DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

JAMAICA

ENERGY MANAGEMENT AND EFFICIENCY PROGRAMME
(JA-L1056)

LOAN PROPOSAL

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2. Annual Operational Plan (POA)
3. Monitoring and Evaluation Arrangements
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5. Procurement Plan

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1. Technical Design–Selecting Government Facilities for EE and RE Retrofits: Methodology
2. Technical Design – Investment Grade Audits
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ABBREVIATIONS	
BAU	Business As Usual
BOE	Barrels of Oil Equivalent
CAPEX	Capital Expenditure
CO_2	Carbon Dioxide
CBA	Cost-Benefit Analysis
CORE	Co-financing of Renewable Energy and Energy Efficiency
GHG	Green House Gas
GDP	Gross Domestic Product
GOJ	Government of Jamaica
GWh	Gigawatt-hour
EA	Executing Agency
EE	Energy Efficiency
EECTA	Energy Efficiency and Conservation Technical Assistance Report
EIRR	Economic Internal Rate of Return
EMEP	Energy Management and Efficiency Programme
EMEPCC	Energy Management and Efficiency Project Coordination Committee
ENPV	Economic Net Present Value
ESA	Environmental and Social Assessment
ESMR	Environmental and Social Management Report
ESMP	Environmental and Social Management Plan
EU-CIF	European Union Caribbean Investment Facility
FMM	Facility Maintenance and Management
HEPA	Health, Education and Public Agencies
HVAC	Heating, Ventilation and Air Conditioning
IDB	Inter-American Development Bank
IGAs	Investment-Grade Audits
IRP	Integrated Resource Plan
IT	Information Technology
ITS	Intelligent Traffic System
JICA	Japan International Cooperation Agency
JPSCo	Jamaica Public Service Company Limited
JUTC	Jamaican Urban Transit Company Limited
KMR	Kingston Metropolitan Region
LED	Light-Emitted Diode
LNG	Liquefied Natural Gas
MOFPS	Ministry of Finance and the Public Service
MSET	Ministry of Science, Energy and Technology
MW	Megawatt
NEP	National Energy Policy
NWA	National Works Agency
OC	Ordinary Capital
PCJ	Petroleum Corporation of Jamaica

ABBREVIATIONS (cont.)	
PEU	Project Executing Unit
PSF	Public Sector Facilities
RE	Renewable Energy
kWh	Kilowatt-hour
km/h	Kilometer per hour
TMU	Traffic Management Unit
UNFCCC	United Nations Framework Convention on Climate Change
UTMS	Urban Traffic Management System

PROJECT SUMMARY
JAMAICA
ENERGY MANAGEMENT AND EFFICIENCY PROGRAMME
(JA-L1056)

<table>
<tr><th colspan="5">Financial Terms and Conditions</th></tr>
<tr><td colspan="3" rowspan="2">Borrower: Jamaica</td><td colspan="2">Flexible Financing Facility[a]</td></tr>
<tr><td>Amortization Period:</td><td>24 years</td></tr>
<tr><td colspan="3" rowspan="2">Executing Agency: Petroleum Corporation of Jamaica (PCJ)</td><td>Original WAL:</td><td>15.25 years</td></tr>
<tr><td>Disbursement Period:</td><td>6 years</td></tr>
<tr><td>Source[b]</td><td>Amount (US$)</td><td>%</td><td>Grace Period:</td><td>6.5 years</td></tr>
<tr><td rowspan="2">IDB (Ordinary Capital-OC):</td><td rowspan="2">15,000,000</td><td rowspan="2">50</td><td>Supervision and Inspection Fee:</td><td>[d]</td></tr>
<tr><td>Interest rate:</td><td>Libor-based</td></tr>
<tr><td>Japan International Cooperation Agency (JICA) (parallel financing)[c]</td><td>15,000,000</td><td>50</td><td>Credit Fee:</td><td>[d]</td></tr>
<tr><td>Total:</td><td>30,000,000</td><td>100</td><td>Currency of Approval:</td><td>US$ chargeable to OC</td></tr>
<tr><th colspan="5">Project at a Glance</th></tr>
<tr><td colspan="5">Project Objective/Description: The general objective of this programme is to promote energy efficiency in government facilities and fuel conservation in road transportation by contributing to the avoidance of fuel imports. The specific objectives and expected results of this programme are: (i) reduced electricity consumption within health, education and public agency government facilities, which translates into lower Carbon Dioxide (CO_2) emissions; (ii) reduced travel times and avoided fuel consumption through improved traffic control management, which translates to lower CO_2 emissions; and (iii) increased capacity within the Ministry of Science, Energy and Technology (MSET) to enable it to update its Integrated Resource Plan (IRP) for Jamaica.</td></tr>
<tr><td colspan="5">Special Contractual Clauses prior to the first disbursement: prior to the first disbursement of the resources of the loan, the Borrower shall provide evidence that: (i) the Project Execution Unit (PEU) has been created and that the Programme Manager, Financial Specialist and Procurement Specialist have been appointed and/or selected, pursuant to terms of reference satisfactory to the Bank; (ii) the Project Operating Manual (OM) has been approved with the terms previously agreed with the Bank, including fiduciary management and inter-institutional governance arrangements, JICA specific terms and conditions from the Framework Agreement and the Disbursement Handbook, and the environmental and social obligations stated in Section VI of the ESMR; (iii) the agreement between the Borrower and the EA for the transfer of loan resources together with project implementation obligations, in accordance with terms previously agreed with the Bank has entered into effect; and (iv) the JICA loan agreement between the Borrower and JICA has entered into effect (¶3.8).
Special Contractual Clauses of execution: prior to the execution of the programme, the Borrower shall provide evidence that collaboration agreements between the Executing Agency (EA) and each of the MSET, and the National Works Agency (NWA), to facilitate the execution of the respective activities related to those entities, have entered into effect (¶3.9).</td></tr>
<tr><td colspan="5">Exceptions to Bank Policies: none</td></tr>
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</table>

[a] Under the Flexible Financing Facility (FN-655-1), the borrower has the option to request modifications to the amortization schedule as well as currency and interest rate conversions. In considering such requests, the Bank will take into account operational and risk management considerations.

[b] The project team and the GOJ are exploring the addition of non-reimbursable resources in 2017 from the European Union Caribbean Investment Facility (EU-CIF) for up to a Euro amount equivalent to US$10,000,000.

[c] CORE is a co-financing mechanism established in March 2012 and amended in March 2014 and April 2016 where by JICA commits to provide Latin America and the Caribbean region with highly concessional loans of up to US$3,000 million as a co-financing resource with the Bank to support RE and EE projects/programmes, aiming at expanding high quality infrastructure in the region. The IDB will act as project administrator under CORE. The Board approval of JICA is expected no later than the end of December, 2016. JICA resources are needed in order for the programme to achieve the proposed objectives and disbursements of those resources will be made on a pari-passu basis with the Bank resources for the joint procurement of programme activities.

[d] The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors during its review of the Bank's lending charges, in accordance with the relevant policies.

[e] SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).

[f] GD (Gender Equality and Diversity); CC (Climate Change and Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

I. DESCRIPTION AND RESULTS MONITORING

A. Background, Problem Addressed, Justification

1.1 Jamaica is the third largest island in the Caribbean region with an area of 11,000 square kilometers and a population of 2.72 million people. Jamaica has a small, open economy, characterized by low growth and high debt.[1] Between 2003-2015, Gross Domestic Product (GDP) growth rates averaged 0.5%. The country's debt has been above 125% of GDP since 2009, peaking at 145.1% in 2012 and in 2015 stood at 120.3%.

1.2 Like many Caribbean countries, Jamaica produces very little energy from indigenous resources, relying on fossil fuels imports that averaged 20.4 million Barrels of Oil Equivalent (BOE) per annum between 2010-2015.[2] The state-owned company Petrojam, (a subsidiary of the Petroleum Corporation of Jamaica - PCJ), imports and operates a crude oil refinery of 35,000 barrels per day, to produce heavy and light refined products.[3] Between 2010-2015, the import of petroleum products cost an annual average of US$1.9 billion[4] or 13.5% of the GDP.[5] Oil imports represent more than one-third of Jamaica's total import bill, and more than 125% of the country's total merchandise exports. The bauxite and alumina industry is the largest end user of energy consuming 37.4% of total energy followed by the electricity sector, which consumes about 25% of energy, road and rail with 20.4% and the sugar industry with 12.2%.

1.3 At the centre of Jamaica's energy sector is the Jamaica Public Service Company Limited (JPSCo) which has legal responsibility for the transmission, distribution and dispatch of electricity. Generation activities were liberalized in 2001, and JPSCo facilitates the production of electricity by Independent Power Producers for sale to the company through Power Purchase Agreements. Around 94% of JPSCo's 902.8MW installed capacity is sourced from imported petroleum products, representing an average of 6 million BOE (2010-2015). Despite the decrease from 0.39 to 0.27US$/kWh, between 2012-2015 Jamaica's average electricity tariff remained high, compared to other countries in the region.[6]

1.4 With regards to electricity planning, the new Electricity Act (2015), which replaced the 1890 Electric Lighting Act, transferred electricity planning from the Office of Utilities Regulation to the Ministry of Science, Energy and Technology (MSET). PCJ, a separate legal entity from the Executive Branch, is the implementation agency of MSET and is mandated to develop and promote

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[1] GDP growth rates in Jamaica averaged 0.15% from 2003 until 2016. Jamaica's debt has been above 125% of GDP since 2009, and stood at 120.3%of GDP in 2015.

[2] Since 2005, the PCJ has purchased crude oil in accordance with the PetroCaribe Energy Accord and imports and distributes oil derivatives. Notwithstanding the arrangement, the prices paid for these products are linked to their US Gulf Reference Prices, which is the West Texas Intermediate price.

[3] In 2015, Petrojam imported 8.8 million barrels of crude oil for refining into petroleum products, at a cost to the government of US$414.3 million. The refinery also imported 7.5 million barrels of refined products (inclusive of anhydrous ethanol) at a cost of US$476.3 million.

[4] MSET Petroleum Import statistics online.

[5] Due to the decline of crude oil prices, fuel imports in 2015 were lower at US$1.1 billion or 8.0% of GDP in spite of higher demand.

