and renewable energy retrofits.



The Economic Value of Renewables

Price Trend of Crude Oil



- The price of Crude Oil is rising on the world market.
- Each year Jamaica spends approx. US\$2 billion on crude oil importation
- This represents 14% of GDP (2013)

The Economic Value of Renewables

Cont'd – Key Drivers

▪ Economic Drivers

- Increase in Gross Domestic Product

Reduce demand for foreign exchange

Security of Energy Supplies

Economic Optimization & Job Growth

Development of new industries

Provide opportunities for innovation

Environmental Drivers

Environmental Conservation

Reducing the impacts of climate change

- Reducing Emissions

▪ Social Drivers

- Employment opportunities (and with energy feedstock production particularly in rural areas)

- Social-economic cohesion - improving economic prospects in rural areas

- Improved access to energy services by providing reliable and affordable energy supply

- Public support



The Economic Value of Renewables

Cont'd – Achieving 30% Electricity by 2030

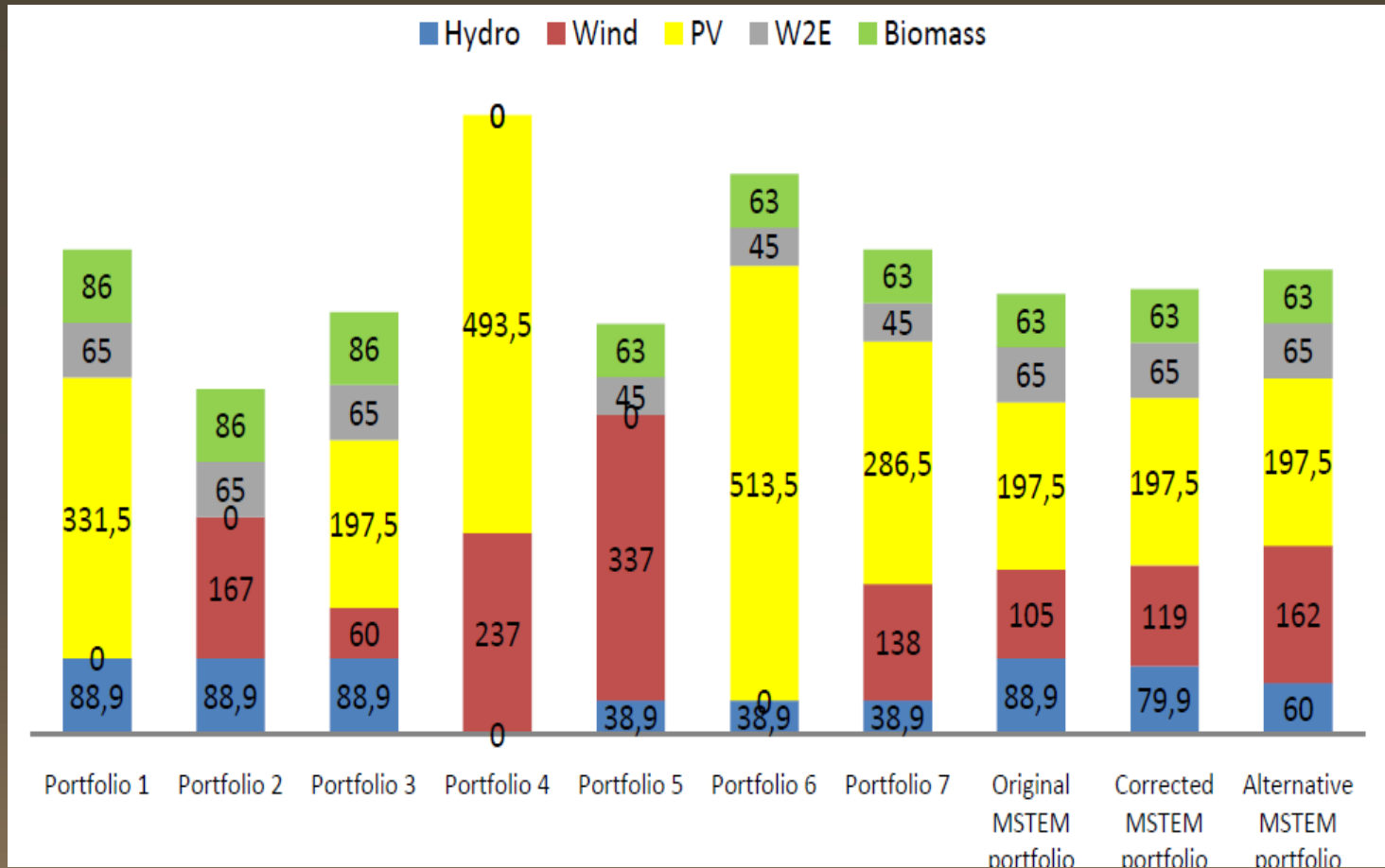
Portfolios	Costs (in 2013 US\$ million)	Amount of base-load power	Amount of dispatchable power	Energy diversification
Portfolio 1 (high base-load / Solar PV)	660	42%	35%	Medium
Portfolio 2 (high base-load / Wind)	511	59%	49%	Medium
Portfolio 3 (high base-load / Wind & SolarPV)	595	48%	40%	High
Portfolio 4 (no base-load)	711	0%	0%	Poor
Portfolio 5 (low base-load / Wind)	541	30%	22%	Medium
Portfolio 6 (low base-load / Solar PV)	732	22%	16%	Medium
Portfolio 7 (low base-load / Wind & Solar PV)	630	26%	19%	High

