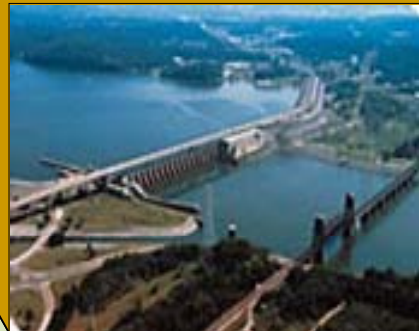




Energy Efficiency in Jamaica The Current Situation: Looking to the Future

Regional Intergovernmental Conference
on Energy Efficiency – UN ECLAC
Santiago, Chile
September 15 – 16, 2009

Presenter: Fitzroy A. Vidal
Senior Energy Engineer
www.mem.gov.jm

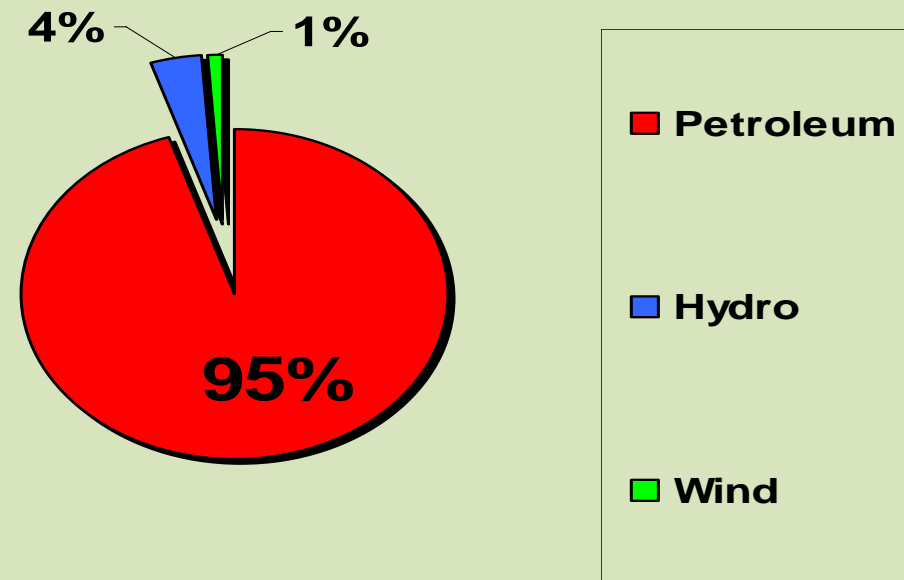


PRESENTATION OUTLINE

- **Profile of Jamaica's Energy Sector**
- **Energy Conservation and Efficiency (ECE)**
- **ECE Policy Issues 2008 – 2022**
- **Jamaica's National Energy Policy 2009 – 2030**
- **Energy Efficiency: Looking to the Future**
 - **Opportunities to reduce Consumption**
 - **Priority Areas**
- **Implementation, Monitoring and Evaluation Framework**

Profile of Jamaica's Energy Sector

- **High dependence on imported oil**
- **High oil import bill**
- **Internal energy per capita consumption – 8.0 and excluding the bauxite sector 5.0**
- **Low efficiency of energy conversion and usage**
- **Only 5% of the energy supply mix comes from other sources**