[6] This is the case of Barbados, Trinidad and Tobago and the United States with 0.24, 0.06 and 0.1 US$/kWh, respectively.

Jamaica's energy resources including facilitating Renewable Energy (RE), and Energy Efficiency (EE) in the public sector[7] Seeking an energy system that is socially, economically, and environmentally sustainable, Jamaica is currently charting a new path to energy security, based on more efficient systems and the inclusion of domestic RE sources. It is projected by the end of 2016 that the energy matrix will consist of 8% Liquefied Natural Gas (LNG),[8] 10.5% renewables (wind, solar and hydro) and 81.5% petroleum products. As new RE and LNG comes onto the grid over the next 2 years, one of Jamaica's key energy challenges will be managing this influx in the medium-term, integrating initiatives on EE into estimations on load forecasting.

1.5 **Identification of the problem.** The dependence on petroleum imports and the inefficiency in the use of these energy resources has serious implications for government expenditure and debt, currently at 125% of GDP. This in turn puts at risk the economic and environmental sustainability of the energy sector. Given commitments within the International Monetary Fund stabilization programme, the current focus of the Government of Jamaica (GOJ) is on strict fiscal policy measures and growth-promoting programmes. Therefore, a more efficient use of energy resources would free public funds through lower government bills and reduced oil imports, helping the GOJ to further reduce debt.

1.6 **High electricity costs.** In 2015, total electricity generation was 5,344GWh,[9] of which 393GWh (7.4% or 750,660 BOE as fuel oil) were consumed by Public Sector Facilities (PSF), costing GOJ around US$36 million in BOE, and an estimated US$102 million in electricity bills. Electricity tariffs are high because fuel costs make up approximately 50% of the rate, there are significant system losses on the central grid[10] and electricity generation still depends on old, inefficient diesel generators.[11] High tariffs and low efficiencies result in substantial energy costs which affect the competitiveness of the productive sector.[12] High electricity prices also affect the amount of cash available to the government as it relates to operating costs for hospitals, schools and government agencies, thus impacting government expenditure management and the effectiveness of these public services.[13]

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7 PCJ has carried out energy audits and implemented EE and conservation projects in the health, irrigation and educational sectors. The company's subsidiary, Wigton Windfarm Limited, is the largest wind energy facility in the English-speaking Caribbean. The PCJ is also currently researching the feasibility of alternative sources of energy for the local transport industry.

8 The first LNG vessel arrived at the newly converted Bogue Power Plant (120MW) in October 2016 and it is expected at Old Harbour (190MW) by 2018, enabling a further diversification to 8.0% of LNG in the total energy mix by 2016.

9 Including losses on the national grid.

10 Technical and non-technical losses were 26.9% and18.3%, respectively, as of February 2015.

11 About 40% of the generation capacity is over 30 years and the conversion efficiency of old steam generation plants is less than 30%.

12 The 2013 firm-level survey funded by the Compete Caribbean Programme found that 18.6% of firms identified electricity as the top constraint, second only to tax rates (at 33.1%).

13 University Hospital of the West Indies which receives GOJ funding estimates that on average, annual electricity bills are 4%of operating costs. A study by Peter Gordon (2012) "Educational Financial Costs for High Schools in Jamaica", University of the West Indies and existing PCJ energy audits estimate that electricity bills are an average 2% of the operating budget for high schools in Jamaica. For the public agency Jamaican Information Service (JIS), electricity costs in 2016 were approximately 3% of its operations budget.

1.7 **Fuel consumption and urban mobility.** Road and rail transport consumes as much petroleum as electricity generation with an average of 6 million BOE consumed (2010-2015) annually in the country. For approximately 1.5 million habitants in the Kingston Metropolitan Region (KMR) there are about 300,000 vehicles. As 75% of households do not own a motor vehicle, public transportation is key for the majority of commuters and Jamaican Urban Transit Company Limited (JUTC) transports about 250,000 passengers daily across the KMR, making over 46.4 million annual trips across the 13 major transport corridors. Between 2010-2015, the government-owned bus company, JUTC, consumed between 8-10% of national fuel, roughly 16 million litres, costing the government an average of US$10 million annually. Estimates have shown that commuters across the KMR spend 155.2 million hours in travel times annually. The value of time for those hours saved can be expressed in terms of money that could have been earned in productive use.

1.8 **Green House Gas (GHG) Emissions.** The national inventory data for Jamaica[14] (base year 2012) shows a total of 14.3 million tons of Carbon Dioxide (CO_2) emissions, with 19.8% produced by electricity and heat production, followed by transportation contributing 12.4%. As a party to the United Nations Framework Convention on Climate Change (UNFCCC), Jamaica signaled its commitment to reduce emissions, as described in its Intended Nationally Determined Contribution (INDC). This commits the country to mitigate the equivalent of 1.1 million metric tons of CO_2 per year by 2030 versus the Business-As-Usual (BAU) scenario.[15] The reduction target is based on the Government's National Energy Policy (NEP), in particular, focusing on EE initiatives in the electricity and transportation sectors.

1.9 **Justification and Programme Strategy.** This Energy Management and Efficiency Programme ("EMEP" or "the programme") promotes EE and conservation as one approach to bring down the GOJ fuel bill, mitigates against volatile oil prices[16] and contribute to GHG emissions reduction. The programme targets the demand side of electricity generation and road transport sectors that consume over 45% of energy used in Jamaica. A more efficient use or conservation of these energy resources would free public funds through avoided oil imports, helping the GOJ to further reduce debt. Given the government's commitment to lead by example, the main focus of the programme is on outdated equipment and inefficient systems consuming electricity in public buildings/facilities, demonstrating the attractive economic and environmental return of EE retrofits and investments. The programme then turns to the issue of fuel conservation, recognizing the leap in technology of having coordinated traffic signals in the KMR and the tremendous benefit to commuters of increased mobility in congested areas, and fuel and CO_2 emissions avoided. Finally, for these project-level investments to be sustained or scaled-up, investments are needed in project management, electricity planning and supervision. Therefore, the programme addresses the issue of capacity building to strengthen the public institutions critical to the promotion of EE in Jamaica.

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[14] Dr. C. J. Dore (2015) "National GHG Emissions Inventory report of Jamaica, 2006-2012", November 2015.

[15] INDC of Jamaica - Communicated to the UNFCCC, 2015. 1.1 million metric tons CO_2 is a reduction of 7.8% of emissions versus BAU. Jamaica will conditionally increase its ambition to a reduction of GHG emissions of 10% below the BAU scenario, subject to the provision of international support.

[16] The price of a barrel of oil fluctuated in US$/(year) as follows: 61(2009), 94(2011), 97(2013) and 48(2015).

1.10 **Reducing electricity consumption in Public Sector Facilities (PSF).** The vision of the energy sector as articulated by the National Energy Policy (NEP) 2009-2030 is to create "a modern, efficient, diversified and environmentally sustainable energy sector providing affordable and accessible energy supplies with long term energy security and support by informed public behavior on energy issues and an appropriate policy regulatory and institutional framework". This vision is in harmony with Vision 2030 Jamaica: National Development Plan which purposes to achieve, among other outcomes, improved energy conservation and efficiency, RE development and institutional reform. As a sub-set to the NEP, the National Energy Conservation and Efficiency Policy, 2010-2030 seeks to prioritize EE interventions as follows: (i) continued adoption by households and businesses of energy conservation and efficiency practices towards reducing Jamaica's carbon footprint; (ii) creating an enabling legislative and regulatory environment; (iii) government institutions leading, and (iv) modernization of the energy sector.[17]

1.11 The NEP quantifies the possible outcome of implementing its objectives. With regards to the implementation of an EE improvement and conservation programme, the NEP projects (under a BAU scenario) a reduction in energy demand or 'savings potential' of 2 million BOE in 2015 and by 6 million BOE in 2020. The resulting reduction in the energy import bill is estimated at US$129 million in 2015 rising to US$555 million by 2020.

1.12 In 2015, of the 393GWh consumed by PSF, 88GWh (22.3%) were consumed by Health, Education and Public Agency (HEPA) government facilities, and these represent 1.6% of total electricity consumed in Jamaica. HEPA cost the GOJ US$23.7 million in electricity bills, 168,591 BOE[18] and implied over 400,000 tons of CO_2 equivalent (CO_2e) released into the atmosphere.[19]

1.13 After reviewing 106 existing audits and energy data for over 4,000 government facilities, the Bank, in collaboration with GOJ, identified a list of 73 government facilities whose electricity consumption (31.4GWh) represents 36% of HEPA and 8% of PSF consumption. In addition to high electricity consumption, other criteria[20] such as investment potential, public profile and utilization of the facility as an emergency shelter, helped to inform the selection. Some of the main electricity consumption challenges within the facilities identified were: (i) inefficient and obsolete lighting equipment; (ii) inefficient mini-split Air Conditioning (AC) units and reach-in refrigerators in the hospitals; (iii) lack of insulation of building envelopes; (iv) manually operated Heating, Ventilation and AC (HVAC) systems and units; (v) inefficient single panel glass windows allowing heat from the outside; and (vi) doors lacking functioning automatic door closers.[21]

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17 Supporting this goal, in 2011 the IDB-commissioned an 'Energy Efficiency and Conservation Technical Assistance Report' (EECTA) based on a review of 36 government facilities. The EECTA indicated that an investment of US$113 million had the potential of saving 101GWh/year, or 25% of the electricity consumption of the Jamaican public sector at the time (estimated at 411GWh/year).

18 As a fuel to generate the electricity that is consumed in HEPA facilities.

19 For calculations on BOE and CO_2e rate indicators are as 0.636 MWh/BOE and 1.09 ton CO_2e/MWh, respectively.

20 For detailed information on other criteria see Optional E-Link1.

21 IDB Report (2011) "EECTA".

1.14 This review process divided the list into 23 HEPA facilities for deep retrofits and 50 HEPA facilities for lighting retrofits to optimize a wider reach of facilities using a "deep" and "broad" retrofit approach. In order to progress with the retrofits for the first set of HEPA facilities, 6 hospital and schools were selected for Investment-Grade Audits (IGAs) to guide an analysis of the appropriate type of EE and RE technologies suited to each building, along with the capital investment required and the simple payback.[22] Based on that analysis the most cost-effective technologies identified were: (i) Light-Emitting Diode (LED) lighting[23] which provided the fastest payback with an average of 1 year return value; (ii) HVAC equipment with a 3-year average; (iii) building envelope measures, providing a 5-year payback average; and (iv) solar systems, which were selected for load-matching, providing an average 5-year return on investment.