Source: Grid impact analysis and assessments for increased penetration of renewable energy into the Jamaica electricity grid



The Economic Value of Renewables Cont'd

– Achieving 30% Electricity by 2030



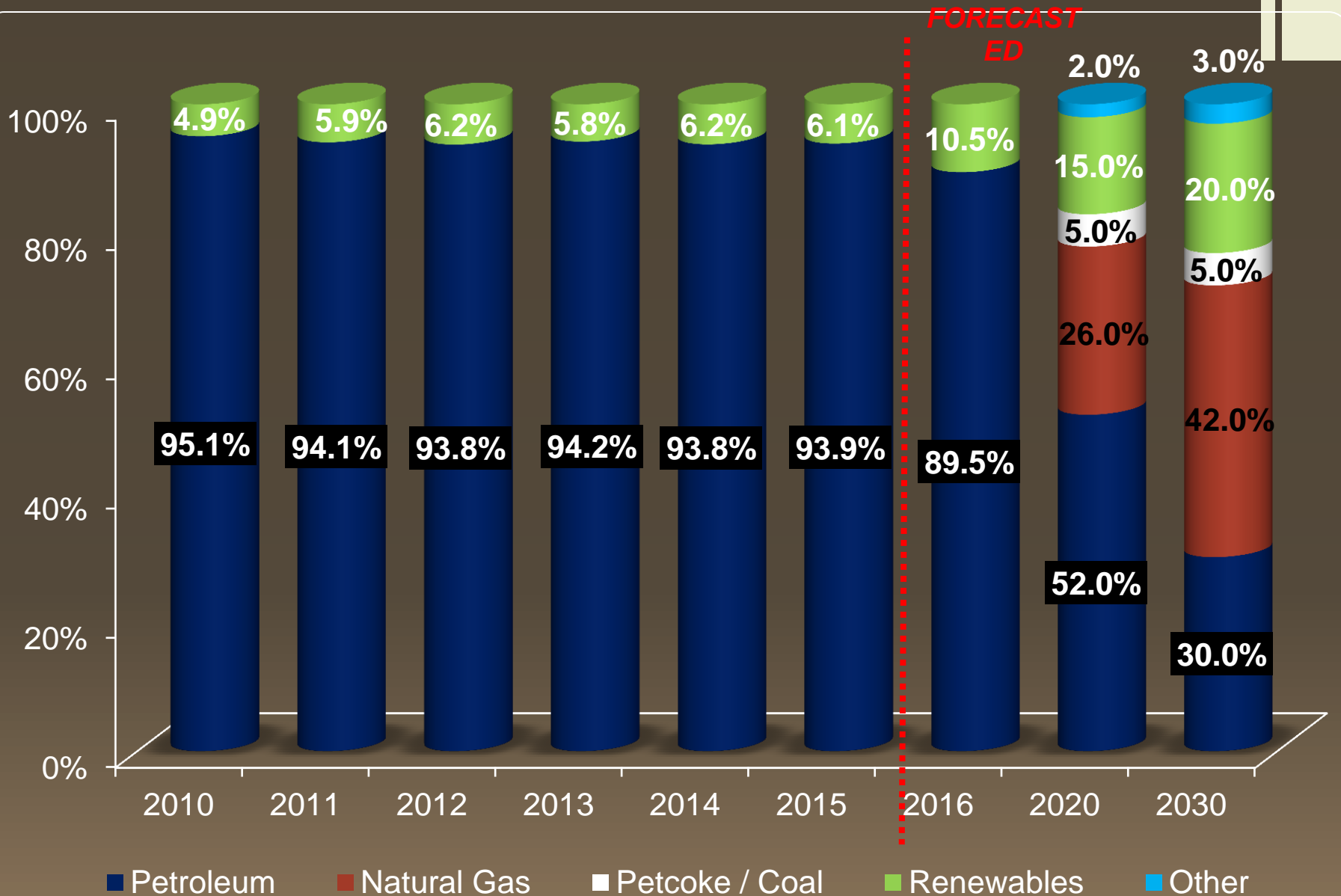
The Economic Value of Renewables Cont'd – Achieving 30% Electricity by 2030