Profile of Jamaica's Energy Sector Cont'd

Three (3) areas account for the largest share of petroleum consumption

- **Bauxite/alumina,**
- **Power/electricity generation and**
- **Transport**

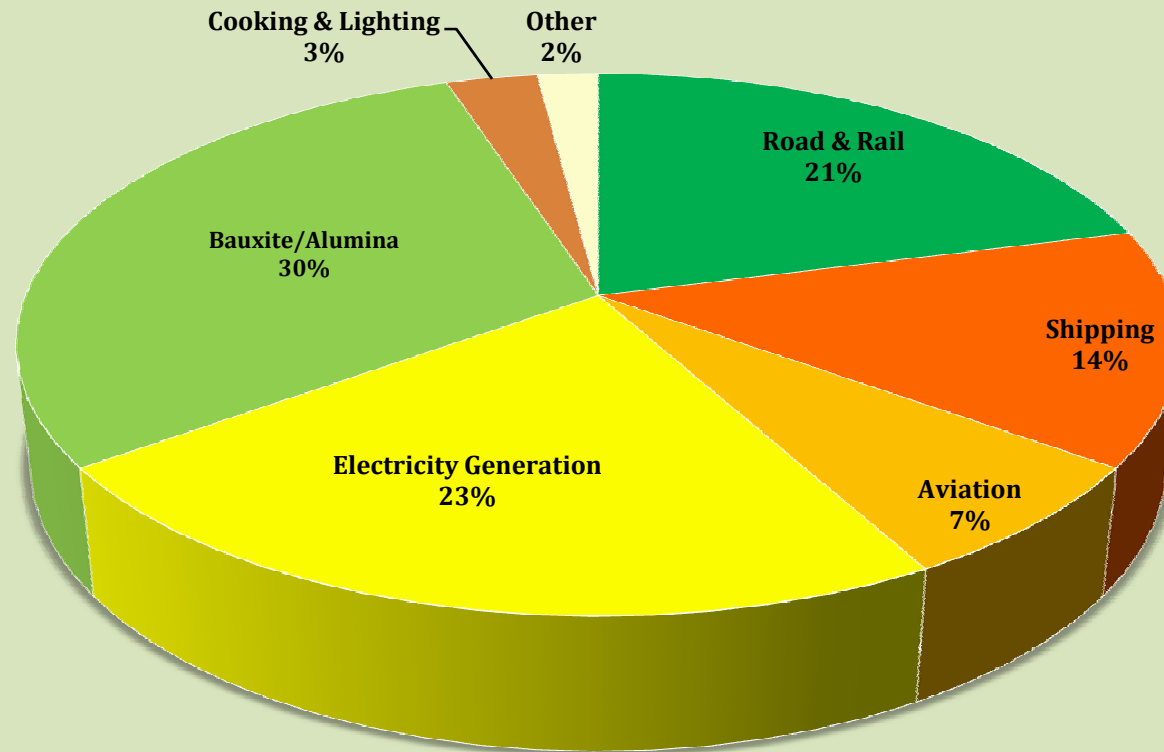
Low power generation efficiency and reliability

Need for an appropriate regulatory framework



Profile of Jamaica's Energy Sector Cont'd

Petroleum Consumption by Activity



Energy Conservation & Efficiency

- **Energy Conservation**
 - **Public Sector**
 - Energy Audits and Implementation of ECOS
 - 4M Bulb Project
 - Hospitals Energy Efficiency Programme
 - Retrofitting of Chillers
 - National Water Commission (NWC)
 - Schools
 - Police Stations
 - **Private Sector**
 - Energy Fund
 - **Transportation**
 - Solar
 - Ethanol Blend Fuel (E-10 Project)
 - **Policy and Regulatory Framework**
- **Renewable Energies Potential in Jamaica – GTZ ECLAC Study**
- **Renewable Energy (RE) Technologies**
 - Hydro
 - Wind
 - Bio-Fuels
 - Solar
 - Other
- **Centre of Excellence for RE**
- **Energy and the Environment**
- **Carbon Trading**

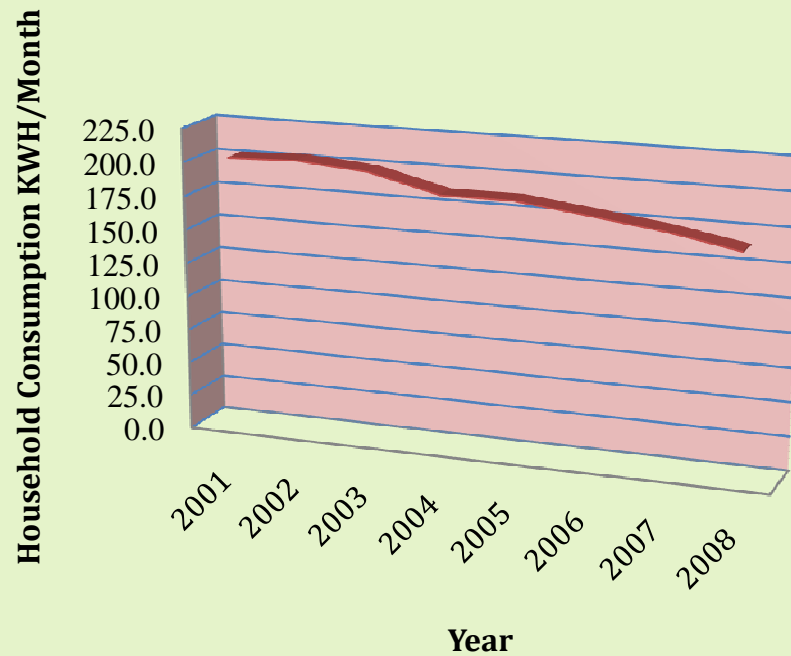
Energy Conservation & Efficiency Cont'd

Household Energy Efficiency



Household Electricity Consumption

**Household consumption kWh/month
2000 - 2008**



Energy Conservation & Efficiency Cont'd

Public Sector Focus

- **Ministries & Agencies**
- **Hospitals**
- **Schools**
- **NWC**
 - Phase 1
 - Phase 2
- **Public Lighting**
- **Traffic Signals**
- **Disaster Preparedness and Mgnt. Centres**