1.15 Following the complete EE retrofit programme, the expected savings for GOJ are 15.4GWh per year in electricity bills (a 49% reduction in the current consumption), which implies savings of 30,000 BOE annually and 16,772 tons CO_2e per year not emitted. For this Component, the direct beneficiary is the GOJ who pays the electricity bills. However, other indirect beneficiaries will be patients, students and government personnel who are impacted by quality of the environment within the facilities.[24]

1.16 **Fuel efficiency through coordinated traffic management.** Traffic growth along some of the KMR key corridors has increased between 39-50% over the last 10 years (2005-2015). According to National Works Agency (NWA), during the first half of 2016, traffic entering and leaving the KMR during peak hours surpassed 100,000 vehicles per day. Fuel consumption associated with public transportation services increased by 34% (2010-2014), costing the GOJ from 11.1 to 16.1US$ million[25] in annual fuel bills.

1.17 An Intelligent Traffic System (ITS) Fuel study funded by the IDB, analyzed the current situation in the KMR through the lens of a standard vehicle, and estimated that total annual travel time in the KMR is 155.2 million hours. Currently, 95,140 litres are consumed in an hour, during peak hour traffic which, when expanded to peak hours within the week, reaches 5.7 million litres per week or 296 million litres of gasoline consumed a year, costing US$245 million per annum[26] resulting in 1.63 million BOE[27]/year and 579,203 emitted tons CO_2/year.

1.18 The absence of a complete Urban Traffic Management System (UTMS) to synchronize the operation of 161 traffic lights is a key factor causing congestion in the KMR contributing to the inefficiency in urban mobility and fuel inefficiency.

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[22] See Optional Electronic Link 2 for detail.

[23] These include fluorescent to LED fixture retrofit; occupancy sensor for interior lights and solar tubes.

[24] The EE retrofits will benefit 9 schools/institutions with a total of 15,400 students (7% of the total number of 214,000 pupils) and 4 hospitals which supply 1,496 beds to patients (31% of the total number of 4,865 hospital beds).

[25] Data from NWA Presentation on "JUTC Operating Costs 2010-2015" sourced from JUTC Service Planning Unit, Jamaica, 2016.

[26] For fuel savings calculations, the August 4th, 2016 price for Gasoline 87 (JMD 103.4128 per liter) from PETROJAM was used

[27] Here, a ratio of 0.005 BOE per litre of gasoline is used.

Traffic signals operate independently with no means of remote monitoring and control. Traffic signal controllers are not interconnected to a central control and there are no sensors, making it difficult to understand mobility patterns and to correspondingly adjust signal timing dynamically to match demand variations. In the case of the Urban Transport Development Project for Lebanon (2011), congestion in the main corridors was improved by increasing speed by 40% through implementing traffic control systems and management.[28] Other studies have shown that the benefits of investments in traffic signal systems outweigh the costs by 40:1 or more.[29]

1.19 Although over the past ten years the NWA has completed civil works and implemented traffic signal technology,[30] the system is only partially implemented and a comprehensive telematics system (ITS) is required to integrate all existing elements. Upgrades and modernization of the communications architecture is also needed to provide critical additions such as (i) a central control ITS integration platform for traffic monitoring, operation, planning and modelling; (ii) upgraded traffic controllers, closed-circuit television cameras, detectors, and communication switches at intersections to provide real-time traffic counts and patterns; and (iii) training and coaching of NWA staff for planning, operation and maintenance. As a parallel intervention, to support a more holistic approach to improved transportation management, the IDB is supporting a feasibility and regulatory analysis study to explore retrofitting public transportation with cleaner fuel equipment.[31]

1.20 According to IDB calculations, the full impact of the completed ITS system could mean average speeds increasing by 35% (from an average of 19 to 25km/h),[32] resulting in less idlying and stalling within the KMR transport corridors. The ITS system will save up to 55 million hours of travel time for all transport commuters of the 1.2 million population in KMR, which is equivalent to US$90.7 million[33]. As a result of travel time saved, 104 million litres of fuel can be avoided, which implies 203,160 tons CO_2e not emitted. For this component, the intended beneficiary population will be the 250,000 passengers utilizing public transportation and commuters within the 300,000 private vehicles in KMR.

1.21 **MSET's Integrated Resource (Electricity) Plan (IRP).** Whilst Jamaica has been one of the most active countries in the Caribbean from an energy policy perspective, there is currently no Government-led Electricity Plan to operationalize EE/RE targets. Supervision and regulation is constrained by a lack

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[28] World Bank. 2016. Lebanon—Urban Transport Development Project. Washington, D.C: World Bank Group. The improvement is due the increase of speed from 20 to 27.9km/h in 7 main corridors of the Grater Beirut Area.

[29] Benefits of Retiming Traffic Signals: An ITE Informational Report. Washington, DC: Institute of Transportation Engineers (ITE), 2005.

[30] These include civil works for trenching and tubing, interconnection of fiber-optic cables, insertion of wireless broadband, video camera systems installation, cable plant management, traffic management website improvements, and associated traffic signal controller standardization and upgrades.

[31] In September 2016, PCJ submitted a draft terms of reference for the study and requested from the IDB, non-reimbursable funds via ATN/KK-15522-RG.

[32] In the USA, a driver who spends two hours in the car commuting to and from work and running errands would save 117.5 hours per year as a benefit of improved signal timing. See report from The National Transportation Operations Coalition (2007) "National Traffic Signal Report Card".

[33] Taking the minimum wage and currency exchange rate from the IDB study date, the travel time savings can be expressed in US$.

of clarity of roles and responsibilities as well as limited capacity to implement the new legislation.[34]

1.22 Given this newly expanded mandate, the MSET will need to follow through with its mandate to produce and implement an IRP with a predictable regularity (i.e. updated at least every 3 years) which could provide investors' confidence that supply and demand-side resources will meet forecasted demand reliably, and at a lower cost for consumers. The IDB is currently supporting the MSET's IRP Planning Team with its first IRP but, as was highlighted in the Capacity Building Study in the MSET commissioned by the Bank, there is limited technical expertise and Information and Communications Technology capacity to implement and update the IRP including with regard to EE/RE targets. Whilst the planning team of 7 staff, have science, engineering and project management profiles, there is limited experience with electricity system planning and a lack of knowledge in three key areas: EE and demand-side management; electricity rate analysis, and transmission and distribution systems.

1.23 Therefore a critical step in the operational planning of MSET and PCJ, is building the capacity to provide supervision and project management respectively, to ensure the NEP is contributing to GOJ's EE and diversification objectives as well as the country's international commitments on GHG emissions.

1.24 **Bank experience and lessons learned.** Between 1973-2011 in Jamaica, the Bank approved and disbursed approximately seven loans (US$200 million) and eight technical co-operations (US$1.3 million) covering EE,[35] rural electrification, hydrocarbon exploration, hydroelectricity generation and private sector participation in energy development. In 2009, the IDB-funded Energy Efficiency and Conservation Technical Assistance Report (EECTA) (ATN/MC-11651-JA; US$349,030) supported implementing energy audits in buildings and the preparation of an investment loan (2629/OC-JA; US$20 million) entitled "Energy Efficiency and Conservation Programme" (EECP).

1.25 The EECP was approved in 2011 and over a 2.5 year period with US$3.6 million invested in solar control film application, cool roof solutions, air-conditioning retrofits, the programme achieved 1.076GWh/year or cost-savings of US$341,516/year, 666 BOE/year and 857 tons of avoided CO_2 emissions per year. Nevertheless, after 4 years, the programme experienced extensive delays in staffing and procurement, and additional procurement challenges, and was eventually cancelled. The key lessons learned from the EECP (2629/OC-JA) that have shaped the design of this current programme to ensure higher levels of execution are the following: (i) the Project Execution Unit (PEU) is now located within the PCJ which has greater experience with EE investment projects and is the mandated implementation agency of MSET; (ii) the PEU has a dedicated budget of 10% of programme funds (as opposed to only 4.7% in EECP) that will be used to retain experts in critical functions such as procurement, finance and programme management whilst providing expert support with other related issues such as monitoring and evaluation, environmental management, communications and training, electrical compliance; and (iii) the programme will

[34] J. Bailey (2016) "Contextual Report for the Governance Framework for OUR", Report to IDB; DNV-GL (2016) "Capacity Building in Ministry of Science, Energy and Technology", Report to the IDB.

[35] For more details please see lessons learned annex.

engage and train facilities personnel to ensure their participation in the EE retrofit programme whilst the IDB will provide on-going training and capacity building for the PEU in the Bank's and JICA's policies and systems, ensuing close coordination between the IDB technical team and PEU.

1.26 The IDB has carried out several projects across the Latin American and Caribbean region that provide additional lessons-learned for the current project, especially with regards to project management, procurement and cost-savings issues associated with EE retrofit programmes. See Lessons Learned Annex.

1.27 **Strategic alignment.** The programme is consistent with the Update to the Institutional Strategy 2010-2020 (AB-3008) and is strategically aligned with productivity and innovation, as Component I supports the efficient management of public expenditure and debt via the reduction of energy costs in HEPA government facilities. Additionally, Component 2 will help to reduce hours spent travelling and stalling in congested KMR corridors, thus transferring this time for more productive uses.[36] The programme is also aligned with the cross-cutting issues of: (i) climate change and environmental sustainability by reducing carbon emissions; and (ii) institutional capacity and the rule of law, by strengthening MSET's information technology infrastructure and expertise required to update its IRP. Additionally, the programme will contribute to the Corporate Results Framework 2016-2019 (GN-2727-6) by: (i) reducing carbon emissions; and (ii) by strengthening MSET's capacity to update its IRP.