- The total installed capacity in the **original MSTEM portfolio** is 519.4 MW and the total investment cost through 2030 is around US\$ 592 million (in 2013 US\$).
- The total installed capacity in the **corrected MSTEM portfolio** is 524.4 MW and the total investment cost through 2030 is around US\$ 613 million (in 2013 US\$).
- The total installed capacity in the **alternative MSTEM portfolio** is 547.5 MW and the total investment cost through 2030 is around US\$ 654 million (in 2013 US\$).

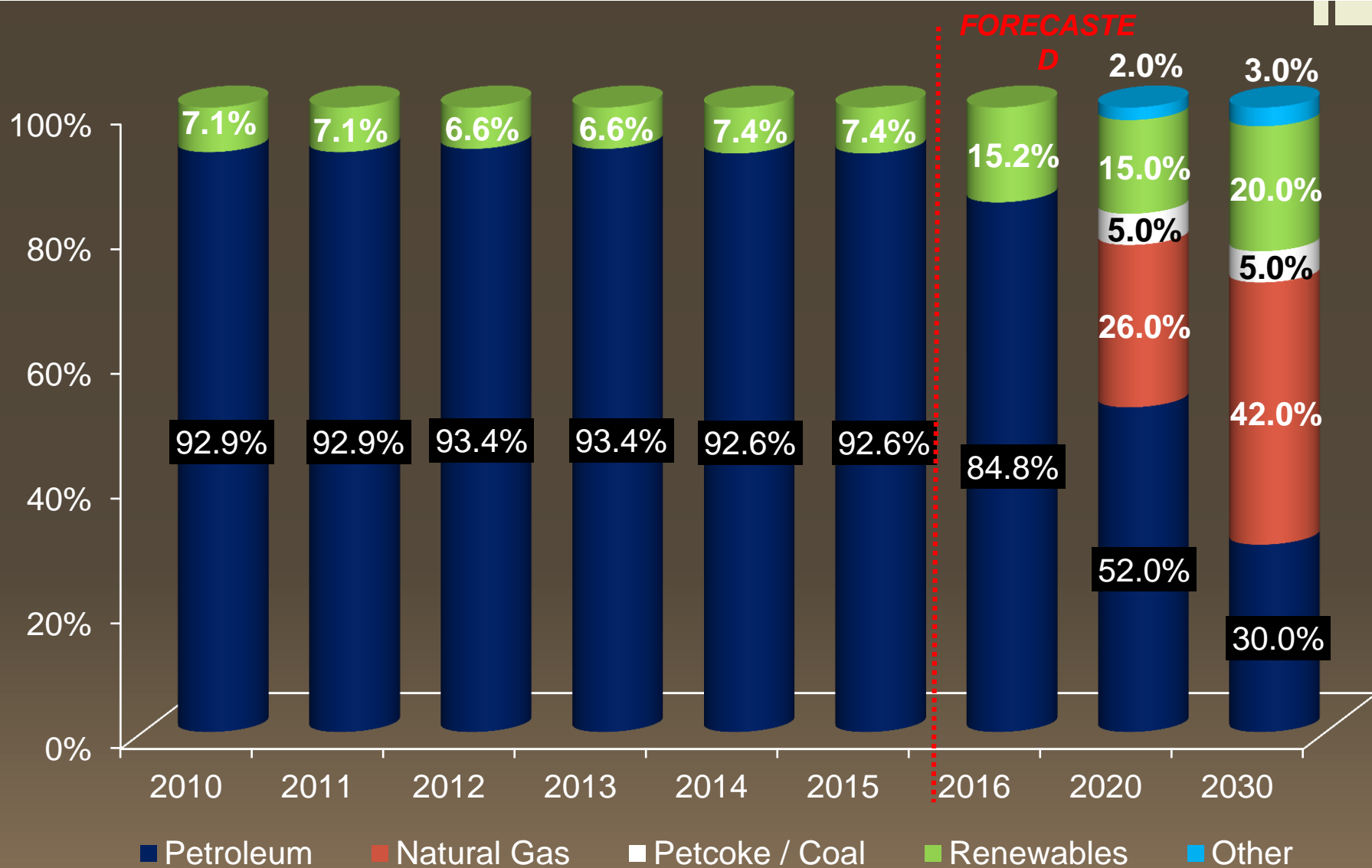
In all scenarios the total investment cost through 2030 is in excess of **US\$ 500 million** and savings in fuel cost of around **US\$ 170 million per year**.