Initiatives

- **Energy Audits**
- **Implementation of ECOS**
- **CFL Programme**
- **Technical Corporation**
 - Cuba Bilateral
 - Petrocaribe
 - IDB
- **Energy Monitoring and Accounting**
- **Merit / Achievement Awards**

Energy Conservation & Efficiency Cont'd

Private Sector

- **Standards & Regulations**
- **ECE Market**
- **Electricity Service**
- **Transportation**

Initiatives

- **Building Code**
- **Fiscal Incentives**
 - **Custom Duty Waiver**
 - **GCT Exemption**
- **Energy Fund**
- **Bio – Fuels**
 - **Bio – Ethanol**
 - **Other**

Energy Conservation & Efficiency Policy Issues (2008 – 2022)

1. Institutional Framework
2. Human Resource Dev.
 - Education & Training
3. Electric Utility
4. Transportation
5. Public Sector
6. Private Sector
7. Building Code, Eff. Standards & Labelling
8. ECE Market



Jamaica's National Energy Policy (NEP) 2009 – 2030



**“Securing Jamaica’s Energy Future... Advancing
Competitiveness...Promoting Sustainable
Prosperity...”**

Structure of the National Energy Policy 2009 - 2030

- **Executive Summary**
- **Overview and Context**
- **Global Trends and Emerging Issues Related to Energy**
- **Profile of Jamaica's Energy Sector**
- **SWOT Analysis of Jamaica's Energy Sector**
- **Jamaica's Energy Demand Projections to 2030**
- **Jamaica's Energy Policy Framework to 2030**
 - **Vision, Goals, Strategies and Key Actions to 2030**
- **Implementation, Monitoring and Evaluation Framework**

Principles Underlying the National Energy Policy 2009 - 2030

- **Framework for the sustainable management of energy resources and for development of viable renewable energy resources**
- **Advances in new, environmentally friendly technologies**
- **Predicates long-term and comprehensive approach**
- **Establishes linkages with other sectors and facilitates harmonization of other relevant policies**
- **Presents an integrated approach – 3e’s (energy, economy & the environment)**
- **Fully consistent with other aspects of Government policy - Jamaica**
“...the place of choice, to live, work, raise families and do business”

Determining the Strategic Framework

- Analysis of the Profile of Energy Sector
- SWOT Analysis
- Energy Demand Projections and Analysis
- Global Trends

- **Vision 2030 Jamaica – National Development Plan**
- **PM Task Force on Energy – 2007**
- **Vision 2030 Jamaica – Energy Sector Plan**
- **2006 Energy Policy – Green Paper**
- **Draft Energy Conservation Policy 2008 - 2022**
- **International Best Practices**

“A modern, efficient, diversified and environmentally sustainable energy sector providing affordable and accessible energy supplies with long-term energy security and supported by informed public behaviour on energy issues and an appropriate policy, regulatory and institutional framework”

<p>Goal 1: Jamaicans use energy wisely and aggressively pursue opportunities for conservation and efficiency</p>	<p>Goal 2: Jamaica has a modernized and expanded energy infrastructure that enhances energy generation capacity and ensures that energy supplies are safely, reliably, and affordably transported to homes, communities and the productive sectors on a sustainable basis</p>	<p>Goal 3: Jamaica realizes its energy resource potential through the development of renewable energy sources and enhances its international competitiveness, energy security whilst reducing its carbon footprint</p>	<p>Goal 4: Jamaica’s energy supply is secure and sufficient to support long-term economic and social development</p>	<p>Goal 5: Jamaica has a well-defined and established governance, institutional, legal and regulatory framework for the energy sector, that facilitates stakeholder involvement and engagement</p>	<p>Goal 6: Government ministries and agencies are a model/leader in energy conservation and environmental stewardship in Jamaica</p>	<p>Goal 7: Jamaica’s industry structures embrace eco-efficiency, natural capitalism and moves towards building a green economy</p>
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Strategies and Key Actions to 2030

Implementation Framework – Action Plans etc.