1.28 The programme is included in the Bank's Operational Programme OPR-2016 (GN-2849) and aligns with the strategic objective of improved public sector management of the IDB's Country Strategy with Jamaica 2016-2021 (GN-2868) in that it will reduce government expenditure on electricity bills through a 49% reduction in GWh in the 73 HEPA government facilities targeted. The net savings from the investment will reduce fiscal expenses of the public sector. Additionally, the programme is consistent with the Bank's Climate Change Sector Framework Document (GN-2835-3) as the main components of the programme will contribute to avoid approximately 228,835 tons of CO_2e annual emissions in Jamaica and therefore to IDB's climate finance-mitigation goals. According to the Joint Multilateral Development Bank approach on climate finance tracking, an estimated 87% of total IDB funding for this project is invested in climate change mitigation-energy efficiency activities. This contributes to the IDB Bank Group's climate finance goal of 30% of combined IDB and the Inter-American Investment Corporation operational approvals by year's end 2020.

1.29 The programme is aligned with the Sustainable Infrastructure for Competitiveness and Inclusive Growth Strategy (GN-2710-5) and with the Energy Sector Framework Document (GN-2830-3), in that it: (i) promotes EE, and the diversification and sustainability of energy supply; and (ii) promotes good governance by supporting technical capacity for electricity planning. The programme is also consistent with the Transportation Sector Framework Document (GN-2740-3) in that it promotes sustainable transportation, new technologies, and climate change adaptation.

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[36] Wendell Cox (2009) "Traffic Congestion, Time, Money and Productivity" see www.newgeography.com ; Remy Prud'homme and Chang-Woon Lee (1999) "Size, Sprawl, Speed and the Efficiency of Cities" Urban Studies October, 1999, 36: 1849-1858.

B. Objective, Components and Cost

1.30 **Objective.** The general objective of this programme is to promote energy efficiency in government facilities and fuel conservation in road transportation by contributing to the avoidance of fuel imports. The specific objectives and expected results of this programme are: (i) reduced electricity consumption within health, education and public agency government facilities, which translates into lower CO_2 emissions; (ii) reduced travel times and avoided fuel consumption through improved traffic control management, which translates to lower CO_2 emissions; and (iii) increased capacity within the MSET to enable it to update its IRP for Jamaica.

1.31 **Component 1. Retrofitting HEPA Government Facilities (US$21.13 M) -** will finance EE and conservation measures in 73 HEPA government facilities, with deep, comprehensive retrofits in 23 government facilities and LED lighting retrofits in 50 facilities. Activities in this component include: (i) IGAs for 17 facilities; (ii) the purchase, installation, operation and maintenance of EE technologies and measures in government facilities,[37] including related waste disposal activities;[38] (iii) training workshops and manuals for facilities personnel; and (iv) a communications and raising awareness campaign focused on disseminating the results of the programme and sensitizing the public and private sector to EE standards, particularly those highlighted within the Building Code.[39]

1.32 **Component 2. Implementation of an UTMS (US$3.50 M)**- will finance the purchase and installation of equipment to complete the UTMS in Kingston and consists of: (i) a central control ITS integration platform for traffic monitoring, operation, planning and modelling; (ii) upgraded traffic controllers, closed-circuit television cameras, detectors, and communication switches at intersections to provide real-time traffic counts and patterns; and (iii) training and coaching of NWA staff for planning, operation and maintenance of the UTMS.

1.33 **Component 3. Support to electricity planning (US$1.78M)**- provides MSET with additional expertise and systems capacity. In particular: (i) training and coaching[40] to support the implementation of the IRP; (ii) contracting of technical experts knowledgeable in EE and demand side management, electricity sales and rates, and transmission and distribution to supplement MSET expertise and provide on-the-job training; (iii) technical studies to support the implementation of the IRP; (iv) a diagnostic study to understand the most appropriate software/IT platform required for implementing and updating the IRP; and (v) the purchase and installation of appropriate software/IT for IRP implementation.

1.34 **Project management and other costs (US$3.58 M)**- will support the PEU through the contracting of consultant expertise for programme, financial and procurement management. This component will also support the contracting of additional experts such as those covering: environmental impact management,

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37 This takes into account building envelope measures associated EE retrofits, and costs associated with customs storage and fees.

38 A Waste Management Plan was developed by Acorn Ltd in August 2016 to guide actions to be taken by contractors/suppliers.

39 Jamaica's Building Code (that includes energy efficiency standards) is a voluntary standard. However, there are efforts to establish a National Building Act to make the Building Code mandatory.

40 Training includes: distributed generation and reliability modelling in IRP; Dispatch; Production Costing Procedures and Systems and Policy Parameters and Trade-off Measures.

electricity safety and compliance, quantity surveying, and monitoring and evaluation. Associated with project management are other activities such as monitoring and evaluation, mid-term and final evaluations and financial audits for the programme.

C. Key Results Indicators

1.35 **Expected results.** As indicated in Annex II, the expected outcomes at the end of the programme are: (i) an annual reduction of electricity consumption in 73 HEPA government facilities of 15.4GWh which translates to 25,673 tons of CO_2 equivalent emissions avoided a year; (ii) approximately 104 million litres of transport fuel avoided annually, which translates to 203,160 tons of CO_2 equivalent emissions a year avoided as a result of 55 million hours of travel time reduced per year; (iii) the strengthening of expertise and capacity within MSET to enable it to update and revise its IRP at least once over the duration of the programme. The programme outputs are: (i) EE equipment installed and operating as part of a deep retrofit approach in 23 HEPA government facilities, including IGA's and waste disposal activities; (ii) EE lighting technology replaced, installed, and operating in 50 HEPA government facilities; (iii) 5 communication activities completed to raise awareness on EE management and maintenance in HEPA government facilities, including 3 workshops developed and 2 multimedia campaigns; (iv) Equipment to upgrade the central control system and to modernize and coordinate the traffic signals for the UTMS in Kingston is purchased, installed and operating; (v) 4 capacity building packages (a combination of workshop, online training and communication awareness campaign) on the ITS are delivered; (vi) 2 technical studies to support IRP revision or updated are completed; (vii) 3 training modules to support technical capacity in MSET are delivered and (viii) 3 technical experts are contracted to reinforce capacity and develop training plans within MSET to enable staff to revise or update the IRP.

1.36 **Gender additionality.** The transport and EE/RE industry are sectors that could potentially offer job opportunities and improve women's economic opportunities in Jamaica. Women are under-represented in these sectors, they are not in technical or decision-making positions, and they earn between 8-17%[41] less than men. Approximately 350 people will receive training throughout the 3 Components of this programme, of which 50 are estimated to be government agency employees and 300 to be personnel in charge of Facility Maintenance and Management (FMM) within HEPA facilities. Within HEPA government facilities, it is estimated that women represent only 22% of the total personnel in FMM. Taking this into account, the programme will include as additionality, a target to ensure that 25% of people trained are women given that they are under-represented in technical positions within FMM (see Gender Annex).[42] These training opportunities will allow more women in Jamaica to gain new skills, develop their networks and be exposed to new technologies and practices,

[41] Bellony, Annelle; Hoyos Alejandro; and Nopo, Hugo (2010). Gender Earning Gaps in the Caribbean: Evidence from Barbados and Jamaica. IDB: Washington DC.

[42] Other energy programmes financed by the Bank have promoted the inclusion of women in the sector by encouraging their participation in training. For example, the training objective in energy projects in Ecuador (3187/OC-EC,3188/CH-EC and 3494/CH-EC,3494/OC-EC) set up a gender target of 40% and 10% respectively of the total number of employees trained.

resulting in better job opportunities both in the EE/RE sector, as well as in the transport sector.

1.37 **Cost-Benefit Analysis (CBA).** A CBA for the project was developed for each one of the main components of the project. Each component was analyzed separately taking into account the very different nature of each one.[43]

1.38 CBA for EE Retrofits in HEPA Government Facilities. With respect to the CBA for Component 1, two economic evaluations were undertaken using 12% as the discount rate. The first one comprises the CBA for first set of 6 public facilities. The benefits consist of electricity savings (direct effect) and the reduction of CO_2 emissions (externality). Considering a 20-year reference period to capture the overall economic life of the project assets, the Economic Net Present Value (ENPV) is US$3,014,513 and the results for the base case show an Economic Internal Rate of Return (EIRR) of 19%. A sensitivity analysis was done for two changes: (i) increase/decrease 20% of the investment costs; and (ii) increase/decrease 20% of the electricity price, and the programme still proved to be economically robust. Note that the base case scenario does not include a monetary valuation of the CO_2 emissions reduction (4,407 tons/year). If it were included assuming US$37/ton as benefit – the assumption used in the fuel efficiency component, the EIRR would increase to 20.8% and the ENPV would increase to US$3,899,855.

1.39 The second economic evaluation is for the investment for lighting retrofit in 38 buildings. The results for the base case show an EIRR of 67% and the ENPV is US$5,005,159. A sensitivity analysis was also performed to test the impact of significant changes to investment costs and the electricity price, and the programme still proved to be economically robust.

1.40 CBA for UTMS - Fuel Efficiency. Taking into account the existing infrastructure installed by NWA (US$9.97 million), the additional costs of hard and software investments (US$3.5 million) to complete and maintain the UTMS is approximately US$13.47 million. Benefits are estimated within a 10-year period, which peak at 100% in year 5 and 6, decreasing thereafter due to increased population and vehicle ownership. With this estimation, the EIRR of the intervention stands at 28%.[44] Benefits are based on the sustainability triangle that includes savings in fuel consumption (economic impact), savings in pollutant emissions (environmental impact) and savings in travel time (social impact). Compared with a BAU scenario, fuel consumption and CO_2 emissions are reduced by 35% when the system is fully operational, whilst travel hours in peak time are reduced by 36%. The sensitivity analysis performed, that considers changes in CAPEX, fuel prices, travel time savings, and a delay in materializing benefits, shows that the EIRR varies between 23% and 45%, from the original estimation of 43%, demonstrating that Component 2 is economically robust.

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[43] Component 3 “Support to Electricity Planning” was included in the CBAs of both Component 1 and 2 in order to determine the institutional benefits of EE interventions. This institutional capacity aspect of EE is considered instrumental to the execution of both Components 1 and 2.

[44] The CBA for Component 2 considers benefits with two scenarios of investment: (i) Capex1: Cost to put the project in place or US$3.5million; and (ii) Capex2: Cost to put the project in place plus an estimate value of the existing technological and civil infrastructure of US$9.97million to bring the total value of investments to US$13.47million. Since the investment of the project is completing the UTSM, the economic benefits are evaluated with Capex 2.