Net Electricity Generation Mix by Plant Type

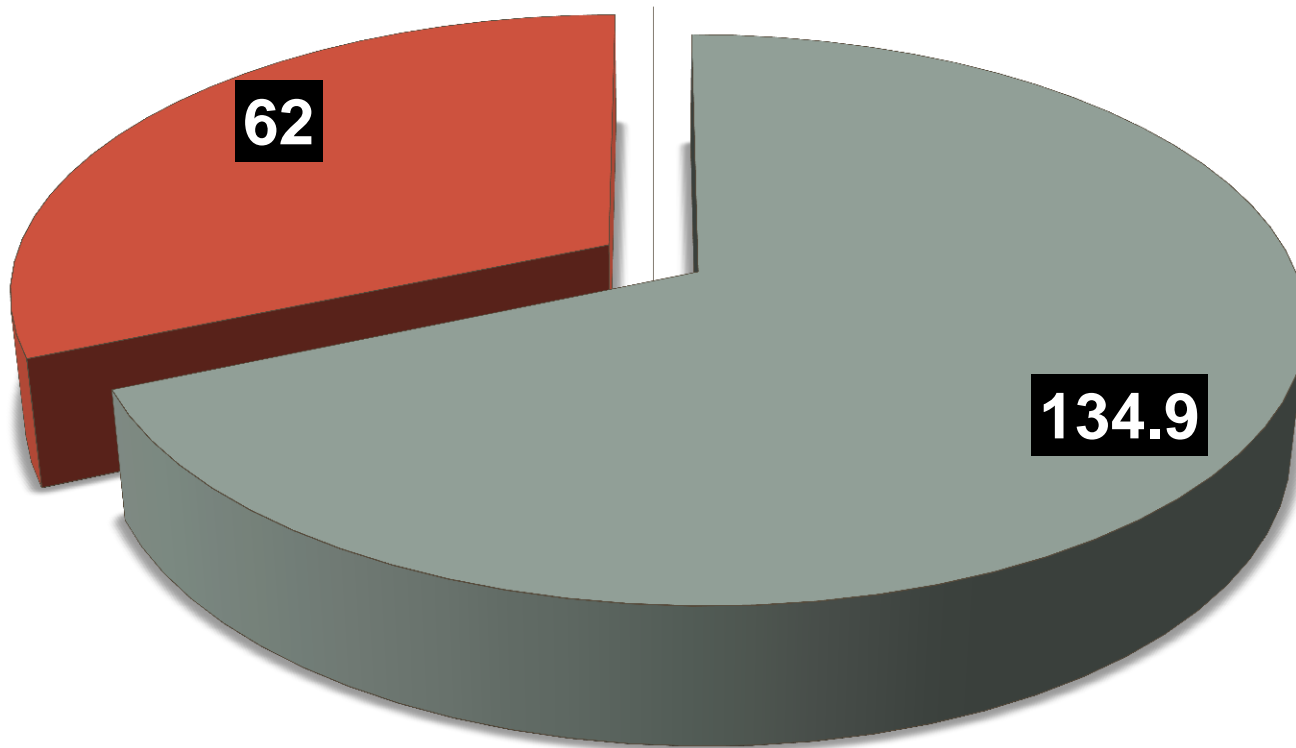


Shares in Electricity Capacity by Plant Type



R.E. Investment (US\$ Million) for 2016

■ WIND ■ SOLAR ■ HYDRO ■ OTHERS



Total RE Investments in 2016 will be almost US\$200 million

Thank you

Prepared by MSET
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