Monitoring and Evaluation

Policy Review

Priority Areas – Related to Goals

1. Conservation and Efficiency
2. Modernized Energy Infrastructure
3. Renewable Energy Sources
4. Security of Energy Supply – diversification of fuels
5. Governance/Regulatory Framework
6. Government Ministries and Agencies as leader
7. Eco-efficiency and Green Economy



Energy Efficiency: Looking To The Future

KEY ISSUES:

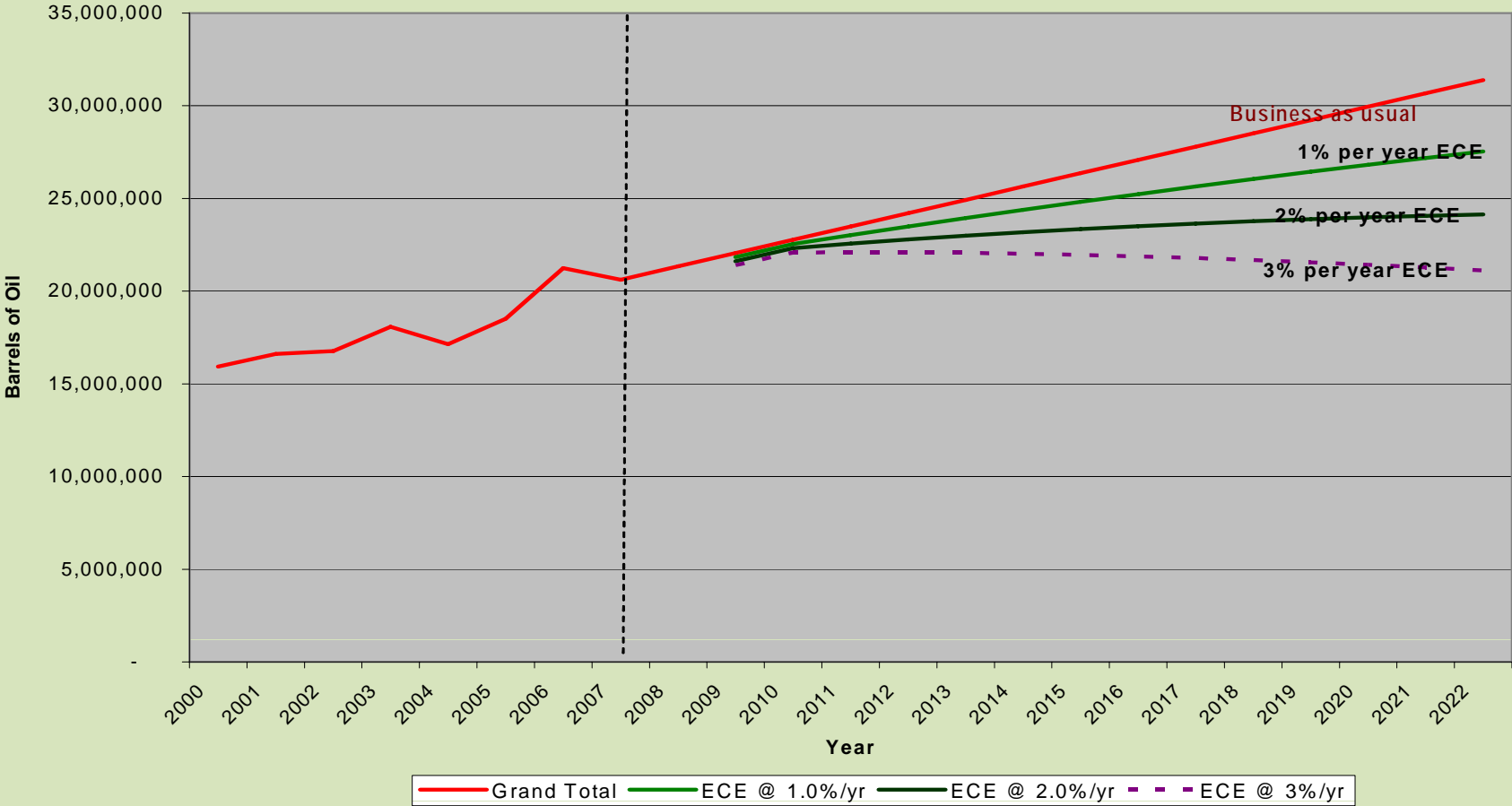
- Low levels of awareness of Energy Efficiency (EE)
- Jamaica's high energy intensity index (EII)
- Low levels of EE in key sectors
- Low levels of EE from building designs, and electrical installations
- **Energy Efficiency Potential in Jamaica – GTZ ECLAC Study, pending**