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing Instruments

2.1 The cost of the programme is estimated at US$30,000,000. The programme is a Specific Investment Operation in which US$15 million will be financed by the Bank's Ordinary Capital (OC) resources and US$15 million will be provided as parallel financing by the JICA through the CORE[45] mechanism with the IDB.

Table 1: Project Cost by Source and Component (in US$)

Components		IDB	JICA (parallel financing)	Total
1	Component 1: Retrofitting HEPA Government Facilities	10,567,500	10,567,500	21,135,000
2	Component 2: Implementation of an Urban Traffic Management System	1,750,000	1,750,000	3,500,000
3	Component 3 – Support to Electricity Planning	890,000	890,000	1,780,000
4	Project Management and Other Costs:	1,792,500	1,792,500	3,585,000
4.1	Financial Audits	90,000	90,000	180,000
4.2	Mid-term & Final Evaluation	50,000	50,000	100,000
4.3	M&E and Audit	125,000	125,000	250,000
4.4	Project Management	1,527,500	1,527,500	3,055,000
	TOTAL	**15,000,000**	**15,000,000**	**30,000,000**

2.2 **Disbursement period.** It is expected that all resources will have a 6 years disbursement period. Loan resources are to be fully disbursed within 72 months from the effective date of the loan agreement. Table 2 shows total programme disbursement combining IDB and JICA resources over the programme period.

Table 2: Projected Disbursements in US$ million

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Total project disbursement	3.6	5.4	6.0	6.0	5.4	3.6	30.0
Percentage (disbursed / total)	12%	18%	20%	20%	18%	12%	100%

B. Environmental and Social Safeguard Risks

2.3 In accordance with OP-703 and the Bank's safeguard filters, the programme has been classified as B as it will have net positive environmental effects due to the potential impacts in GHG emission reductions, substitution of fossil fuel based electricity generation and climate change mitigation brought by the implementation of EE measures. The type of operations currently envisioned for

[45] CORE is a co-financing mechanism established in March 2012 and amended in March 2014 and April 2016 where by JICA commits to provide Latin America and the Caribbean region with highly concessional loans of up to US$3,000 million as a co-financing resource with the Bank to support RE and EE projects/programmes, aiming at expanding high quality infrastructure in the region. The IDB will act as project administrator under CORE. The Board approval of JICA is expected no later than the end of December, 2016. JICA resources are needed in order for the programme to achieve the proposed objectives and disbursements of those resources will be made on a pari-passu basis with the Bank resources for the joint procurement of programme activities.

support by the programme are likely to have minimal to moderate adverse environmental impact.

2.4 Potential minor environmental impacts and risks associated with the programme will occur during the installation phase and will be primarily associated with the EE retrofits in existing buildings. Main construction impacts include noise; dust generation; generation of waste materials (hazardous and non-hazardous); and occupational health and safety risks for the workforce. These potential impacts and risks are considered minor and can be adequately mitigated and managed through the implementation of the Environmental and Social Management Plan (ESMP).

2.5 Therefore, medium and high environmental and social risks identified in the project's risk analysis are: (i) contamination to environmental receptors due to inadequate handling and disposal of materials and equipment during the upgrade of facilities; mitigated with specific programme funds to implement GOJ's waste disposal guidelines as they relate to waste produced by the programme[46] and (ii) natural disasters that could affect the government's facilities to be retrofitted under Component 1 due to its location along Jamaica's coast line; mitigated by ensuring there are contractual obligation for Contractors to install EE/RE equipment according to international standards, and providing programme funds for annual inspections of equipment installed.

2.6 In compliance with OP-703, an Environmental and Social Assessment (ESA) was carried out and an Environmental and Social Management Report (ESMR) was produced. The ESA has been disclosed according OP-102 and a public consultation meeting was conducted on 22 September, 2016 at the PCJ auditorium. The public meeting was advertised in the local newspaper and a presentation was prepared and delivered in accordance with the Bank's Policies[47].

2.7 A special contractual clause for the execution of the programme will be that the Execution Agency (EA) has approved the ESMP with the Bank's no objection. During the programme's execution, and throughout the life of the loan, the EA will comply with the environmental and social conditions established in the Operating Manual (OM) of the programme.

2.8 The PEU will prepare annual reports concerning their environmental and social performance with respect to the Bank's policies and directives. The Bank will have the option to conduct supervision of the environmental and social performance of the programme, throughout its duration.

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[46] Contractors will be required to transport waste to designated storage or disposal sites as described within GOJ guidelines (expected for Q2, 2017). Programme funds will enable the PEU to contract a company to support the handling and management of waste in collaboration with, and under the supervision of the National Environment Protection Agency and National Solid Waste Management Authority and Ministry of Economic Growth and Job Creation (MEGJC).

[47] The public meeting was attended by 40 people and it was organized in accordance with the Bank's ESG B.6 Policy on Public Consultations which is part of OP-703. The main objective of the public consultation meeting was to enhance the project's stakeholder engagement process and to better inform the general public. For further details please refer to the Public Consultation Report.

C. Fiduciary Risk

2.9 Given strong systems for internal control, compliance and financial reporting within PCJ, the Bank's assessment using the, Institutional Capacity Assessment (ICAS), has deemed the fiduciary risk of the programme to be low. Notwithstanding the fiduciary capacity of the PCJ, previous experiences of the Bank showed that the EA will need to be strengthened from a project management perspective, to execute the new loan. The main fiduciary risk identified relates to a lack of awareness of and experience with IDB fiduciary policies, procedures and by extension, IDB and JICA's requirements. This risk will be mitigated by the recruitment of a financial and procurement specialist as well as a programme manager, prior to first disbursement of the programme, as well as through continuous training of the PEU (see Annex III).

2.10 Additionally, to provide the requisite skills and capacity to implement the current programme, approximately 10% of total funds will be used to bolster the PEU's ability to undertake project management. IDB will provide training in its as well as JICA's procurement processes early in the programme implementation.

D. Other Risks and Key Issues

2.11 In addition to the environmental and fiduciary risks noted above, the overall risk analysis classifies the main risks associated with this programme as 'medium'. Risks classified as medium and the corresponding mitigation areas are the following: (i) a lack of coordination among government agencies participating in the programme that could slow down the execution; to mitigate this risk, the PEU will establish an Energy Management and Efficiency Project Coordination Committee (EMEPCC) which will initially meet quarterly during the first two years of the programme and thereafter, biannually. The EMEPCC will be represented by beneficiary government Ministries/agencies to help guide strategic decision making and keep updated on programme's progress; (ii) vulnerability of the country to external economic and natural shocks with negative consequences on fiscal space and project implementation priority; which will be mitigated by the fact that fiscal savings will keep the attractiveness of the programme, validated by annual M&E reports on the savings provided; and (iii) capacity building could result in trained staff leaving posts for better positions; which will be mitigated by establishing agreements with beneficiary ministries/agencies to consider performance incentives for high performing staff who complete training.

2.12 **Sustainability.** The prime contractors (together with their sub-contractors) responsible for implementing the retrofit plan in selected government facilities, will be tasked with ensuring that all purchased EE equipment have associated operational and maintenance guarantees. Once these initial contracts expire, facility managers and maintenance personnel that have been trained throughout the implementation of the programme, will be able to effectively take over these activities. For Component 2, the design of the UTMS proposes equipment with 5-10 year 'mean time to failure' and the responsibility of the operation and maintenance of the UTMS will be undertaken by the Traffic Management Unit (TMU) of the NWA whose personnel that have received appropriate training and certification in the areas of traffic signal and fiber optic cable installation and maintenance. The TMU receives annual funding for traffic management and road safety and some of these funds will be earmarked to help with the recurring expenses of the UTMS installation and maintenance. With regards to electricity

planning in MSET and EE project management in PCJ, building the capacity of existing staff (through coaching with consultant experts) will enable these institutions to strengthen their expertise beyond the duration of this programme.

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Summary of Implementation Arrangements

3.1 **Borrower and EA.** The Borrower will be Jamaica and the EA responsible for the execution of the programme will be PCJ, a separate legal entity from the Executive Branch. From the ICAS review, PCJ is reported to be well managed, with strong systems for internal control, compliance and financial reporting.

3.2 PCJ will be the sole EA and PCJ's Board of Directors through its Group General Manager, will be responsible for the fiduciary management of the programme and will liaise with PCJ's Finance Department at it relates to the processing of payments, accounting and financial reporting of the programme. Prior to execution of the programme, the EA shall provide evidence that collaboration agreements between the Borrower and the MSET, and the EA and the NWA, to facilitate the execution of activities related to those entities, have entered into effect.

3.3 PCJ will execute the programme through a specially created PEU which will report to PCJ's General Manager. The governance arrangements between the PEU and the General Manager of PCJ who also chairs the EMEPCC will be detailed in the OM. For Component 1, in accordance with the IGAs prepared in advance, the PEU will contract prime contractors (who together with their subcontractors) will be responsible for a group of government facilities with respect to the purchase, installation, maintenance and operation of the EE retrofits. The programme envisions approximately 4 groups containing a number of similar government facilities. The Ministry of Finance and Public Service (MOFPS) who own/rents the facilities, and representatives from HEPA ministries/agencies on the EMPECC will provide additional support and strategic guidance to ensure access to facilities and smooth implementation of this Component. To strengthen and complement the contractors EE retrofit programme, the PEU will provide capacity building for facilities personnel, support on waste management disposal, monitoring and evaluation of progress and general awareness raising of EE. For Component 2, utilizing the IDB detailed technical specification, and via a turn-key contract, the PEU will purchase the necessary equipment and capacity building measures required for the ITS which completes the UTMS. With technical and operational assistance from the sub-project officer for NWA, the PEU will supervise the installation, operation and maintenance of the ITS. For Component 3, with technical and operational assistance from the MSET sub-project officer and utilizing guidance from the MSET Capacity Building Plan, the PEU will contract consulting firms and individuals to provide IRP execution support to the MSET. As in the case of the other components, the PEU will be required to ensure timely implementation and progress against stated objectives.

3.4 Bank procurement policies will apply, as explained in ¶3.10 below. As defined in the OM, the IDB and JICA will disburse funds to the MOFPS. The PEU executes

upon receipt of a 'no-objection' from IDB and JICA. Reporting will be semi-annual basis and follow standard reporting framework outlined in the OM.

3.5 The PEU will be in charge of coordinating programme activities with participating government ministries/agencies, procurement execution (including the hiring of external auditors), contract supervision, internal control and financial management, including the submission of disbursement requests, preparation and submission of audited financial statements, compliance with local and IDB environmental and consultation requirements in the implementation of programme activities, and risk management.

3.6 A budget assignment for contracting specialists for the PEU is provided within the programme given that the scope of activities covers capital investment in buildings and transport, as well as activities for electricity planning, and that there are donor reporting requirements.

3.7 The PEU is guided by the Financial Administration and Audit Act and International Financial Reporting Standards for financial management. The Central Government uses the Financial Management software for accounting purposes; this is fairly new and still in its implementation stage. The PEU will use the Microsoft Dynamics for the programme accounting purposes. This facilitates both a US$ and J$ transactions and general ledger; budgeting; reporting and other core accounting functions.

3.8 The following are special contractual conditions prior to first disbursement. **The borrower shall provide evidence that: (i) the PEU has been created and that the Programme Manager, Financial Specialist and Procurement Specialist have been appointed and/or selected, pursuant to terms of reference satisfactory to the Bank; (ii) the Project OM has been approved with the terms previously agreed with the Bank, including fiduciary management and inter-institutional governance arrangements, JICA specific terms and conditions from the Framework Agreement and the Disbursement Handbook, and the environmental and social obligations stated in Section VI of the ESMR; (iii) the agreement between the Borrower and the EA for the transfer of loan resources together with project implementation obligations, in accordance with terms previously agreed with the Bank has entered into effect; and (iv) the JICA loan agreement between the Borrower and JICA has entered into effect.**

3.9 Special Contractual Clause prior to the execution of the programme: the Borrower shall provide evidence that collaboration agreements between the EA and each of the MSET and the NWA, to facilitate the execution of the respective activities related to those entities, have entered into effect.

3.10 **Procurement.** The procurement of works, goods, services and consultancy services for activities and contracts shall be done in accordance with the Bank Policy for the procurement of Goods and Works (GN-2349-9), Bank Policy for the selection and contracting consultants (GN-2350-9), and the Bank Policy for use of country systems, as may be amended from time to time. The Procurement Plan includes details on procurement for the first 18 months of execution. Activities may be amended accordingly, by agreement between the EA and the Bank. The EA will update the Procurement Plan at least once every twelve months. The Procurement Supervision method will be determined by the Bank for each selection process and will start with an ex-ante approach.

3.11 Every year during the implementation of the programme, the PEU will present an Annual Operation Plans (POA) to the Bank for its no-objection. The POA will detail the Project's progress and execution of activities including goals, results, budget and implementation schedule for the year ahead. The Pluriannual Execution Plan (PEP) details the programme's progress and implementation schedule for the outstanding years of the loan. An initial POA and PEP were prepared for the first year of programme execution.

3.12 **External control and reporting.** The external audit of the programme will be done by independent public accountants that are acceptable to the bank and will follow the guidelines set in the Bank's Financial Management Guidelines (OP-273-6) and Financial Reports and External Audits Handbook for Bank financed operations. Standard financial reporting requirements of the Bank will apply including: (i) Annual Financial System of the programme which will be submitted to the Bank within 120 days following the end of each fiscal year of the EA; and (ii) a date of the last disbursement of the loan. The costs for the audits will be financed with resources from the programme.

B. Summary of Arrangements for Monitoring Results

3.13 The programme has a Monitoring and Evaluation Plan (M&EP) which includes monitoring and reporting requirements as well as programme evaluation mechanisms. Administrative monitoring and control will focus on the fulfillment of procedural regulations governing administrative, financial, accounting, and legal matters, in accordance with national guidelines, those of the Bank, and those specified in the programme's OM.

3.14 **Semi-annual progress report.** The EA, through the PEU, will send the Bank semi-annual progress reports to be submitted no later than 60 days after the end of each semester as described in the M&EP. Semi-annual progress reports will explain the degree of fulfillment of the output indicators and progress toward the outcomes of the Results Matrix making it possible for the Bank to monitor these indicators using the Bank's Project Monitoring Report tool. Semi-annual progress reports will also include the PEP, POA and Procurement Plan.

3.15 **Project evaluation.** As detailed in the M&EP the PEU will select and contract external consulting services to undertake a Mid-term Evaluation once 50% of the financing has been disbursed and justified, or after 3 years from the date of the first disbursement, whichever happens first. This evaluation will focus on analyzing progress achieved, aspects of coordination and execution, and recommendations to attain the proposed targets and investment sustainability. Also, a final evaluation to be submitted to the Bank no later than 120 days after the final disbursement justification. This evaluation will include: (i) the degree of fulfillment of the targets specified in the Results Matrix; (ii) an ex-post CBA; (iii) an assessment of the performance of the EA; (iv) factors affecting implementation; and (v) lessons learned and recommendations for the design of future operations. The Final Evaluation will allow the Bank to finalize the Project Completion Report.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives	**Aligned**		
Development Challenges & Cross-cutting Themes	**-Productivity and Innovation -Climate Change and Environmental Sustainability -Institutional Capacity and the Rule of Law**		
Regional Context Indicators	**-Greenhouse gas emissions (kg of CO2 e per $1 GDP (PPP))**		
Country Development Results Indicators	**-Reduction of emissions with support of IDBG financing (annual million tons CO2 e) -Government agencies benefited by projects that strengthen technological and managerial tools to improve public service delivery (#)**		
2. Country Strategy Development Objectives	**Aligned**		
Country Strategy Results Matrix	**GN-2868**	**Reduce government expenditure on electricity utility bills.**	
Country Program Results Matrix	**GN-2849**	**The intervention is included in the 2016 Operational Program.**	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability	**Highly Evaluable**	**Weight**	**Maximum Score**
	9.0		**10**
3. Evidence-based Assessment & Solution	**9.6**	**33.33%**	**10**
3.1 Program Diagnosis	**3.0**		
3.2 Proposed Interventions or Solutions	**3.6**		
3.3 Results Matrix Quality	**3.0**		
4. Ex ante Economic Analysis	**10.0**	**33.33%**	**10**
4.1 The program has an ERR/NPV, a Cost-Effectiveness Analysis or a General Economic Analysis	**4.0**		
4.2 Identified and Quantified Benefits	**1.5**		
4.3 Identified and Quantified Costs	**1.5**		
4.4 Reasonable Assumptions	**1.5**		
4.5 Sensitivity Analysis	**1.5**		
5. Monitoring and Evaluation	**7.5**	**33.33%**	**10**
5.1 Monitoring Mechanisms	**2.5**		
5.2 Evaluation Plan	**5.0**		
III. Risks & Mitigation Monitoring Matrix			
Overall risks rate = magnitude of risks*likelihood	**Medium**		
Identified risks have been rated for magnitude and likelihood	**Yes**		
Mitigation measures have been identified for major risks	**Yes**		
Mitigation measures have indicators for tracking their implementation	**Yes**		
Environmental & social risk classification	**B**		
IV. IDB´s Role - Additionality			
The project relies on the use of country systems			
Fiduciary (VPC/FMP Criteria)	**Yes**	**Financial Management: Budget, Accounting and Reporting, External control, Internal Audit.**	
Non-Fiduciary			
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality	**Yes**	**The project will include a gender target aimed at promoting women's participation in the technical trainings in Energy Management and Planning in public buildings (such as schools, hospitals and government agencies) and trafic management and control. The gender target will aim at ensuring that al least 25% of people trained by this project are women.**	
Labor			
Environment			
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project			
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan			

Note: (*) Indicates contribution to the corresponding CRF's Country Development Results Indicator.

The general objective of this program is to promote energy efficiency in government facilities and fuel conservation in road transportation to reduce the debt of the government by avoiding fuel imports. The specific objectives are: (i) to reduce electricity consumption within health, education and public agency government facilities, which translates in lower CO2 emissions; (ii) to reduce travel times and avoid fuel consumption through improved traffic control management, which also translates in lower CO2 emissions; and (iii) to increase capacity within the Ministry of Science, Energy and Technology to enable it to update its Integrated Resource Plan (IRP) for Jamaica.

The POD presents a solid diagnosis of the problems to be addressed by the project and its dimensions. The interventions proposed are linked to the problems identified and potential beneficiaries are identified. Although the POD presents evidence showing the effectiveness of similar interventions in achieving the results proposed, there is no external validity as the evidence presented comes from other countries, such as the United States, whose contexts may not be similar to Jamaica.

The results matrix has a clear vertical logic and indicators presented are SMART, have baselines, targets, and means of verification.

The project presents a solid cost-benefit analysis. The main economic benefits quantified for the energy efficiency retrofits in government building are electricity savings and CO2 emissions reductions. For the fuel efficiency component the main economic benefits quantified are reductions in travel times, fuel consumption savings, and CO2 emissions reductions. The results show a positive net present value and an internal rate of return above 12%. Also economic profitability is maintained under multiple scenarios of sensitivity.

The monitoring plan is solid, details all monitoring instruments that will be used, and presents the total and annual costs for all outputs identified in the results matrix. The evaluation plan is based on an ex-post economic analysis and a before-and-after methodology.

The risk matrix of the operation presents reasonable risks, specific mitigation measures, and adequate monitoring indicators.

RESULTS MATRIX

Project objective:	The general objective of this programme is to promote Energy Efficiency (EE) in government facilities and fuel conservation in road transportation by contributing to the avoidance of fuel imports. The specific objectives and expected results of this programme are: (i) reduced electricity consumption within health, education and public agency government facilities, which translates into lower Carbon Dioxide (CO_2) emissions; (ii) reduced travel times and avoided fuel consumption through improved traffic control management, which translates to lower CO_2 emissions; and (iii) increased capacity within the Ministry of Science, Energy and Technology (MSET) to enable it to update its Integrated Resource Plan (IRP) for Jamaica.