STRATEGIES AND KEY ACTIONS TO 2030:

- Incentives / disincentives to promote EE in electricity, transportation, bauxite / alumina and other manufacturing sectors
- Legislation to support required investments
- DSM and public awareness programmes
- Building Code
- Public Sector

Opportunities To Reduce Consumption

Jamaica Non Bauxite Energy Consumption Forecast
(Shows Three Scenarios of ECE Intervention)



Priority Areas

- **Institutional Framework & Capacity Building**
- **Target Areas**
 - Electric Utility
 - Transportation
 - Public Sector
 - Residential
 - Commercial & Industrial
- **Codes, Standards & Labelling**
- **ECE Market**
- **Working Hours – Flexi-Time, Telecommuting**

INSTITUTIONAL FRAMEWORK

- **Ministry of Energy & Mining**
 - Energy Division
 - Policy & Planning
 - Assessment
 - Coordination & Monitoring
 - Public Education
- **PCJ – Energy Efficiency Unit**
 - Research and Development
 - Project Development and Appraisal
 - Project Implementation
 - Public Education
- **Others**
- Expanded Energy Efficiency Unit
- National Energy Efficiency Centre
 - Research and Development
 - Programme Development
 - Implementation of projects
 - Impact Assessments
 - Monitoring
 - Public Education
 - etc

Public Sector Energy Efficiency Programme

Technical Cooperation - IDB

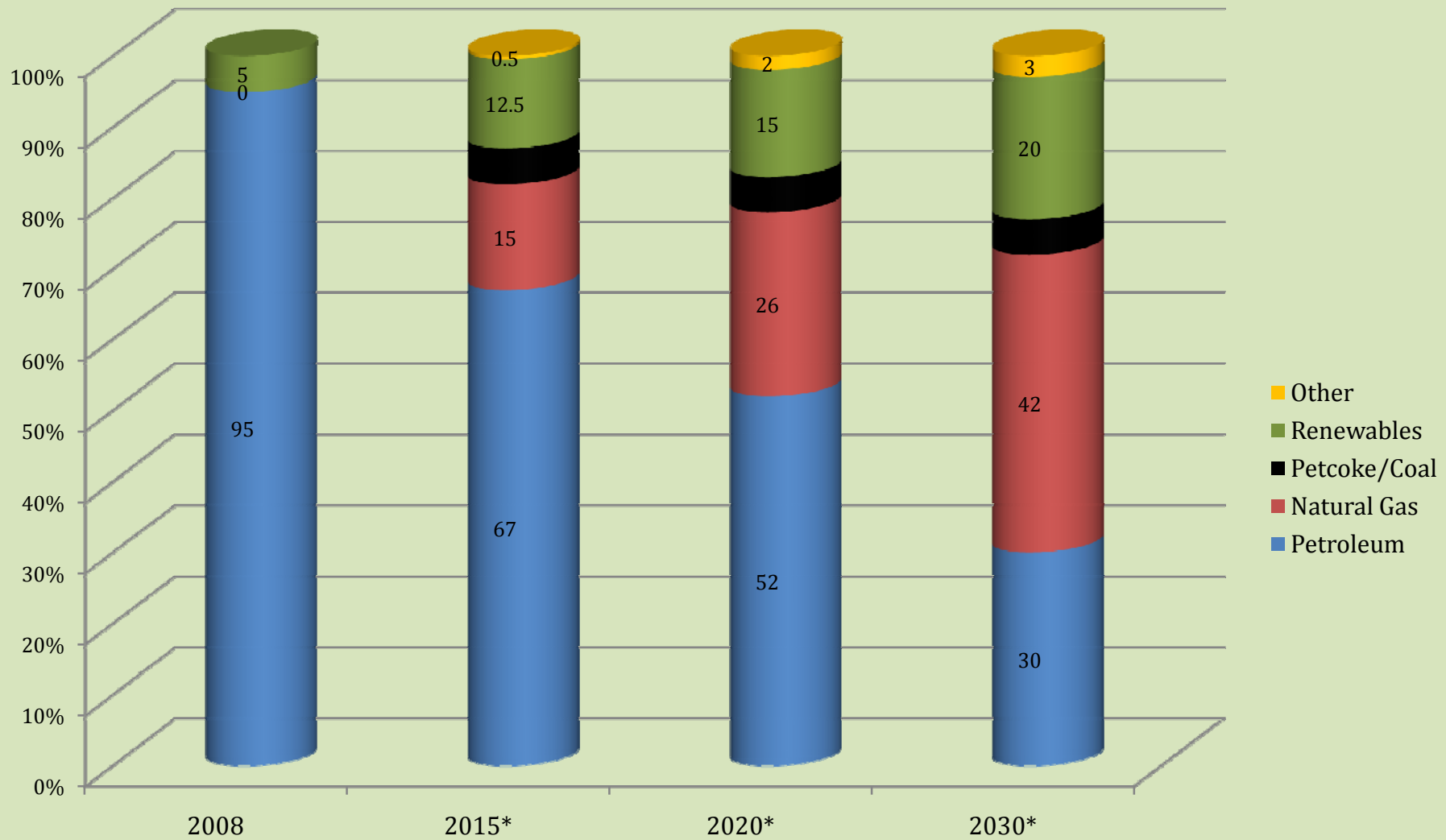
•Objective:

- To support GOJ in ECE & Prepare EE Programme

•Components:

- 1.Evaluation of Energy Demand for Public Sector Bldgs.
 - 2.Cost Assessment of Public Sector Demand
 - 3.Cost / Benefit Analysis of Retrofitting Bldgs. with EE Equip.
 - 4.Investment Plan for EE Equipment Installation
 - 5.TOR for Energy Services Company
- EE Equipment Procurement
- Project Coordination & Capacity Building

Jamaica's Energy Supply Matrix



Building Codes, Standards & Labelling

Main Items for Focus

- Air Conditioning
- Lighting
- Appliances
- Engineering / Designs
- Energy Efficiency Market
- Energy Services Companies

Interventions

- ECE Policy Options
- Min. EE Ratio for ACs
- CFLs & LEDs
- Building Codes
- Fiscal Incentives / Disincentives
- Pre-paid meters
- Smart meters
- Testing and Certifications

Renewable Energy Projects (PetroCaribe Technical Work Groups)

General

- Capacity Expansion for CERE
- Net Metering Legislation

Wind

- Wigton Farm Expansion
- Wigton VAR Improvement
- Port Authority 2MW
- Wind Survey & Mapping

Solar (PV & Thermal)

- Sections of Portmore Community
- Rural Households (REP)
- Schools
- Public Lighting
- Manufacturing /Factory
 - PV Modules
 - PV Panels
 - Solar Water Heaters

Other Energy Efficiency Projects / Initiatives

Renewable:

- Munroe Wind Project
- Maggoty Hydro Expansion
- Restoration of Hydro plants
 - Rams Horn Hydro
 - Constant Spring Hydro
- Solar Water Heaters

Other:

- Waste to Energy
- Cogeneration
 - Ethanol Blended Fuel
 - E-10 Island wide roll-out
- Electricity Generation
 - Natural Gas (LNG)
 - Petcoke (bi-product from Petrojam Refinery Upgrade Project (RUP))

Some Indicators and Targets

% increase of renewables in energy mix

% increase in alternative energy

% reduction in Energy Intensity Index

% reduction of T & D systems losses in public electricity supply

% reduction in energy consumption by National Water Commission (NWC)

% of households with electricity

% reduction in households' income spent on energy

% increase in solar heating

% increase of vehicles using biofuels

% increase in fuel efficient vehicles on the roads

% reduction in average Heat Rate, electricity generation system

Establish and Maintain Strategic Fuel Reserve (boe/1000 population)

Management of Greenhouse Gas Emissions

Achieving Our Energy Goals – The Implementation, Monitoring and Evaluation Framework

Issues to be addressed by
Established Goals :

Integration of

- **Strategies and key actions to 2030**
- **Action Plans**
- **Corporate Plans and Operational Plans**
- **Key Roles and Responsibilities**
- **Stakeholders' Engagement and Participation**

- **Structure of the Monitoring & Evaluation Framework**
- **Key roles and responsibilities**
 - Ministry of Energy & Mining
 - Petroleum Corporation of Jamaica
 - Ministry of Finance & Public Service
 - Ministry with Responsibility for the Environment (OPM)
- **Periodic Policy Review**

ECE - A Multifaceted Approach and A National Imperative



THE END



THANK YOU