Component 1 Retrofitting HEPA Government Facilities Results Indicators	**Units**	**Base (2015)**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Final Target (EOP)**	**Source of Verification/ Comments**
Expected Result 1: Reduced electricity consumed in 73 Health, Education and Public Agency (HEPA) government facilities										
Annual electricity consumed in 73 HEPA[1] government facilities	kWh	**31,377,402**	-	-	-	-	-	-	**16,004,807**	Biannual Report from Petroleum Corporation of Jamaica (PCJ) M&E consulting firm report
Expected Result 2: Reduced CO_2 emissions resulting from reduced electricity consumption in 73 HEPA government facilities										
Annual GHG emissions resulting from kWh consumed in 73 HEPA government facilities	Tons of CO_2 equivalent	**52,401.25**	-	-	-	-	-	-	**26,728.53**	Biannual Report from PCJ M&E consulting firm report

[1] HEPA refers to Health, Education, and Public Agency Government facilities.

Component 1: Retrofitting HEPA Government Facilities Output Indicators	**Units**	**Base (2015)**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Final Target (EOP)**	**Source of Verification/ Comments**
HEPA government facilities with EE[2] equipment replaced, installed and operating	# of government facilities	0	0	2	4	7	5	5	23	Biannual reports from PCJ 17 Investment Grade Audits will be completed to achieve these outputs. Waste Disposal management activities will be completed to achieve these outputs.
EE light technology replaced, installed and operating in HEPA government facilities	# of government facilities	0	0	0	20	30	0	0	50	Biannual reports from PCJ EE light technology may include Light-Emitted Diode (LED).
Communication activities completed to raise awareness on EE management & maintenance[3] in HEPA government facilities	# of activities	0	0	1	1	1	1	1	5	Biannual reports from PCJ List of participant and follow-up monitoring to participants per workshop Activities include workshops (3) and multimedia campaigns (2)
EE manuals developed for management and maintenance of HEPA government facilities	# of manuals	0	0	0	0	1	1	1	3	Biannual reports from PCJ

[2] EE measures include HVAC, lighting, solar PV and building envelope measures.
[3] A minimum of 25% of personnel trained must be women.

Component 2 Implementation of an Urban Traffic Management System (UTMS) Results Indicators	**Units**	**Base (2015)**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Final Target EOP**	**Source of Verification/ Comments**
Expected Result 1: Reduced transport fuel consumed in the Kingston Metropolitan Region (KMR)										
Annual fuel consumed by traffic in the KMR corridors	Million litres	**296.8**	0	0	0	0	0	0	**192.7**	Biannual report from National Works Agency (NWA) Independent M&E Report
Expected Result 2: Reduced CO2 emissions resulting from reduced transport fuel consumed in the KMR										
Annual GHG equivalent emissions resulting from transport fuel consumed in KMR corridors.	Tons of CO_2 equivalen t	**579,203**	0	0	0	0	0	0	**376,044**	Biannual Report from PCJ M&E consulting firm report
Expected Result 3: Reduced hours of annual travel time in the KMR										
Annual hours of travel time in the KMR corridors	Million hours	**155.2**	0	0	0	0	0	0	**99.96**	Biannual Report from NWA M&E consulting firm report

Component 2: Implementation of an UTMS Output Indicators	**Units**	**Base (2015)**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Final Target EOP**	**Source of Verification/ Comments**
Equipment necessary to upgrade the central control system purchased, installed and operating	Binary (yes =1 no = 0)	0	0	1	0	0	0	0	1	Biannual report from NWA Independent M&E Report Equipment will be used for traffic monitoring, operation, planning and modelling
Equipment necessary to modernize and coordinate traffic signals purchased, installed and operating.	Binary (yes =1 no = 0)	0	0	1	0	0	0	0	1	Biannual report from NWA Independent M&E Report Includes upgraded traffic controllers, closed-circuit television cameras, detectors, and communication switches at intersections.

Number of Packages[4] of Support for Training and Capacity Building in Intelligent Transportation System[5] delivered	# of packages	0	0	2	2	0	0	0	4	Biannual report from NWA Independent M&E Report Includes System training; Planning training; Sun-Guide training and Coaching

Component 3 **Support to Electricity Planning** **Result Indicator**	**Units**	**Base (2015)**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Final Target EOP**	**Source of Verification/ Comments**
Expected Result 1: Formal updates or revisions of IRP performed by MSET on a timely basis										
Number of formal updates or revisions of the IRP performed by MSET	# of updates/revisions	0	0	0	0	1	0	0	1	Biannual report from MSET Independent M&E Report Formal updates/revisions imply that the Ministry has approved the update or revision.

Component 3: **Support to Electricity Planning** **Output Indicators**	**Units**	**Base (2015)**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Final Target EOP**	**Source of Verification/ Comments**
Number of technical studies to support IRP revision or update completed	# of studies	0	0	0	1	1	0	0	2	Biannual report from MSET Independent M&E Report. This includes studies on electrical losses, and integrated energy planning
Number of training modules completed to support technical capacity in MSET to revise or update IRP[6]	# training modules	0	1	0	1	0	1	0	3	Biannual report from MSET Independent M&E Report Training includes: distributed generation and reliability modelling in IRP; Dispatch, Production Costing Procedures and Systems and Policy Parameters and Trade-off Measures.

[4] Includes a combination of workshops and online training
[5] A minimum of 25% of personnel trained must be women.
[6] A minimum of 25% of personnel trained must be women.

Number of technical experts contracted to reinforce capacity and develop training plans within MSET to enable staff to revise/update IRP	# technical experts	0	0	1	0	0	2	0	3	Biannual report from MSET Independent M&E Report. Experts to be contracted in the following areas: EE and Demand-Side Management; Electricity Sales and Rates and Transmission & Distribution
Diagnostic study completed on IT software required in MSET to support IRP coordination	Binary (yes =1 no = 0)	0	0	1	0	0	0	0	1	Biannual report from MSET Independent M&E Report Study to prioritize software and IT platforms that would add value to IRP coordination and planning.
Appropriate IT software for coordinating IRP purchased, installed and operating	# of software	0	0	0	1	0	1	0	2	Biannual report from MSET Independent M&E Report

NOTES:

(1) Further details on how to calculate each of the indicators are provided in Appendix A of the Monitoring and Evaluation Plan.

(2) The targets in the results matrix are targets for each year, as opposed to cumulative targets up to the year.

FIDUCIARY ARRANGEMENTS

Executing Agency:	Petroleum Corporation of Jamaica (PCJ)
Prepared by:	Naveen Jainauth-Umrao, Financial Specialist; Rene Herrera, Senior Procurement Specialist; Leon Ferguson, Procurement Consultant; Leon Ferguson, Procurement Consultant; Leon Ferguson, Procurement Consultant and Martin Nesbeth, Financial Consultant (FMP/CJA)

I. EXECUTIVE SUMMARY

1.1 The fiduciary management evaluation of the programme was performed during May 2016 using the Institutional Capacity Assessment System (ICAS) methodology, as well as through a series of interviews with the management team of the PCJ. The evaluation indicates that the programme has a low fiduciary risk, and as such, it is believed that the PCJ; (i) based on the current structures and fiduciary systems in place; and (ii) once it has the Programme Executing Unit (PEU) established, will have the capacity to execute the programme. The Procurement ex-ante reviews and capacity building exercises conducted with the current PEU which will execute the pending programme, suggest that the requisite institutional capacity is present. However, considering the complex nature of the programme and anticipated increase in funding and funding sources, there is need for an experienced team compliment.

1.2 The Government of Jamaica (GOJ) continues, with assistance from major donors, to address key improvements to its fiduciary systems. The donor community is committed to working with the GOJ to determine the extent to which the country fiduciary systems can be used for the administration of donor-financed projects.

1.3 For this programme, in the area of financial management, the Bank is recommending the use of the Auditor General's Department (AuGD) the Government accounting institution for external control. Currently, the portfolio of the Bank is managed through the establishment of special PEU for the majority of the projects. In addition, the Bank conducts a close operational supervision on these PEU, and provides training as needed on Bank's policies and procedures. At the country's fiduciary management level the employment of the *Fin Man* accounting system is implemented for treasury and financial administration. However, the PEU will employ the Microsoft Dynamics software and other assisted software which satisfies the financial administration requirement of the Bank.

1.4 The programme will be co-financed by Japan International Corporation Agency (JICA), and does not include local counterpart. No sub-executors are envisaged.

II. EXECUTING AGENCY'S FIDUCIARY CONTEXT

2.1 The PCJ is guided by the Financial Administration and Audit Act (FAAA) and International Financial Reporting Standards (IFRS) for financial management. The Central Government uses the *Fin Man* software for accounting purposes.

The PEU uses the Microsoft Dynamics for the project accounting purposes. This facilitates both a US$ and J$ transactions and general ledger; budgeting; reporting and other core accounting functions.

2.2 The Executing Agency (EA) has a history of implementation of projects placed under their responsibility, including one currently financed by United Nations Development Programme. There are also in-house projects implemented by the PCJ as this tie with their main mandate to drive energy conservation and energy saving for Jamaica. The GOJ public procurement system has shown improvement over the past few years and is considered to be approaching international standards. This reform effort is still underway and the country's public procurement system is not yet recommended for this programme.

2.3 With the addition of this programme, it is anticipated that additional manpower would be required. Consequently a Finance Specialist and Procurement Specialist will be contracted to provide the necessary institutional strengthening to the PEU.

III. FIDUCIARY RISK ASSESSMENT AND MITIGATING ACTIONS

3.1 The overall fiduciary risk of the programme, which was evaluated using the ICAS methodology, is deemed to be low. The fiduciary evaluation was done mainly of the PCJ since the PEU for the programme has not yet been established. Notwithstanding this, there were a few risks as outlined below that were deemed medium risk and which could have an impact on the programme. These risks however do not affect the overall risk of the programme.

Table 1: Migation Risk and Rating

Risk	Risk rating	Mitigation measures
1. Weak financial management capacity of the PEU.	Low	The Procurement and Accounting personnel should be recruited and assigned to the programme in a timely manner. Personnel should be suitably skilled and qualified and preferably with experience in managing donor funded projects. **Responsibility for implementation:** PEU/Borrower **Timeline for implementation:** Prior to 1st disbursement of the loan
2. Lack of awareness of IDB procurement, disbursements and financial reporting procedures.	Medium	Create capacity within the PEU through in house training on IDB's procurement, financial management procedures and requirements. **Responsibility for implementation:** IDB **Timeline for implementation**: During programme design and throughout programme execution.

IV. ASPECTS TO BE CONSIDERED IN THE SPECIAL CONDITIONS OF THE LOAN CONTRACT

4.1 In order to facilitate the negotiation of the operation, outlined below are agreements and requirements which will be incorporated into the special conditions:

a. **Special conditions: precedent to first disbursement.** To include the following requirements:

i. The three strategic positions of the PEU been appointed and/or selected, pursuant to terms of reference satisfactory to the Bank;

ii. The Project Operating Manual (OM) has been approved with the terms previously agreed with the Bank, including fiduciary management and inter-institutional governance arrangements, JICA specific terms and conditions from the Framework Agreement and the Disbursement Handbook, and the environmental and social obligations stated in Section VI of the ESMR;

iii. The agreement between the Borrower and the EA for the transfer of loan resources together with project implementation obligations, in accordance with terms previously agreed with the Bank has entered into effect and;

iv. The JICA loan agreement between the Borrower and JICA has entered into effect.

b. **Special conditions: precedent to execution.** Prior to the execution of the programme, the Borrower shall provide evidence that collaboration agreements between the EA and each of the Ministry of Science, Energy and Technology (MSET), and the National Works Agency (NWA), to facilitate the execution of the respective activities related to those entities, have entered into effect.

c. **Rate of exchange agreed with the EA.** If the programme's expenditures have been incurred in local currency, the EA and the Bank will agree on the exchange rate to be used in the justification and reimbursement. For purposes of the justification of expenditures to the Bank (including reimbursement/recognition of expenditures, and local counterpart) the equivalent amount to be reported in the project or disbursement currency will be determined using the effect exchange rate used to convert the funds denominated in the programme's currency to the local currency.

d. **Financial Statements and Reports.** Annual Audited Financial Statements (AFS) of the programme are to be submitted to the Bank within 120 days after the close of each fiscal period, in addition to Final AFS, which are due for submission to the Bank within 120 days of the close (last disbursement date) of the programme. The AFS should report on the overall programme, in the expressed currency of the loan. The AFS of the programme should include, in addition to the basic financial statements, an internal control report.

V. REQUIREMENTS AND ARRANGEMENTS FOR EXECUTION OF PROCUREMENT

5.1 **Procurement execution.** Procurements for the proposed project will be carried out in accordance with the Policies for the Procurement of Works and Goods Financed by the Inter-American Development Bank (GN-2349-9) of March 2011, and the Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank (GN-2350-9) of March 2011, with the provisions established in the Loan Contract and the procurement plan.

a. **Procurement of Goods, Works, and Non-Consulting Services.** The procurement plan for the Energy Management and Efficiency Programme (EMEP) covering the first 18 months of project execution will indicate the procedure to be used for the procurement of Goods, the contracting of Works and Non Consulting Services. The review of technical specifications

in all cases, during the process of selection is the responsibility of the sector specialist of the programme.

b. **Procurement of Consulting Services.** The procurement plan for the EMEP covering the first 18 months of programme execution indicates the procedure to be used for the procurement of Consultancy Services, and the method of selecting Consultants. The EA is responsible for preparing and implementing the programme, and therefore for preparing the Terms of Reference, short lists, selecting the Consultants, and awarding and subsequently administering the contract, with Bank supervision.

c. **Recurring Expenses.** Include payment of utilities and other office operating expenses of the PEU.

Table 2. Country Threshold Table (US$Thousands) www.iadb.org/procurement

THRESHOLDS				
International Competitive Bidding Threshold*		**National Competitive Bidding Range** (Complex Works and non-common goods)**		**Consulting Services**
Works	**Goods**	**Works**	**Goods**	**International Short List**
≥1,500,000	≥150,000	150,000–1,500,000	25,000-150,000	≥200,000

* When procuring simple works and common goods and their amount is under the International Competitive Bidding thresholds, Shopping may be used.
** When procuring complex works and non-common goods with amounts under the NCB range, Shopping shall be used.

5.2 **Procurement Plan (PP).** The procurement plan indicates the procedure to be used for the procurement of Goods, the contracting of Works or Services, and the method of selecting Consultants, for each contract or group of contracts. It also indicates cases requiring prequalification, the estimated cost of each contract or group of contracts and the requirement for prior or post review by the Bank. The PP will be posted on the Bank's website and will be updated annually or whenever necessary, or as required by the Bank.

5.3 **Procurement Supervision.** The review method for all procurement actions will be ex-ante as the PP is not available at the time of preparing Annex III. If a procurement activity is moved to ex-post, the ex-post procurement supervision should take place at least once every 12 months, in accordance with the supervision plan of the programme.

5.4 **Records and Files.** All records and files will be maintained by the PEU, according to accepted best practices, and be kept for up to 3 years beyond the end of the operation's execution period.

VI. FIDUCIARY MANAGEMENT

6.1 **Programmeming and budget.** Each year, the Ministry of Finance and the Public Service (MOFPS) publishes a Budget Circular requesting the submission of estimates of income and expenditure from ministries and other agencies for inclusion in the National Budget for the following fiscal year, April 1 to March 31.

6.2 The PEU will prepare annual estimates in the required format for the review and approval by the Board of Directors (BoD) of the PCJ (or Group General Manager in the absence of a governing BoD). The estimates will consider the total cost of

financing required for execution of the programme. The budget is presented to Parliament before the close of the fiscal year. Once the budget is approved, amendments are made through the submission of Supplementary Budget by the MOFPS.

6.3 The Borrower has committed to allocate, for each fiscal year of project execution, adequate fiscal space to guarantee the unfettered execution of the project; as determined by normal operative instruments such as the Annual Operating Plan (POA), the Financial Plan and the PP.

6.4 Even though no counterpart resources are contemplated in the original project budget, the Borrower will undertake to provide all required resources for the total and effective completion of the project activities.

6.5 **Accounting and information systems.** Project accounting will be performed using Microsoft Dynamics accounting software, in accordance with the FAAA and IFRS; IDB's financial management requirements; the modified cash basis of accounting, which is a comprehensive basis of accounting other an IFRS. It is expected that the accounting system will facilitate the recording and classification of all financial transactions, provide information related to: planned vs. actual financial execution for the programme; the financial execution plan for the next 180 days that will be attached to each request for Advance of Funds. Additionally, the list of commitments will also accompany any request for Advance of Funds.

6.6 **Disbursements and cash flow.** Whenever resources from the financing are requested through an Advance of Funds, they will be deposited into a Special Consolidated Fund Account at the Central Bank or a designated account at a commercial bank, denominated in US$.

6.7 The PEU commits to maintain strict control over the utilization of the Advance so as to ensure the easy verification and reconciliation of balances between the Executing Agency's records and IDB records (WLMS1).

6.8 Eligible expenditures, authorized by the Project Team Leader and incurred prior to the approval of this project will be reimbursed to the Borrower, in accordance with current Bank policy.

6.9 The project will provide adequate justification of the existing Advance of Funds balance, whenever 80% of said balance has been spent. Advances will normally cover a period not exceeding 180 days and no less than 90 days. The following disbursement methodologies will be used for the programme:

a. Reimbursement of Payments Made (will be minimally used).
b. Direct Payment to Supplier (for large foreign payments).
c. Advance of Funds (to provide for the liquidity needs and facilitate the day to day operations).

6.10 Generally, supporting documentation for Justifications of Advances and Reimbursement of Payments made will be kept at the office of the PEU. Supporting documentation for direct payments will be sent to the Bank for processing. In light of the experience garnered from the current and former operations the modality for disbursement will be ex-post.

6.11 **Internal control and internal audit.** The management of the project, at the level of both the EA and the PEU, will assume the responsibility for designing and implementing a sound system of internal control for the project.

6.12 **External control and reports.** For each fiscal year during project execution, the PCJ will be responsible to submit AFS for the programme. These Financial Statements will be audited by an independent public accounting firm approved by the Bank's country office. A final AFS is to be submitted to the Bank within 120 days from the date of last disbursement.

6.13 **Financial supervision plan.** Financial Supervision Plan will be developed by the IDB based on the initial and subsequent risk assessments carried out for the programme. Financial, Accounting and Institutional Inspection visits will be performed at least once per year, covering, among others things, the following topics:

a. Review of the bank reconciliation and supporting documentation for Advances and Justifications.
b. Review of compliance with the Programme OM.
c. Conducting ex-post Reviews.

6.14 **Execution mechanism.** The programme execution structure will be composed of the EA, a Programme Steering Committee (PSC) and a PEU which will be established within the PCJ and will execute the programme. The PSC, chaired by the PCJ, and comprising representatives from PCJ, MSET, NWA, Ministry of Agriculture, Ministry of Education, Ministry of Health, National Environment and Planning Agency as well as representatives from statutory organizations, will be formed to provide strategic direction, and technical oversight of the programme and the PEU.

6.15 The PEU will have three strategic positions: one Programme Manager, one Procurement Specialist and one Financial Specialist. The Programme Manager will enable smooth day-to-day operations of the programme. The Programme OM further describes the recommended PEU composition and their responsibilities. The Borrower will be responsible for the administration of loan financing and procurement processes. Specific PEU duties include: (i) preparation of semi-annual progress reports; (ii) preparation, and implementation of the POA; (iii) preparation of budgets, and disbursements; (iv) preparation of the PP; (v) financial administration of the programme according to accepted accounting principles and presenting audited financial statements; (vi) ensuring the quality and efficacy of procurement processes and their compliance with both the policies of the Bank and that of the GOJ; (vii) ensuring the consistent alignment of expected programme results with day-to-day programme implementation as well as continuous data collection to enable the measurement of the indicators included in the Results Matrix; and (viii) being programme liaison with the Bank.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-__/__

Jamaica. Loan ____/OC-JA to Jamaica
Energy Management and Efficiency Programme

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with Jamaica, as Borrower, for the purpose of granting it a financing to cooperate in the execution of an energy management and efficiency programme. Such financing will be for the amount of up to US$15,000,000 from the resources of the Bank's Ordinary Capital, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on _____)

LEG/SGO/CCB/IDBDOCS#40708122
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